SECURITIES AND EXCHANGE COMMISSION

17 CFR Parts 240, 242, and 249

[Release No. 34–90610, File No. S7–03–20]

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Market Data Infrastructure

AGENCY: Securities and Exchange Commission.

ACTION: Final rule.

SUMMARY: The Securities and Exchange Commission (''Commission'' or ''SEC'') is amending Regulation National Market System (''Regulation NMS'') under the Securities Exchange Act of 1934 (''Exchange Act'') to modernize the national market system for the collection, consolidation, and dissemination of information with respect to quotations for and transactions in national market system (''NMS'') stocks (''NMS information''). Specifically, the Commission is expanding the content of NMS information that is required to be collected, consolidated, and disseminated as part of the national market system under Regulation NMS and is amending the method by which such NMS information is collected, calculated, and disseminated by fostering a competitive environment for the dissemination of NMS information via a decentralized consolidation model with competing consolidators.

DATES: *Effective date:* The final rules are effective June 8, 2021.

Compliance dates: The applicable compliance dates are discussed in Section III.H, titled ''Transition Period and Compliance Dates.''

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SUPPLEMENTARY INFORMATION: The Commission is adopting 17 CFR 242.614 (new Rule 614) under the Exchange Act, Form CC to require registration of competing consolidators, and a requirement that the participants to the effective national market system plan(s) for NMS stocks amend such plan(s) to reflect the new role and functions of the plan(s). The Commission is also adopting amendments to the following rules:

Commission reference	CFR citation (17 CFR)
Exchange Act:	
Rule 3a51–1	§ 240.3a51–1.
Rule 13h–1	§ 240.13h–1.
Regulation NMS:	§§ 242.600 through 242.613.
Rule 600(b)(2)	§ 242.600(b)(2).
Rule 600(b)(5)	§ 242.600(b)(5).
Rule 600(b)(16)	§ 242.600(b)(16).
Rule 600(b)(19)	§ 242.600(b)(19).
Rule 600(b)(20)	§ 242.600(b)(20).
Rule 600(b)(21)	§ 242.600(b)(21).
Rule 600(b)(26)	§ 242.600(b)(26).
Rule 600(b)(50)	§ 242.600(b)(50).
Rule 600(b)(59)	§ 242.600(b)(59).
Rule 600(b)(68)	§ 242.600(b)(68).
Rule 600(b)(70)	§ 242.600(b)(70).
Rule 600(b)(78)	§ 242.600(b)(78).
Rule 600(b)(82)	§ 242.600(b)(82).
Rule 600(b)(83)	§ 242.600(b)(83).
Rule 600(b)(85)	§ 242.600(b)(85).
Rule 602	§ 242.602.
Rule 603	§ 242.603.
Rule 611	§ 242.611.
Regulation SCI:	§§ 242.1000 through 242.1007.
Rule 1000	§ 242.1000.
Forms, Exchange Act:	Part 249.
Form CC	§ 249.1002.
Form SCI	§ 249.1900.

Finally, the Commission is adopting conforming changes and updates to cross-references in:

Commission reference	CFR citation (17 CFR)
Exchange Act:	
Rule 105(b)(1)(i)(C)	§ 242.105(b)(1)(i)(C).
Rule 105(b)(1)(ii)	§ 242.105(b)(1)(ii).
Rule 201(a)(1)	§ 242.201(a)(1).
Rule 201(a)(2)	§ 242.201(a)(2).

Commission reference	CFR citation (17 CFR)
Rule 201(a)(3)	§ 242.201(a)(3).
Rule 201(a)(4)	§ 242.201(a)(4).
Rule 201(a)(5)	§ 242.201(a)(5).
Rule 201(a)(6)	§ 242.201(a)(6).
Rule 201(a)(7)	§ 242.201(a)(7).
Rule 201(a)(9)	§ 242.201(a)(9).
Rule 201(b)(1)(ii)	§ 242.201(b)(1)(ii).
Rule 201(b)(3)	§ 242.201(b)(3).
Rule 204(g)(2)	§ 242.204(g)(2).
Rule 600	§ 242.600.
Rule 602	§ 242.602.
Rule 611(c)	§ 242.611(c).

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I. Introduction and Background

The widespread availability of timely NMS information is critical to the ability of market participants to participate effectively in the U.S. securities markets. NMS information is made widely available to investors through the national market system, a system set forth by Congress in Section 11A of the Exchange Act [1] and facilitated by the Commission in Regulation NMS. The current national market system for NMS information was developed in the late 1970s, and the Commission is adopting changes that will modernize the national market system for NMS information for the benefit of investors.

Section 11A of the Exchange Act directs the Commission to facilitate the establishment of a national market system for the trading of securities in accordance with the Congressional findings and objectives set forth in Section 11A(a)(1) of the Exchange Act.[2] Among the findings and objectives of Section 11A(a)(1) are that new data processing and communications techniques create the opportunity for more efficient and effective market operations,[3] and that it is in the public interest and appropriate for the protection of investors and the maintenance of fair and orderly markets to ensure the availability to brokers, dealers, and investors of information with respect to quotations for and transactions in securities.[4] Section 11A of the Exchange Act also authorizes the Commission to prescribe rules to ensure the ''prompt, accurate, reliable, and fair collection, processing, distribution, and publication of information with respect to quotations for and transactions in such securities and the fairness and usefulness of the form and content of such information.'' [5] In furtherance of these purposes, the Commission has sought through its rules and regulations to help ensure that certain ''core data'' [6] is widely available for reasonable fees.[7] The Commission has recognized that investors must have certain core data ''to participate in the U.S. equity markets.'' [8]

On February 14, 2020, the Commission proposed to amend Regulation NMS to better achieve the goal of Section 11A of the Exchange Act of assuring ''the availability to brokers, dealers, and investors of information with respect to quotations for and transactions in securities'' that is prompt, accurate, reliable, and fair.[9] The amendments as adopted endeavor to fulfill this goal of Section 11A of the Exchange Act by updating the content of ''core data'' and the manner in which it is provided to investors in the national market system.

A. Current Market Data Content and Dissemination Model Under Regulation NMS

The Commission established many of the current requirements of the national market system under Regulation NMS and approved the three effective national market system plans shortly after Congress enacted Section 11A in the 1975 amendments to the Exchange Act (''1975 Amendments'').[10] Under Regulation NMS and the Equity Data Plans,[11] the self-regulatory organizations (''SROs'') are required to provide certain quotation[12] and transaction information[13] for each NMS stock to an exclusive plan processor (''exclusive SIP''),[14] which consolidates

[1] 15 U.S.C. 78k–1.

[2] 15 U.S.C. 78k–1(a)(1).

[3] *See* 15 U.S.C. 78k–1(a)(1)(B). *See also* S. Rep. No. 94–75, 94th Cong., 1st Sess. (1975) (noting that the systems for collecting and distributing consolidated market data would ''form the heart of the national market system'').

[4] *See* 15 U.S.C. 78k–1(a)(1)(C).

[5] 15 U.S.C. 78k–1(c)(1)(B).

[6] *See infra* note 17 and accompanying text (defining ''core data'').

[7] *See* Rule 603 of Regulation NMS; *see also, e.g.,* Securities Exchange Act Release No. 51808 (June 9, 2005), 70 FR 37496, 37560 (June 29, 2005) (''Regulation NMS Adopting Release'') (''In the Proposing Release, the Commission emphasized that one of its primary goals with respect to market data is to assure reasonable fees that promote the wide public availability of consolidated market data.'').

[8] Regulation NMS Adopting Release, *supra* note 7, at 37560.

[9] *See* Securities Exchange Act Release No. 88216 (Feb. 14, 2020), 85 FR 16726, 27 (Mar. 24, 2020) (''Market Data Infrastructure Proposing Release'' or ''Proposing Release'').

[10] The three effective national market system plans that govern the collection, consolidation, processing, and dissemination of certain NMS information are: (1) The Consolidated Tape Association Plan (''CTA Plan''); (2) the Consolidated Quotation Plan (''CQ Plan''); and (3) the Joint Self-Regulatory Organization Plan Governing the Collection, Consolidation, and Dissemination of Quotation and Transaction Information for Nasdaq-Listed Securities Traded on Exchanges on an Unlisted Trading Privileges Basis (''UTP Plan'') (together, the ''Equity Data Plans''). Each of the Equity Data Plans is an effective national market system plan under 17 CFR 242.608 (Rule 608) of Regulation NMS. *See also* Securities Exchange Act Release Nos. 10787 (May 10, 1974), 39 FR 17799 (order approving CTA Plan); 15009 (July 28, 1978), 43 FR 34851 (Aug. 7, 1978) (order temporarily approving CQ Plan); 16518 (Jan. 22, 1980), 45 FR 6521 (Jan. 28, 1980) (order permanently approving CQ Plan); 28146 (June 26, 1990), 55 FR 27917 (July 6, 1990) (order approving UTP Plan). The options exchanges are participants in the Limited Liability Company Agreement of Options Price Reporting Authority, LLC (''OPRA Plan''), a plan under Rule 608 of Regulation NMS, which governs the collection, consolidation, processing, and dissemination of last sale and quotation information for listed options. *See* Securities Exchange Act Release Nos. 17638 (Mar. 18, 1981), 22 SEC. Docket 484 (Mar. 31, 1981); 61367 (Jan. 15, 2010), 75 FR 3765 (Jan. 22, 2010).

[11] Rule 603(b) of Regulation NMS, 17 CFR 242.603(b), requires that every national securities exchange on which an NMS stock is traded and national securities association act jointly pursuant to one or more effective national market system plans to disseminate consolidated information on quotations for and transactions in NMS stocks, and that such plan or plans provide for the dissemination of all consolidated information for an individual NMS stock through a single plan processor.

[12] *See* Rule 602 of Regulation NMS.

[13] *See* 17 CFR 242.601 (Rule 601 of Regulation NMS).

[14] *See* Rule 600(b)(67) of Regulation NMS, 17 CFR 242.600(b)(67) (defining plan processor). *See also*

this information and makes it available to market participants on the consolidated tapes.[15] For each NMS stock, the Equity Data Plans currently provide for the dissemination of top-of-book (''TOB'') data and transaction information, generally defining consolidated market information (or ''core data'') as consisting of: (1) The price, size, and exchange of the last sale; (2) each exchange's current highest bid and lowest offer and the shares available at those prices; and (3) the national best bid and national best offer (''NBBO'') [16] (*i.e.,* the highest bid and lowest offer currently available on any exchange).[17] In addition to disseminating core data, the exclusive SIPs collect, calculate, and disseminate certain regulatory data—including information required by the National Market System Plan to Address Extraordinary Market Volatility (''LULD Plan''),[18] information relating to regulatory halts and market-wide circuit breakers, and information regarding the short-sale price test pursuant to Rule 201 of Regulation SHO.[19] They also collect and disseminate other NMS information and disseminate certain administrative messages.[20] Together with core data, the Commission refers to this broader set of data for purposes of this release as ''SIP data.''

The purpose of the Equity Data Plans, approved under Regulation NMS, is to facilitate the collection and dissemination of SIP data so that the public has ready access to a ''comprehensive, accurate, and reliable source of information for the prices and volume of any NMS stock at any time during the trading day.''[21] Widespread availability of timely market information promotes fair and efficient markets and facilitates the ability of brokers and dealers to provide best execution to their customers.[22] Many of the requirements under Regulation NMS and the Equity Data Plans that establish the national market system have not been updated since their adoption despite dramatic changes in the operation of the market and market participants' information needs.[23]

In addition to the SIP data provided via the Equity Data Plans, most exchanges have developed many proprietary TOB products that contain the quotation and transaction data that they provide to the exclusive SIPs as well as proprietary depth-of-book (''DOB'') products that contain more extensive information that is not provided by the exclusive SIPs, such as complete order-by-order information, full depth of book information, auction information, and odd-lot quotation information.[24] The exchanges provide individual exchange proprietary data products directly to market participants and sometimes consolidate them with their affiliated exchanges' proprietary data feeds. The exchanges make these proprietary data products available with different connectivity and transmission options, many of which are faster than those available for the consolidated tapes. Market participants that purchase proprietary DOB data feeds directly generally aggregate the information in a decentralized manner in an effort to create a consolidated view of the market that is both more timely and more complete than the exclusive SIP data feeds provided by the Equity Data Plans.

As discussed further below, Regulation NMS and the Equity Data Plans have not kept pace with the business demands of market participants.[25] While the exchanges have developed individual proprietary data products to meet the needs of some market participants, the Commission believes that there should be improvement to, and modernization of, the national market system to fulfill the goals of Section 11A of the Exchange Act and to meet the current core data demands of market participants.[26] Over

Section 3(a)(22)(B) of the Exchange Act, 15 U.S.C. 78c(22)(B) (defining exclusive processor).

[15] The Equity Data Plans disseminate SIP data over three separate networks: (1) Tape A for securities listed on the New York Stock Exchange (''NYSE''); (2) Tape B for securities listed on exchanges other than NYSE and Nasdaq; and (3) Tape C for securities listed on Nasdaq. These tapes are referred to as the ''consolidated tapes.'' The CTA Plan governs the collection, consolidation, processing, and dissemination of last sale information for Tape A and Tape B securities. The CQ Plan governs the collection, consolidation, processing, and dissemination of quotation information for Tape A and Tape B securities. Finally, the UTP Plan governs the collection, consolidation, processing, and dissemination of last sale and quotation information for Tape C securities.

[16] *See* Rule 600(b)(50) of Regulation NMS for the definition of NBBO.

[17] *See Bloomberg Order, infra* note 22, at 3; *see also* Rescission of Effective-Upon-Filing Procedures for NMS Plan Fee Amendments, Securities Exchange Act Release No. 89618 (Aug. 19, 2020), 85 FR 65470 (Oct. 15, 2020) (''Effective-Upon-Filing Adopting Release'').

[18] *See* Limit Up Limit Down Plan, *available at http://www.luldplan.com (last accessed Sept. 24, 2020).*

[19] Rule 201(b)(3).

[20] For example, messages regarding cancelled and erroneous trades are included in the data disseminated by the exclusive SIPs. *See, e.g.,* Consolidated Tape System, Multicast Output Binary Specification, 36, 47 (October 2, 2020), *available at https://www.ctaplan.com/publicdocs/ctaplan/CTS_Pillar_Output_Specification.pdf.*

[21] Concept Release on Equity Market Structure, Securities Exchange Act Release No. 61358 (Jan. 14, 2010), 75 FR 3593 (Jan. 21, 2010).

[22] *See In the Matter of the Application of Bloomberg L.P.,* Securities Exchange Act Release No. 83755 at 3 (July 31, 2018), *available at https://www.sec.gov/litigation/opinions/2018/34-83755.pdf* (''*Bloomberg Order*''); SEC Concept Release: Regulation of Market Information Fees and Revenues, Securities Exchange Act Release No. 42208 (Dec. 9, 1999), 64 FR 70613, 70615 (Dec. 17, 1999) (''Market Information Concept Release'') (stating that the distribution of core data ''is the principal tool for enhancing the transparency of the buying and selling interest in a security, for addressing the fragmentation of buying and selling interest among different market centers, and for facilitating the best execution of customers' orders by their broker-dealers'').

[23] *See* Proposing Release, 85 FR at 16728, n. 13 and accompanying text.

[24] While the pre-Regulation NMS rules permitted the independent distribution of quotes by individual SROs, Rule 603(a) of Regulation NMS, 17 CFR 242.603(a), was adopted to impose ''uniform standards'' on such distribution (*i.e.,* the ''fair and reasonable'' and ''not unreasonably discriminatory'' standards). *See* Regulation NMS Adopting Release, *supra* note 7, at 37569. Prior to Regulation NMS, however, SROs and their members were prohibited from disseminating their trade reports independently. *Id.* at 37589.

[25] *See infra* Section III.A.

[26] Commenters generally expressed concern that SIP data provided by the Equity Data Plans was not sufficient for some market participants. *See, e.g.,* letters to Vanessa Countryman, Secretary, Commission, from Mehmet Kinak, Vice President and Global Head of Systematic Trading and Market Structure, and Jonathan D. Siegel, Vice President and Senior Legal Counsel, Legislative and Regulatory Affairs, T. Rowe Price, dated June 3, 2020, (''T. Rowe Price Letter'') at 1 (''Unfortunately, as the SIPs have not kept pace with the dramatic technological and market developments over the past decade, they are no longer satisfying the needs of a broad cross-section of market participants. Due to its limited content and higher latency, the usage of SIP data is adequate only for investors that visually consume NMS information (*e.g.,* humans looking at quotes on a screen''); Thomas M. Merritt, Deputy General Counsel, Virtu Financial, Inc., dated May 26, 2020, (''Virtu Letter'') at 2 (''the 'core data' offered through the SIPs is no longer sufficient for most market participants to trade competitively in today's market place.''), 5; Michael Blasi, Vice President, Enterprise Infrastructure, and Krista Ryan, Vice President and Associate General Counsel, Fidelity Investments, dated May 26, 2020, (''Fidelity Letter'') at 2 (''the SIPs have not kept pace with the U.S. equity markets which, through technological and market developments, now offer more products, faster, and at a lower cost.''); Joseph J. Barry, Senior Vice President and Global Head of Regulatory, Industry, and Government Affairs, State Street Corporation, dated May 26, 2020, (''State Street Letter'') at 2 (''. . . regulatory obligations and customer expectations related to best execution, transaction cost analysis, transparency and market competition generated further need for data that is unavailable on the SIPs. As a result, market participants have become increasingly dependent on proprietary data feeds marketed by the exchanges outside of the SIPs.''); Hubert De Jesus, Managing Director, Global Head of Market Structure and Electronic Trading, and Samantha DeZur, Director, Global Public Policy, BlackRock, Inc., dated May 26, 2020, (''BlackRock Letter'') at 1 (''However, the current model for and content of NMS market data has not kept pace with the evolution in equity markets and correspondingly the quality of the Securities Information Processors (''SIPs'') has declined, lowering public confidence in the market.''); Jennifer W. Han, Associate General Counsel, Managed Funds Association, dated May 29, 2020, (''MFA Letter'') at 2 (''Today, the current exclusive SIP model and content of core data does not serve the needs of investors, many of whom must subscribe to the exchanges' proprietary market data feeds at considerable additional cost to trade

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the last 15 years, the exchanges have moved from largely manual, floor-based models to predominantly electronic trading systems and market participants have likewise largely incorporated sophisticated, latency-sensitive, and data dependent electronic trading technologies for their trading needs. This has contributed to some market participants stating that they require additional, and more timely, information for their best execution analysis.[27] The Commission agrees that more comprehensive and latency-sensitive NMS information can be significantly beneficial in facilitating informed trading decisions, and the Commission believes that such information should be more widely distributed and more readily accessible. Further, while the proprietary DOB products provided by exchanges contain the data elements included within expanded core data, commenters have stated that the cost of these proprietary market data products inhibits the purchase of, and the widespread dissemination of, this data to market participants that may need it to participate effectively in the markets.[28] The Commission is concerned that the two different methods of data dissemination—SIP data provided pursuant to Regulation NMS and the Equity Data Plans and proprietary data products provided by the exchanges—have contributed to the development of a two-tiered data market that raises fundamental concerns about the ability of the national market system to continue to ensure that the goals of Section 11A of the Exchange Act are being met, including: (i) Fair competition among brokers and dealers;[29] (ii) the availability to brokers, dealers, and investors of NMS information;[30] and (iii) the practicability of brokers executing investors' orders at the best available prices.[31] Section 11A of the Exchange Act directs the Commission to facilitate the establishment of a national market system in accordance with these, and other, Congressional findings. Therefore, the Commission believes that Regulation NMS should be amended to update the national market system in accordance with the findings and to carry out the objectives set forth in Section 11A and to ''assure the prompt, accurate, reliable, and fair collection, processing, distribution, and publication'' of NMS information and ''the fairness and usefulness of the form and content of such information.''[32]

B. National Market System Initiatives and the Market Data Infrastructure Proposing Release

The Commission has monitored the national market system and its operation in light of changes in the markets and, over the years, has observed increased concerns about the usefulness, fairness, and promptness of the consolidated tapes. The Division of Trading and Markets held a Roundtable on Market Data in October of 2018,[33] at which some market participants discussed their views about the shortcomings of the existing centralized consolidation model and the need for updates to the national market system to reflect the now widespread use of electronic trading and the need for more, faster NMS information.[34]

Further, the Commission has considered how the provision of the current consolidated tapes and proprietary data feeds has affected investors' access to NMS information. The Commission understands that different types of investors have different information needs. However, as stated above, the Commission is concerned that a two-tiered system has developed in which certain market participants who are able to afford, and choose to pay for, the exchanges' proprietary DOB data feeds and associated connectivity and transmission offerings receive more content-rich data faster than those who do not receive these data feeds, such as market participants that face higher barriers to entry from data and other exchange fees.[35] Market participants that do not receive proprietary DOB feeds may be affected in their efforts to seek best execution and otherwise effectively compete with market participants that receive proprietary DOB data feeds because they do not obtain access to the additional content

effectively, while others are forced to rely on inferior information and outdated technology.''); Peter D. Stutsman, Global Equity Trading Manager, The Capital Group Companies, Inc., dated June 2, 2020, (''Capital Group Letter'') at 2 (''Over the last 15 years, the discrepancy in data elements and latency between proprietary feeds and the consolidated tape has expanded such that the SIP is no longer a realistic tool for institutional investors or broker-dealers in meeting their respective best execution obligations when routing orders.''); Makan Delrahim, Assistant Attorney General, U.S. Department of Justice, Antitrust Division, Rene L. Augustine, Deputy Assistant Attorney General, Michael F. Murray, Deputy Assistant Attorney General, David B. Lawrence, Chief, Karina B. Lubell, Assistant Chief, Charles J. Ramsey, Attorney, Antitrust Division Competition Policy and Advocacy Section, and Ihan Kim, Attorney, Technology and Financial Services Section, dated May 26, 2020, (''DOJ Letter''); Mark Garabedian, Manager, Trading Data and Analytics, and Lisa Mahon Lynch, Associate Director, Global Trading, Wellington Management Company LLP, dated May 27, 2020, (''Wellington Letter'').

[27] *See, e.g.,* letters to Vanessa Countryman, Secretary, Commission, from Lev Bagramian, Senior Securities Policy Advisor, Better Markets, Inc., dated May 26, 2020, (''Better Markets Letter'') at 1–2; Joe Wald and Ray Ross, Managing Directors, BMO Capital Markets Group and Co-Heads of Electronic Trading, Clearpool, dated June 2, 2020, (''Clearpool Letter'') at 1, 11; John Ramsay, Chief Market Policy Officer, Investors Exchange LLC, dated May 28, 2020, (''IEX Letter'') at 5; Jim Considine, Chief Financial Officer, McKay Brothers LLC, dated May 31, 2020, (''McKay Letter'') at 1; Rich Steiner, Head of Client Advocacy and Market Innovation, RBC Capital Markets, LLC, dated May 27, 2020, (''RBC Letter'') at 4; Ellen Greene, Managing Director, Equity and Options Market Structure, SIFMA, dated May 26, 2020, (''SIFMA Letter'') at 3–4; Capital Group Letter at 2; DOJ Letter at 2, 4; State Street Letter at 2; T. Rowe Price Letter at 1; Virtu Letter at 2.

[28] *See, e.g.,* Virtu Letter at 5 (''[I]ncluding depth of book information in the SIP will allow investors who cannot afford to pay for costly Exchange proprietary feeds to trade more competitively in the marketplace . . . .''); SIFMA Letter at 2 (''[W]e do not believe that the SIPs currently provide the necessary data to market participants at the requisite speed to efficiently trade in today's high speed and automated marketplace. As a result, many broker-dealers, asset managers and other market participants are forced to purchase proprietary data feeds from individual exchanges to create a consolidated and robust view of the market, while additionally bearing the economic burden of having to purchase consolidated data from the SIPs. This results in an enormous cost burden on the marketplace and creates a two-tiered market for market data by limiting access to critical market data at the fastest speeds to those who can afford to pay the exorbitant fees charged for it by the exchanges.''); MFA Letter at 2 (''Today, the current exclusive SIP model and content of core data does not serve the needs of investors, many of whom must subscribe to the exchanges' proprietary market data feeds at considerable additional cost to trade effectively, while others are forced to rely on inferior information and outdated technology.''); Clearpool Letter at 2 (''As we have stated on a number of previous occasions, of all the issues relating to the costs of trading, the trend toward higher market data fees has had the most negative impact on the securities markets. It remains increasingly difficult for many broker-dealers to compete in the current market environment due, in part, to issues related to the costs associated with trading.''); Dorothy Donohue, Deputy General Counsel, Securities Regulation, Investment Company Institute, dated May 26, 2020, (''ICI Letter'') at 9–10 (''Including auction information in the consolidated feed would enhance transparency into market activity. Doing so also would eliminate proprietary data costs as a barrier to auction trading and encourage a broader range of market participants to submit trading interest.'').

[29] Section 11A(a)(1)(C)(ii) of the Exchange Act, 15 U.S.C. 78k–1(a)(1)(C)(ii).

[30] Section 11A(a)(1)(C)(iii) of the Exchange Act, 15 U.S.C. 78k–1(a)(1)(C)(iii).

[31] Section 11A(a)(1)(C)(iv) of the Exchange Act, 15 U.S.C. 78k–1(a)(1)(C)(iv).

[32] Section 11A(c)(1)(B) of the Exchange Act, 15 U.S.C. 78k–1(c)(1)(B).

[33] *See* Equity Market Structure Roundtables, Oct. 25–26, 2018: Roundtable on Market Data and Market Access, SEC, *available at https://www.sec.gov/spotlight/equity-market-structure-roundtables* (''Market Data Roundtable'').

[34] *See* Proposing Release, 85 FR at 16765, n. 393 and accompanying text.

[35] *See* Proposing Release, 85 FR at 16768. *See also infra* Section V.B.3(b). Proprietary data fees have increased over the last decade, and are generally more expensive relative to SIP data fees, and there are indicia that exchanges may not be subject to robust competition with respect to market data. *See infra* notes 1780–1788 and accompanying text.

and may be receiving data in a slower manner.

On the other hand, the exchanges' proprietary TOB products, which are typically cheaper than the SIP data, may be purchased instead of SIP data for certain use cases in certain market segments (*e.g.,* retail investors).[36] These proprietary TOB products have decreased many market participants' utilization of SIP data even though they do not contain all ''core data'' and do not reflect TOB quotations and transactions from all markets and, therefore, do not display the NBBO. Market participants that solely use proprietary TOB products do not see all quotations in the market, including at times superior quotations, or all executed transactions and instead see only a subset of consolidated data.[37]

Accordingly, the Commission has undertaken three initiatives related to the provision of NMS information in the national market system. These initiatives work together to address specific, significant, separate but overlapping, issues in the national market system and are aimed at improving discrete areas in the national market system. First, the Commission amended the process so that, instead of becoming effective upon filing, changes to fees proposed by the Equity Data Plans would be published for public comment and approved by the Commission.[38] These procedures enhance the efficiency and transparency of the process of assessing new NMS plan fees. Second, the Commission ordered the participants to the Equity Data Plans to submit a new, single effective national market system plan, *i.e.,* the New Consolidated Data Plan, for Commission consideration under Rule 608 of Regulation NMS.[39] The New Consolidated Data Plan includes specific governance provisions that the Commission believes will help to address concerns that have been raised about the existing Equity Data Plans, including conflicts of interest stemming from the sale of competing proprietary data products by the exchanges that currently have majority voting power on the Operating Committee(s) of the Equity Data Plans.[40] These committees are, among other things, responsible for proposing fees for SIP data. Finally, in this release, the Commission is adopting amendments to update and modernize the infrastructure of the national market system by adding data content to NMS information as defined under Regulation NMS and by amending the manner in which such NMS information is collected, consolidated, and disseminated.

The Commission published the Proposing Release on its website on February 14, 2020. The comment period of 60 days from **Federal Register** publication ended on May 26, 2020. Many commenters asked the Commission to extend the comment period,[41] particularly in light of the COVID–19 pandemic.

The Commission has considered all comment letters received to date, including comments that were submitted after the comment deadline had passed. The last comment letter was received on October 13, 2020. Accordingly, the Commission believes that the time during which comments have been accepted is reasonable.

C. Enhancements to the Content of NMS Information

The Commission is adopting amendments to increase the content of NMS information that is required to be made available under Regulation NMS and to introduce a competitive decentralized consolidation model to disseminate the information. The content of NMS information that is made available under the rules of the national market system has not been adequately updated to reflect the needs of market participants trading in the U.S. market. As the U.S. market has evolved, market participants' information needs have changed; many market participants need additional information to trade efficiently and competitively. Today, the only means for market participants to receive a wider array of information than what is provided under the national market system is through proprietary data offerings from exchanges (and their affiliates). The Commission is concerned that the national market system, including the content of SIP data and the way such data is disseminated, significantly lags behind these proprietary data offerings and delivery methods established by the exchanges and their affiliates. Therefore, as discussed further below, the Commission believes that the content of NMS information under the rules of the national market system needs to be enhanced to address the needs of market participants. The adopted definitions will expand and modernize the content of NMS information that is made available in the U.S. market in a manner that the Commission believes will better facilitate competition; help to ensure the prompt, accurate, reliable, and fair collection of such information; and help to ensure the usefulness of NMS information. The Commission is adopting a new model for the provision of consolidated market data as discussed in Section III below, but the Commission believes that market participants and investors will benefit from enhanced NMS information regardless of the method by which they receive it. In particular, as a result of the new round lot definition and the inclusion of odd-lot quotations in core data, retail investors will be able to see, and more readily access, better-priced quotations. Further, through the addition of depth of book data and auction information in core data, the scope of NMS information will, to a greater extent, allow some market participants to trade in a more informed, competitive, and efficient manner. The Commission believes that even investors that do not consume that data directly will benefit because their brokers will be able to use the enhanced NMS information to trade more efficiently

[36] *See supra* note 17 and accompanying text.

[37] The Commission notes that the number of Professional subscribers to the SIP feeds decreased 23.5 percent between the first quarter of 2010, which is the first quarter for which Professional subscriber data for the SIP Plans was available after the introduction of the first proprietary TOB product in 2009, and the end of 2019. *See* CTA Plan, Metrics, *available at https://www.ctaplan.com/sip-metrics* (last accessed Nov. 20, 2020); UTP Plan, Metrics, *available at http://www.utpplan.com/metrics* (last accessed Nov. 25, 2020). For context, the number of registered representatives reported by FINRA during this time period decreased by only 1.0 percent. *See* FINRA, Statistics, *available at https://www.finra.org/newsroom/statistics* (last accessed Nov. 19, 2020).

[38] *See* Effective-Upon-Filing Adopting Release, *supra* note 17.

[39] 17 CFR 242.608.

[40] *See* Joint Industry Plan; Notice of Filing of a National Market System Plan Regarding Consolidated Equity Market Data, Securities Exchange Act Release No. 34–90096 (Oct. 6, 2020), 85 FR 64565 (Oct. 13, 2020) (''New Consolidated Data Plan Notice''). *See also infra* Section III.E for a discussion on the Governance Order.

[41] *See, e.g.,* letter from John A. Zecca, Executive Vice President, Chief Legal Officer, and Chief Regulatory Officer, Nasdaq, to Jay Clayton, Chairman, Commission, dated Apr. 7, 2020 (''Nasdaq Letter II''); letters to Vanessa Countryman, Secretary, Commission, from Elizabeth K. King, Chief Regulatory Officer, ICE, and General Counsel and Corporate Secretary, NYSE, dated May 15, 2020 (''NYSE Letter I''); Linda Moore, President and Chief Executive Officer, TechNet, dated Apr. 29, 2020 (''TechNet Letter I''); Christopher A. Iacovella, Chief Executive Officer, American Securities Association, dated Apr. 23, 2020; Kimberly Unger, Chief Executive Officer and Executive Director, Securities Traders Association of New York, Inc. (''STANY''), dated May 14, 2020 (''STANY Letter I''); Institutional Traders Advisory Council to Nasdaq, dated May 15, 2020; Gary A. LaBranche, President and Chief Executive Officer, National Investor Relations Institute, dated May 22, 2020; R T Leuchtkafer, dated May 20, 2020; Patrick J. Healy, Founder and CEO, Issuer Network, dated May 20, 2020 (going further by suggesting the Commission ''table this proposal'').

and competitively and to achieve best execution for their customer orders.[42]

To expand and enhance the data that is required to be made available for collection, consolidation, and dissemination under Regulation NMS, the Commission is adopting several new defined terms in Rule 600 of Regulation NMS, including ''consolidated market data,'' ''consolidated market data product,'' ''core data,'' ''round lot,'' ''auction information,'' ''depth-of-book data,'' ''odd-lot information,'' ''regulatory data,'' ''administrative data,'' and ''self-regulatory organization-specific program data.'' Two of the new definitions in Regulation NMS—consolidated market data[43] and core data[44]—specify the components of NMS information that must be made available for collection, consolidation, and dissemination under the national market system.[45] The other new defined terms establish the scope of information included within the definitions of consolidated market data and core data. The definitions are designed to ensure that NMS information that is made available to market participants meets the goals set forth in Section 11A of the Exchange Act.[46]

The Commission is defining three new data elements as ''core data:'' (1) Information about better priced quotations in higher priced stocks (implemented through a new definition of ''round lot'' and the inclusion of certain odd-lot information), (2) information about quotations that are outside of the best-priced quotations (implemented through a new ''depth of book data'' definition), and (3) information about orders that are participating in auctions (implemented through a new definition of ''auction information'').

Round Lot Definition. To provide investors with information about better priced orders in high-priced stocks, the Commission proposed a five-tier definition of ''round lot'' based on the share price of an NMS stock.[47] The Commission also proposed to amend the definition of protected quotation to require that protected quotes be of at least 100 shares.[48] These two changes would have established a NBBO[49] that could differ from the best protected bid and best protected offer (''PBBO''). Commenters responded by expressing support and raising several issues and concerns.[50]

For the reasons set forth below,[51] the Commission has modified the round lot definition so that it has fewer tiers and is based on a higher notional value. Specifically, the adopted round lot definition is 100 shares for stocks priced at $250 or less, 40 shares for stocks priced at $250.01 to $1,000, 10 shares for stocks priced at $1,000.01 to $10,000, and 1 share for stocks priced at $10,000.01 or more. Further, the Commission has decided not to adopt the proposed amendment to the definition of protected quotation. A protected quotation will remain a round lot; however, the protected quotation will change only insomuch as the round lot definition is changing.

The Commission also has decided to further increase the availability of information about better priced orders by adopting an additional element of ''core data'' for aggregated odd-lot quotations on each exchange that are priced at or better than the NBBO.[52] The Commission believes that the new definition of round lot and the increased availability of better priced odd-lot information will provide investors with valuable information about the best prices available and help to facilitate more informed order routing decisions and the best execution of investor orders.

Depth of Book Data Definition. The Commission proposed a definition of depth of book data to include information about orders outside of the NBBO and PBBO because information about the depth of book on each exchange helps market participants decide where to place orders and provides information about order book imbalances and potential future price moves in a NMS stock.[53]

The Commission, for the reasons set forth below, is adopting the definition of depth of book data with a few modifications.[54] First, the definition has been modified to reflect the fact that the definition of protected quotation is not changing, so it is not necessary to identify depth of book between the NBBO and PBBO. Second, the definition has been modified to specify that the five price levels included in the definition of depth of book data are measured from the NBBO. Third, the definition has been modified to specify that the aggregate size at each of the included price levels shall be attributed to each exchange so that market participants know where liquidity resides. Lastly, depth of book data will include all quotation sizes on a facility of a national securities association, instead of only on exchanges, as proposed. Adoption of the depth of book data definition with these modifications will provide useful information to market participants and support efficient order handling and execution.

Auction Information Definition. Finally, the Commission proposed a definition of auction information to include information about orders that participate in auctions.[55] Auctions have become increasingly significant liquidity events. Information about the orders participating in an auction can help market participants decide whether and how to submit orders in and around an auction and understand the potential price moves upon completion of the auction. For the reasons set forth below, the Commission is adopting the definition of auction information as proposed except for a modification to specify that the definition only includes auction information that an exchange publicly disseminates on its proprietary feeds.

D. Enhancements to the Provision of Consolidated Market Data

The Commission is adopting a new model for the provision of consolidated market data under Regulation NMS to foster a competitive environment for the dissemination of market data. Under the new decentralized consolidation model, competing consolidators will collect, consolidate, and disseminate consolidated market data products, and self-aggregators will collect and consolidate such data for their own internal use. By fostering a competitive environment for the provision and dissemination of critical market data to investors and other market participants, this new model will better achieve the goals of Section 11A of the Exchange

[42] *See infra* Section II.C.2(a).

[43] ''Consolidated market data'' is defined in Rule 600(b)(19) as the following data, consolidated across all national securities exchanges and national securities associations: (i) Core data; (ii) regulatory data; (iii) administrative data; (iv) self-regulatory organization-specific program data; and (v) additional regulatory, administrative, or self-regulatory organization-specific program data elements defined as such pursuant to the effective national market system plan or plans required under § 242.603(b).

[44] ''Core data'' is defined in Rule 600(b)(21) of Regulation NMS.

[45] *See supra* Section I.A for a discussion of the regulatory requirements for NMS information. ''Consolidated market data product'' is defined as any data product developed by a competing consolidator that contains consolidated market data or any of the elements or subcomponents thereof. *See* Rule 600(b)(20); *infra* Section II.B.2.

[46] *See infra* note 151 and accompanying text with respect to certain information that is not included in the definition of core data.

[47] *See infra* Section II.D.1.

[48] *See infra* Section II.E.1.

[49] *See* Rule 600(b)(50).

[50] *See infra* Sections II.D.2(a); II.E.2.

[51] *Id.*

[52] *See infra* Section II.C.2(b).

[53] *See infra* Section II.F.1.

[54] *See infra* Section II.F.

[55] *See infra* Section II.G.1.

Act and help to ensure broad availability to brokers, dealers, and investors of information with respect to quotations for and transactions in NMS stocks that is prompt, accurate, reliable, and fair. To implement this model, the Commission is amending Regulation NMS rules and adopting a new rule and a new form for entities seeking to register as competing consolidators.

Since Congress adopted the 1975 Amendments, the Commission has not substantially updated the distribution of NMS information in the national market system to reflect how the markets operate and investors' trade. Today, markets rely on highly sophisticated electronic trading systems that can consume many points of data at speeds measured in sub-second increments. The data delivery mechanisms and data feeds established under the national market system have not kept up with the current needs of market participants. To fulfill the data needs of market participants, the exchanges have developed proprietary low-latency market data products that are designed for automated trading systems. These data products, which include data such as depth of book and order imbalance information for opening and closing auctions, are faster and more content-rich than the delivery mechanisms and content that the SROs provide pursuant to Regulation NMS and the Equity Data Plans. Because of this disparity, many market participants use the exchanges' proprietary market data products for their competitive electronic trading systems.[56]

In addition, the exchanges have developed proprietary TOB data products for market participants that are less expensive and less content-rich than the data products that the SROs provide via the exclusive SIPs pursuant to Regulation NMS and the Equity Data Plans.[57] Retail investors use these proprietary TOB products, which are specific to an individual exchange or affiliated exchanges. Because they are cheaper and faster, proprietary TOB products—despite their more limited content—decrease the demand for data delivered under the Equity Data Plans.[58] The Commission is concerned that market participants who solely use individual exchange proprietary TOB products are not getting the full consolidated view of the market, may be missing better priced quotes on other exchanges, and may only have a partial view of the trades that were executed in the market.

The Commission believes that proprietary DOB and TOB data products that decrease the utilization of SIP data highlight fundamental issues regarding the fairness, usefulness, and efficiency of NMS information and how it is distributed today. Therefore, as discussed further below, the Commission is adopting a new dissemination model for the national market system—a decentralized consolidation model that will foster a competitive environment in the provision of consolidated market data. To effect this change, the Commission is amending Rule 603 under Regulation NMS to: (1) Remove the requirement that all consolidated information for an individual NMS stock be disseminated through a single, exclusive plan processor; and (2) require each national securities exchange and national securities association to make available to competing consolidators and self-aggregators its NMS information in the same manner and using the same methods, including all methods of access and the same format, as the exchange or association makes available any quotation or transaction information for NMS stocks to any person.[59] Commenters who responded to this proposal expressed support and raised several issues and concerns.[60]

For the reasons set forth below, the Commission is adopting the decentralized consolidation model largely as proposed. The new decentralized consolidation model, with its fostering of a competitive environment, will modernize the provision of consolidated market data in the U.S. markets. Today, the national market system comprises two exclusive SIPs that consolidate and disseminate certain NMS information on a non-competitive basis.[61] The non-competitive structure, as required under Regulation NMS, no longer adequately ensures the timely dissemination of NMS information. The Commission believes the fostering of a competitive environment and enabling the introduction of new market forces into the collection, consolidation, and dissemination process through a decentralized consolidation model will help to deliver consolidated market data to market participants in a more timely, efficient, and cost-effective manner than the current centralized consolidation model. The Commission is adopting Rule 603(b) as proposed.[62]

As part of establishing the decentralized consolidation model, the Commission is amending the definition of NBBO to remove references to the plan processors and replace them with competing consolidators and self-aggregators.[63] Competing consolidators will be responsible for calculating the NBBO for their subscribers and self-aggregators will be responsible for calculating their own NBBO.[64] Given market participants' widespread usage of proprietary market data feeds and the array of issues these participants have raised with respect to NMS information currently provided by the exclusive SIPs, many of these market participants calculate their own NBBOs from different exchange proprietary data feeds in varying locations for their own internal use rather than rely on the exclusive SIPs. These current practices, as well as existing regulatory approaches to independent data aggregation,[65] will help to ensure market participants are able to operate with different NBBOs calculated by different consolidators under this new model.

Under the new decentralized consolidation model, competing consolidators will be responsible for collecting, consolidating, and disseminating consolidated market data products to subscribers. New Rule 614 and new Form CC will govern the registration and responsibilities of competing consolidators.[66] Informed by comments and upon further consideration, the Commission, for the reasons set forth below, is adopting Rule 614 and Form CC largely as proposed but with certain modifications to address points raised during the comment process.[67] Market participants need timely consolidated market data to route and execute orders. The Commission believes entities will be incentivized to register as competing consolidators to satisfy the expected robust demand for consolidated market data products. The Commission is also modifying the requirements of Rule 614 so that competing consolidators are not required, as proposed, to offer a product

[56] *See infra* Section III.B.2; note 588 and accompanying text.

[57] The SROs are required to provide NMS information to the national market system plan(s) disseminated to market participants under Regulation NMS. *See supra* Section I.A.

[58] Proprietary TOB products, like proprietary DOB products, are provided directly to market participants and are not centrally consolidated before dissemination as is required of SIP data under the national market system.

[59] *See also infra* Section III.B.9(f) discussing the applicability of Rule 603(a).

[60] *See infra* Section III.B.

[61] The exclusive SIPs are operated by the exchanges, which also develop proprietary data products using the same data that they provide to the exclusive SIPs. *See supra* Section I.A.

[62] *See infra* Section III.B.9(b).

[63] *See infra* Section III.B.10.

[64] *Id.*

[65] *See infra* Section III.B.8.

[66] *See infra* Section III.C.7.

[67] *See infra* Section III.B.3.

containing all elements of consolidated market data. Competing consolidators will be able to develop the consolidated market data products[68] that their subscribers demand.[69] Rule 614 requires, among other things, that competing consolidators generate consolidated market data products in a manner that is consistent with the definitions in Regulation NMS and provide monthly performance metrics. Together with the Commission's oversight of competing consolidators, these requirements will help to ensure that the dissemination of consolidated market data products by competing consolidators is prompt, accurate, reliable, and fair.

Also, under the new decentralized consolidation model, self-aggregators will be able to collect and consolidate NMS information for their own internal use. As defined, a self-aggregator will be a broker-dealer, exchange, national securities association, or investment adviser registered with the Commission (''RIA'') that receives the NMS information that is necessary to generate consolidated market data from the SROs pursuant to Rule 603(b). A self-aggregator may only generate consolidated market data for its internal use. Market participants—including broker-dealers, exchanges, and RIAs—self-aggregate proprietary market data today. The Commission is adopting this provision to allow these market participants to aggregate consolidated market data for their own internal uses. Notwithstanding the adopted improvements to the collection, consolidation, and dissemination of consolidated market data with the decentralized consolidation model, some market participants will continue to need to aggregate data themselves for their own internal purposes, for a variety of business reasons.[70] Specifically, we are adopting a definition of self-aggregator that will permit the exchanges, the Financial Industry Regulatory Authority, Inc. (''FINRA''), and RIAs to self-aggregate for their own internal purposes, including for the purpose of sharing consolidated market data across affiliated entities that are registered with the Commission.[71]

In general, self-aggregators will not be permitted to disseminate or otherwise make available such data to any person, including customers or clients, because the Commission believes the widespread dissemination of consolidated market data must be subject to Commission oversight and, accordingly, must be performed by competing consolidators. As discussed below, competing consolidators will be subject to the registration, disclosure, and other regulatory requirements in Rule 614 and Form CC.[72] The competing consolidator regulatory regime should help to ensure that non-registered persons receive market data that is consolidated and delivered in a reliable and accurate manner. Although self-aggregators will not be permitted to widely disseminate consolidated market data, they will be able to share consolidated market data with their affiliated entities that are registered with the Commission. The Commission has the authority to examine registered affiliated entities and would be able to determine how a self-aggregator provides consolidated market data to a registered affiliate and how the registered affiliate uses that data, whereas the Commission does not have the authority to examine a self-aggregator's affiliated entities that are not registered with the Commission.

Under the decentralized consolidation model, the effective national market system plan(s) for NMS stocks will continue to play an important role.[73] The plan(s) will continue, for example, to develop and propose fees for the data content underlying consolidated market data, collect and allocate revenues collected for such data, develop the monthly performance metrics for competing consolidators, and provide an annual assessment of the competing consolidator model. Therefore, as discussed further below, the Commission is directing the effective national market system plan(s) participants to file an amendment to the plan(s) pursuant to Rule 608 of Regulation NMS to reflect the new functions of the plan(s). The Commission believes that the effective national market system plan structure provides a useful mechanism to gather consensus views from a wide variety of market participants on the operation of the national market system. The provisions requiring amendment to the effective national market system plan(s) are adopted largely as proposed with a few modifications.[74]

Finally, the Commission is amending Regulation SCI to expand the definition of ''SCI entities'' to include ''SCI competing consolidators'' that are subject to the requirements of Regulation SCI after an initial transition period if they meet a threshold based on a share of gross consolidated market data revenues, as described below. The Commission believes that the threshold as adopted is appropriate to identify those competing consolidators whose market share is large enough that they have the potential to significantly impact investors, the overall market, or the trading of securities should the competing consolidator have a systems or cybersecurity issue occur. As discussed below, based on the threshold being adopted for SCI competing consolidators, the Commission estimates that most competing consolidators will meet this definition.[75] In addition, after consideration of commenters' concerns regarding potential barriers to entry, the Commission is adopting a tailored set of operational capability and resiliency obligations that will apply during an initial transition period and thereafter to competing consolidators that do not meet the threshold in the definition of SCI competing consolidator.[76]

The amendments will significantly enhance and modernize the content of NMS information and the means by which it is disseminated to market participants. These changes will address meaningful shortcomings that have developed in the national market system relating to the consolidation and dissemination of NMS information.[77] The centralized consolidation model is an outdated model that was initially developed for an entirely different, manual market structure, and it is no longer suitable for trading in today's high-speed electronic markets. Further, the exclusive SIP model was developed when the exchanges were not selling competing proprietary data products that are superior in both content and delivery to the SIP data products. Therefore, as discussed further below, the Commission is amending Regulation NMS to modernize the national market system consistent with its mandate under the Exchange Act so that ''[n]ew data processing and communications techniques [can be used] to create the

[68] *See* Rule 600(b)(20), which defines ''consolidated market data product.''

[69] *See infra* Sections II.B.2; III.C.8(a).

[70] *See infra* Section III.D.

[71] *Id.*

[72] *See infra* Section III.C.7(a)(iv).

[73] Currently, there are three effective national market system plans for the collection, consolidation, and dissemination of certain NMS information. *See supra* note 10 and accompanying text. The Commission has ordered the Operating Committees of these three effective national market system plans to file a single new plan. *See infra* note 1128; *see also* Section III.E.2(a). On August 11, 2020, the participants filed a proposed plan, which the Commission published for comment on October 6, 2020. *See* New Consolidated Data Plan Notice, *supra* note 40.

[74] *See infra* Section III.E.

[75] *See infra* Section III.F.

[76] *See id.*

[77] *See* Proposing Release, 85 FR at 16728, n. 17 and accompanying text.

opportunity for more efficient and effective market operations'' [78] and to ensure fair competition, the availability of NMS information, and ''the practicability of brokers executing investors' orders in the best market.'' [79]

E. Implications for Best Execution

The Commission has stated that the duty of best execution requires broker-dealers to ''execute customers' trades at the most favorable terms reasonably available under the circumstances, *i.e.,* at the best reasonably available price.'' [80] The Commission stated that certain other factors that are relevant to best execution include ''order size, trading characteristics of the security, speed of execution, clearing costs, and the cost and difficulty of executing an order in a particular market.'' [81] Commenters questioned the implications of the proposed changes to the content and provision of NMS information on the duty of best execution.[82] In the Proposing Release, the Commission stated that the proposed additional data content in consolidated market data and the method by which such data was disseminated would facilitate the best execution of investor orders and enhance best execution analyses.[83] The Commission also stated that it was not ''specifying minimum data elements needed to achieve best execution'' or ''mandating the consumption'' of the expanded data content and, more broadly, acknowledged that different market participants and different trading applications have different market data needs.[84]

A broker-dealer has a legal duty to seek best execution of customer orders.[85] The duty of best execution derives from common law agency principles and fiduciary obligations.[86] It is incorporated in SRO rules [87] and has been incorporated into the antifraud provisions of the Federal securities laws through judicial decisions.[88] In addition to the best price reasonably available, speed of execution and available liquidity,[89] the Commission has articulated a non-exhaustive list of factors that may be relevant to broker-dealers' best execution analysis: (1) The size of the order; (2) the trading characteristics of the security involved; (3) the availability of accurate information affecting choices as to the most favorable market center for execution and the availability of technological aids to process such information; and (4) the cost and difficulty associated with achieving an execution in a particular market center.[90]

While these amendments do not change a broker-dealer's duty of best execution,[91] the Commission recognizes that the changes to consolidated market data resulting from the amendments may be relevant to a broker-dealer's best execution analysis.[92] Broker-dealers must execute customers' trades at the most favorable terms reasonably available under the circumstances and must examine their procedures for seeking to obtain best execution in light of market and technology changes and modify those practices if necessary.[93] Both the additional data content and the new method by which such data will be disseminated represent market and technology changes that should be considered by broker-dealers in connection with their best execution obligations.[94]

Specifically, the availability of more data content in consolidated market data, including odd-lot information, depth of book data, and auction information, may be relevant to a broker-dealer's ability to achieve and analyze best execution because it can provide information that, in many circumstances, may be useful in making trading and order placement decisions.[95] In addition, the availability of more timely consolidated market data may be relevant to a broker-dealer's ability to achieve and analyze best execution because it can bear upon the accuracy of the information about the most favorable market center for executing customer orders. Therefore, broker-dealers should consider the availability of consolidated market data, including the various elements of data content and the timeliness, accuracy, and reliability of the data provided by competing consolidators, in developing and maintaining their best execution policies and procedures. Further, because richer, more timely consolidated market data may enhance the ability of broker-dealers to obtain the most favorable terms reasonably available under the circumstances, including the best reasonably available price and other factors,[96] for their customer orders, broker-dealers should consider the availability of consolidated market data for purposes of evaluating best execution.

However, while the additional data content may be relevant to broker-dealers' best execution analyses and, in many cases, will facilitate the ability of broker-dealers to achieve best execution for their customer orders, the Commission, consistent with the approach taken in the Proposing Release, is not setting forth minimum data elements needed to achieve best execution and does not expect that all market participants will need to

[78] Section 11A(a)(1)(B) of the Exchange Act.

[79] *See* Sections 11A(a)(1)(C)(ii) through (iv) of the Exchange Act.

[80] Regulation NMS Adopting Release at 37538. *See also Geman* v. *SEC,* 334 F.3d 1183, 1186 (10th Cir. 2003) (''[T]he duty of best execution requires that a broker-dealer seek to obtain for its customer orders the most favorable terms reasonably available under the circumstances.'' (quoting *Newton* v. *Merrill, Lynch, Pierce, Fenner & Smith, Inc.,* 135 F.3d 266, 270 (3d Cir. 1998))); *Kurz* v. *Fidelity Management & Research Co.,* 556 F.3d 639, 640 (7th Cir. 2009) (describing the ''duty of best execution'' as ''getting the optimal combination of price, speed, and liquidity for a securities trade'').

[81] Regulation NMS Adopting Release at 37538.

[82] *See, e.g., infra* Sections II.F.2(h) (discussing comments received on best execution related to depth of book data); III.B.10(c) (discussing comments received on best execution related to ''multiple NBBOs'' and the selection of a competing consolidator).

[83] Proposing Release, 85 FR at 16729, 52, 69.

[84] *Id.* at 16734, 55.

[85] Regulation NMS Adopting Release at 37537.

[86] *Id.* at 37538.

[87] FINRA has codified a duty of best execution in its rules, requiring a broker-dealer to ''use reasonable diligence to ascertain the best market for the subject security and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions.'' FINRA Rule 5310, ''Best Execution and Interpositioning.''

[88] *See* Regulation NMS Adopting Release at 37538.

[89] *Kurz* v. *Fidelity, supra* note 80, 556 F.3d at 640.

[90] Securities Exchange Act Release No. 43590 (Nov. 17, 2000), 65 FR 75414, 18 (Dec. 1, 2000). The Commission has recognized that the scope of the duty of best execution must evolve as changes occur in the market that give rise to improved executions for customer orders. Order Execution Obligations, Release No. 37619A (Sept. 6, 1996), 61 FR 48290 (Sept. 12, 1996).

[91] Similarly, these amendments do not change investment advisers' duty of best execution. *See generally* Commission Interpretation Regarding Standard of Conduct for Investment Advisers, Release No. IA–5248 (June 5, 2019).

[92] The Commission will monitor the impact of these amendments on broker-dealer best execution policies and procedures and will consider whether additional steps, such as further best execution guidance, are necessary or appropriate.

[93] *See* Regulation NMS Adopting Release at 37538 (''Broker-dealers must examine their procedures for seeking to obtain best execution in light of market and technology changes and modify those practices if necessary to enable their customers to obtain the best reasonably available prices.'').

[94] Best execution considerations may also be relevant to the selection of a market data provider and the choice to consume different data elements today. *See* FINRA, Regulatory Notice 15–46, 1, 3 n. 12 (2015) (''The exercise of reasonable diligence to ascertain the best market under prevailing market conditions can be affected by the market data, including specific data feeds, used by a firm. For example, a firm that regularly accesses proprietary data feeds, in addition to the consolidated SIP feed, for its proprietary trading, would be expected to also be using these data feeds to determine the best market under prevailing market conditions when handling customer orders to meet its best execution obligations.'').

[95] *See* Proposing Release, 85 FR at 16741, 54.

[96] *See supra* notes 80–81 and accompanying text.

purchase the most comprehensive or fastest consolidated market data product available. The legal requirements that establish minimum data standards for certain purposes are not changing. Specifically, Rule 603(c) of Regulation NMS,[97] the Vendor Display Rule, requires SIPs and broker-dealers to provide a consolidated display, as defined in Rule 600(b)(17) of Regulation NMS,[98] in a context in which a trading or order routing decision can be implemented. In addition, in order to comply with Rule 611 of Regulation NMS, the Order Protection Rule, trading centers, as defined in Rule 600(b)(95) of Regulation NMS,[99] must have access to the protected bid and protected offer. While these rules are impacted by the new definition of round lot, and the data that must be processed and displayed will change as the definition of round lot changes, the minimum data requirements associated with these rules are not changing.[100] Additionally, market participants will need to obtain regulatory data to meet regulatory obligations and to be informed of trading halts, price bands, or other market conditions that may affect their trading activity.[101]

Best execution analysis varies depending upon the characteristics of customers and orders handled. For example, the data requirements for an institutional broker's smart order router (''SOR'') executing large algorithmic orders are likely different than for a small retail broker's visual display for non-professional individual investors. Given the large array of potential scenarios, the Commission cannot specify the data elements that may be relevant to every specific situation. Rather, broker-dealers must perform a best execution analysis to determine what data is relevant to obtaining best execution of customer orders, in a manner that is similar to decisions they must make today regarding whether to obtain data content that is available on a proprietary basis.

In addition, the decentralized consolidation model will change the method by which market data is disseminated by introducing competing consolidators, who will offer consolidated market data products, which broker-dealers may choose as a source of market data. The speed of execution, the availability of accurate information affecting choices as to the most favorable market center for execution, and the availability of technological aids to process such information may be relevant factors in conducting a best execution analysis.[102] While all competing consolidators will offer consolidated market data products, they may do so at different prices or at different latencies or with different amounts of data content.[103] Therefore, the selection of a competing consolidator may also be relevant to a broker-dealer's ability to achieve and analyze best execution. Competing consolidators will be required to disclose information about their consolidated market data products, including the services they will offer, the prices for such services as well as performance metrics.[104] These disclosures should help to facilitate a broker-dealer's ability to achieve and analyze best execution because they provide information regarding the timeliness, completeness, and accuracy of the market data offered by competing consolidators.[105] These disclosures also provide statistics on capacity, network delay, and latency, offering additional insight into the technical capabilities and expected performance of a competing consolidator. This information will assist a broker-dealer in selecting an appropriate competing consolidator, which will affect the broker-dealer's ability to obtain ''the most favorable terms reasonably available under the circumstances'' for its customer orders. The Commission believes that a broker-dealer that uses low-latency or content-rich consolidated market data, whether self-aggregated or received from a competing consolidator, for its proprietary trading, would also be expected to use those data products when pursuing the best execution of customer orders, particularly those handled within the same aggregation unit that conducts proprietary trading. For example, a broker-dealer should not use a separate, less performant data source for its customer orders than the data source used for proprietary orders that may interact with those customer orders in a manner disadvantageous to those customer orders.[106]

II. Enhancements to NMS Information

A. Introduction

Today, most market participants utilize electronic trading systems to execute orders for themselves and for their customers. These electronic trading systems, which consume many pieces of data in an effort to trade competitively and efficiently in today's markets, are designed to analyze more information than is provided by the exclusive SIPs. Given that the current market is vastly different from when the national market system was established in the 1970s, the Commission believes that a broad cross-section of market participants would benefit from information that goes beyond SIP data to trade competitively and efficiently and that the information that is provided within the national market system needs to be augmented with new information elements. As discussed in detail below, the Commission is adopting new rules and amending certain existing rules under Regulation NMS to add new elements to the information that is collected, consolidated, and disseminated under the national market system.

By way of example, in the 1970s, trading volume in any given stock was concentrated on its listing exchange and trading largely occurred manually with individuals representing orders on exchange floors.[107] Since then, technology has fundamentally altered market operations and trading today largely occurs electronically with little human intervention.[108] Numerous other changes have also impacted how trading occurs. For example, in 2001, decimalization reduced the increment of trading from fractions to pennies and resulted in a reduction in the size of liquidity at the best prices, commonly referred to as the ''top of book.'' [109] The reduction in displayed order interest at the best bid or offer means liquidity is layered across multiple price levels, which makes depth of book information necessary for many market participants and trading systems to trade in an informed and effective manner.

In addition, individual odd-lot quotations, especially in high share price stocks, have become more prevalent [110] and important to market participants as individual share prices

[97] 17 CFR 242.603(c).

[98] 17 CFR 242.600(b)(17).

[99] 17 CFR 242.600(b)(95).

[100] *See* Proposing Release, 85 FR at 16743–46; *infra* Section II.D.2(b).

[101] *See* Proposing Release, 85 FR at 16760; *infra* Section II.H.

[102] *See supra* notes 89 and 90 and accompanying text.

[103] *See infra* notes 897, 907–908 and accompanying text.

[104] *See infra* Section III.C.8(c).

[105] *See supra* note 90 and accompanying text.

[106] *Cf.* FINRA, Regulatory Notice 15–46, *supra* note 94. *See also* letter from Tyler Gellasch, Executive Director, Healthy Markets Association, to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''Healthy Markets Letter I'') at 4–5; letter from Marcia E. Asquith, Executive Vice President, Board and External Relations, Financial Industry Regulatory Authority, Inc., to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''FINRA Letter'') at 6.

[107] *See* Proposing Release, 85 FR at 16728.

[108] *See id.*

[109] *See id.* at 16751.

[110] *See infra* note 240. *See also* Proposing Release, 85 FR at 16739.

have increased.[111] Finally, an increasing proportion of total trading volume is executed during opening and closing auctions, which has made information about orders participating in auctions increasingly important to many market participants. These changes have led market participants to call for additional information to be included in consolidated market data so that market participants can participate more fully and competitively.[112] However, very few adjustments [113] have been made to NMS information to account for these changes since the adoption of the 1975 Amendments.

The Commission believes that the content of current SIP data and the mechanism by which SIP data is collected, consolidated, and disseminated has not kept pace with market developments. Therefore, the Commission is adopting these amendments to specify additional information that must be made available pursuant to the effective national market system plan(s).[114] Information about better priced orders in smaller sizes can improve investors' ability to trade at the best prices available. Further, certain market participants can more efficiently place larger sized orders that may not be fully executed at top of book prices using information about the prices of orders outside of the best bids and best offers, and they can more effectively participate in exchange auctions using relevant information about the trading interest in such auctions. Finally, market participants also need to have, and will continue to receive, regulatory information, administrative data, and other important information to participate effectively in the markets. The Commission received comments on each of these issues.

As discussed more fully below, some commenters, stating that the information is not necessary for all investors, questioned the need to add new information elements.[115] While the Commission recognizes that different market participants need differing amounts of information to meet different trading objectives, the Commission believes that the availability of the new information will enhance the ability of market participants to trade competitively and efficiently and will indirectly benefit investors who place orders in the national market system even if they do not directly consume all of the new data elements by facilitating executing broker-dealers' access to information.[116] In today's market, information about odd-lot quotations, depth of book quotations, and auction information has become highly relevant. Together, these pieces of information can be significantly beneficial in facilitating informed trading decisions, and the Commission believes that they should be more widely distributed and more readily accessible. The Commission anticipates that a variety of consolidated market data products will be developed to meet the various needs investors have for data.[117] The Commission believes that the amendments will enhance the usefulness of NMS information and thus better inform trading and investment decisions for all investors, which in turn will help maintain fair and efficient markets as well as facilitate best execution of customer orders.[118]

Accordingly, as discussed in more detail below, the Commission is adopting several new defined terms under Rule 600 of Regulation NMS to specify, and as a result expand and enhance, the data that Regulation NMS requires to be collected, consolidated, and disseminated. Importantly, the Commission is adopting two new definitions under Regulation NMS—''consolidated market data'' and ''core data''—to specify the components of NMS information that are required to be collected, consolidated, and disseminated under the national market system. ''Consolidated market data product'' is defined as any data product developed by a competing consolidator that contains consolidated market data or any of the elements or subcomponents thereof. The Commission is also adopting additional defined terms to further set forth the scope of information included within the definitions of consolidated market data and core data. The definitions include information that is currently provided by the exclusive SIPs as well as new information designed to ensure that brokers, dealers, and investors have available information with respect to quotations for and transactions in securities that is prompt, accurate, reliable, and fair.[119]

B. Definition of ''Consolidated Market Data'' Under Rule 600(b)(19)

1. Proposal

The Commission proposed to expand the content of the NMS information that would be required to be collected, consolidated, and disseminated under the rules of the national market system through the proposed definition of ''consolidated market data.'' Specifically, the Commission proposed that consolidated market data would include the following data, consolidated across all national securities exchanges and national securities associations: (1) Core data; (2) regulatory data; (3) administrative data; (4) exchange-specific program data; and (5) additional regulatory, administrative, or exchange-specific program data elements defined as such pursuant to the effective national market system plan or plans required under Rule 603(b).[120] In addition, the proposed definition of consolidated market data would be used to delineate the responsibilities and obligations of the SROs under Rule 603(b) and competing consolidators under Rule 614. These rules implement the decentralized consolidation model, which is discussed in more detail in Section III below.

2. Final Rule and Response to Comments

The Commission received a number of comments on the proposed expansion of NMS information related to the specific elements that make up

[111] *See* Proposing Release, 85 FR at 16739 (stating that between 2004 and 2019, the average price of a stock in the Dow Jones Industrial Average nearly quadrupled).

[112] *See id.* at 16740 (noting multiple Roundtable panelists and commenters supported the addition of odd-lot information to SIP data), 16751–52 (noting multiple Roundtable panelists and commenters supported the addition of depth of book data to SIP data), 16758 (noting multiple Roundtable panelists and commenters supported the addition of auction information to SIP data).

[113] *See, e.g.,* Securities Exchange Act Release Nos. 70793 (Oct. 31, 2013), 78 FR 66788 (Nov. 6, 2013) (order approving Amendment No. 30 to the UTP Plan to require odd-lot transactions to be reported to consolidated tape); 70794 (Oct. 31, 2013), 78 FR 66789 (Nov. 6, 2013) (order approving Eighteenth Substantive Amendment to the Second Restatement of the CTA Plan to require odd-lot transactions to be reported to consolidated tape).

[114] Section 11A(c)(1)(B) of the Exchange Act provides the Commission with the authority to, among other things, assure the fairness and usefulness of the form and content of quotation and transaction information.

[115] *See, e.g.,* letter from John A. Zecca, Executive Vice President, Chief Legal Officer, and Chief Regulatory Officer, Nasdaq, to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''Nasdaq Letter IV'') at 31–34; letter from Elizabeth K. King, Chief Regulatory Officer, ICE, and General Counsel and Corporate Secretary, NYSE, to Vanessa Countryman, Secretary, Commission, dated June 1, 2020, (''NYSE Letter II'') at 3–8; letter from Joseph Kinahan Managing Director, Client Advocacy and Market Structure, TD Ameritrade, to Vanessa A. Countryman, Secretary, Commission, dated June 1, 2020, (''TD Ameritrade Letter'') at 4.

[116] *See infra* Section II.C.2(a).

[117] *See infra* Section III.E.2(e).

[118] *See supra* Section I.E (discussing the implications for best execution).

[119] *See supra* Section I.A.

[120] As discussed below, the Commission also proposed and is adopting definitions for ''core data,'' ''regulatory data,'' ''administrative data,'' and ''self-regulatory organization-specific program data.'' *See infra* Sections II.C, II.H, II.J, II.K, respectively.

consolidated market data,[121] and the Commission also received some comments on the proposed definition of consolidated market data. One commenter supported the expansion of NMS information to include the proposed elements of consolidated market data.[122] Another commenter agreed with the proposed definition, stating that these data elements need to be clearly defined and categorized and that ''tight definitions would assist to 'preserve the integrity and affordability of the consolidated data stream.' '' [123]

Other commenters, however, stated that the Commission should allow additional core data elements to be included in consolidated market data through a process other than Commission rulemaking.[124] A different commenter stated that the proposed changes to consolidated market data are ''not appropriately tailored to the needs of the market'' and ''are overly broad and unnecessarily complex.'' [125] Another commenter, while agreeing that the definition of consolidated market data should be defined as proposed, suggested that it should only include depth-of-book data, certain odd-lot information, and three options for including auction data.[126]

The Commission is adopting the definition of consolidated market data largely as proposed.[127] As discussed in detail below,[128] the Commission continues to believe that expanding the NMS information that is required to be provided under the rules of the national market system, as set forth in the definition of consolidated market data, would support more informed trading and investment decisions by market participants in today's markets and facilitate the best execution of customer orders by the full range of broker-dealers.[129] As reflected in comments received from a variety of market participants, each of the elements of consolidated market data—and in particular the expansion of core data to include quotation interest in smaller orders of higher-priced stocks, depth of book data, and auction information—would provide significant, useful information to market participants.[130] Consistent with the views of market participants—many of whom will be the users of consolidated market data—that this data would be useful to them to improve investment decisions and facilitate the best execution of customer orders, the Commission believes that the definition of consolidated market data is ''appropriately tailored'' to market participants' needs, that it is not overly broad, and that it does not entail unnecessary complexity.[131] In addition, the proposed decentralized consolidation model permits competing consolidators to offer, and market participants to consume, customized market data products that suit their particular needs. This flexibility addresses concerns that consolidated market data is overly broad or unnecessarily complex because it allows competing consolidators and their subscribers to adjust the breadth and complexity of the market data products they offer and consume, respectively.[132] On the other hand, limiting consolidated market data to only depth of book data, certain odd-lot information, and auction data, as one commenter suggested, would not include regulatory data—such as information regarding trading halts and price bands—that the Commission believes is necessary to trade effectively and efficiently.[133]

In response to comments recommending a more streamlined or flexible process to include additional data elements in core data,[134] the Commission agrees that the definition of consolidated market data should permit additional data elements to be added pursuant to effective national market system plan amendments. However, the Commission continues to believe that this process should be limited to future regulatory, administrative, or self-regulatory organization-specific program information.[135] As discussed below,[136] the transaction and quotation information reflected in the definition of core data—including best bids and offers, the NBBO, protected quotations, last sale data, depth of book data, and auction information—is specified in the rule.[137] The rule as proposed and adopted is designed to account appropriately for additional regulatory, administrative, and self-regulatory organization-specific program information data elements that may emerge periodically through the approval of new SRO rules or the development and refinement of technical specifications to be included in consolidated market data through the effective national market system plan amendment process.[138]

The Commission is defining a new term, ''consolidated market data product'' to mean any data product developed by a competing consolidator that contains consolidated market data or components of consolidated market data. The definition of consolidated market data product also specifies that components of consolidated market data include the enumerated elements, and any subcomponent of the elements, of consolidated market data in § 242.600(b)(19) and that all consolidated market data products must reflect data consolidated across all national securities exchanges and national securities associations.[139] As discussed further below, Rule 614 will require competing consolidators to offer one or more consolidated market data products to their subscribers, and will not, as proposed, require them to offer a product that contains all elements of consolidated market data.[140] In addition, the Commission recognizes that some market participants will not want or need a consolidated market data

[121] *See infra* Sections II.C through II.K.

[122] *See* Capital Group Letter at 2.

[123] TD Ameritrade Letter at 3 (quoting Regulation NMS Adopting Release).

[124] *See* Clearpool Letter at 11 (stating that the Commission should provide flexibility in the definition of core data or the process by which the elements of core data are determined); RBC Letter at 4 (stating that the proposed definition of core data should serve as a ''floor'' that the Operating Committee should be permitted to expand upon (but not reduce) pursuant to Plan amendments); letter from Emil R. Framnes, Global Head of Trading, and Simon Emrich, Market Structure and Trading Research, Norges Bank Investment Management Letter, to Vanessa Countryman, Secretary, Commission (''NBIM Letter'') at 5 (''[I]t might be prudent to allow for further modification of the definition of core data as market structure evolves.'').

[125] NYSE Letter II at 3.

[126] *See* letter from Kelvin To, Founder and President, Data Boiler Technologies, LLC, to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''Data Boiler Letter I'') at 19–20. However, this commenter also stated that administrative data should be included in the proposed definition of consolidated market data. *See id.* at 34.

[127] The Commission is modifying the definition of exchange-specific program data to be self-regulatory organization-specific program data. *See infra* Section II.K.

[128] *See infra* Sections II.C through II.K.

[129] *See* Proposing Release, 85 FR at 16735. *See also infra* Section II.C.2(a); *supra* Section I.E.

[130] *See infra* Sections II.C through II.K.

[131] *See* NYSE Letter II at 3.

[132] *See infra* Section III. *See also infra* notes 139 and 140 and accompanying text (discussing the Commission's adoption of the new defined term ''consolidated market data product'').

[133] *See infra* Section II.H.

[134] *See* Clearpool Letter at 11.

[135] *See* Proposing Release, 85 FR at 16734.

[136] *See infra* Sections II.C through II.G.

[137] The Commission will continue to monitor the usefulness of these core data elements to market participants and consider whether any modifications to the definition of core data are necessary or appropriate as the markets evolve. Interested persons also may petition the Commission to amend such definition if they believe particular changes are warranted.

[138] *See infra* Sections II.H, II.J, and II.K. Both SRO rule changes and effective national market system plan amendments are subject to the public notice and comment process, as well as Commission review. *See* Exchange Act Section 19(b)(1), 15 U.S.C. 78s(b)(1); 17 CFR 240.19b–4 (Rule 19b–4); Rule 608(b) of Regulation NMS, 17 CFR 242.608(b).

[139] *See infra* Section VIII.

[140] *See infra* Section III.C.8(a).

product that contains all elements of consolidated market data.

3. The Fifth Amendment's Takings Clause

The Constitution's Takings Clause prevents the taking of private property for public use without just compensation.[141] One commenter stated that the proposal to expand the data that would be required to be provided under Regulation NMS would violate the Takings Clause by ''effecting a physical taking . . . without just compensation.'' [142] The commenter asserted that the proposal would require it to ''turn over vast amounts of their proprietary market data—valuable property that Nasdaq currently sells to market participants at a reasonable rate of return—to competing consolidators and self-aggregators at prices set by the operating committee of the consolidated NMS plan.'' [143] The commenter stated that the government would ''expropriate property belonging to Nasdaq and redistribute it to Nasdaq's competitors at prices set, in part, by the non-SRO members of the consolidated NMS plan's operating committee'' that would be ''laboring under a conflict-of-interest and would have no incentive to pay 'just compensation' for the property taken from Nasdaq.'' [144]

Neither the expansion of NMS information pursuant to the definition of consolidated market data nor the requirement that national securities exchanges and associations make the data necessary to generate consolidated market data available to competing consolidators and self-aggregators constitutes a taking for the following reasons. The Commission's action does not encroach on or appropriate any property. The exchanges developed their proprietary data within a highly regulated statutory and regulatory structure that provides the Commission with ample authority to decide—and revise—which types of information the exchanges must provide to market participants to fulfill their responsibilities under the Exchange Act.[145] Moreover, the SROs will be compensated for making the data necessary to generate consolidated market data available to competing consolidators and self-aggregators pursuant to fees established by the effective national market system plan(s). Even if non-SRO members of plan Operating Committees have a degree of authority to influence proposed consolidated market data fees, the Commission retains authority to ensure that those fees are ''fair and reasonable'' and ''not unreasonably discriminatory.'' The exchanges thus had no reasonable basis to expect that the current regulatory structure would remain in place in perpetuity in this highly regulated field, and, in any event, they will not be deprived of the economic benefits of the information they will provide to market participants.[146]

C. Definition of ''Core Data'' Under Rule 600(b)(21)

1. Proposal

As stated in the Proposing Release,[147] Regulation NMS does not contain a definition of ''core data,'' although various Regulation NMS rules describe the information that is required to be collected, consolidated, and disseminated under Regulation NMS.[148] The Commission proposed defining ''core data'' to include the information currently referred to as core data—last sale data, each SRO's best bid and best offer (''BBO''), and the NBBO [149]—along with new information that is not currently required to be provided under Regulation NMS or by the exclusive SIPs. The proposed new information included quotation data for smaller-sized orders in higher-priced stocks (pursuant to a new definition of ''round lot''), information on certain quotations below the best bid or above the best offer (pursuant to a new definition of ''depth of book data''), and information about orders participating in auctions (pursuant to a new definition of ''auction information''). Specifically, the proposed definition of core data included: (A) Quotation sizes; (B) aggregate quotation sizes; (C) best bid and best offer; (D) national best bid and national best offer; (E) protected bid and protected offer; (F) transaction reports; (G) last sale data; (H) odd-lot transaction data disseminated pursuant to the effective national market system plan or plans required under § 242.603(b) as of [date of Commission approval of this Adopting Release]; (I) depth of book data; and (J) auction information.

Additionally, the proposed definition of core data specified how odd-lots are to be aggregated for purposes of certain data elements included within the definition of core data. Specifically, the proposed definition stated that the best bid and best offer, national best bid and national best offer, and depth of book data shall include odd-lots that when aggregated are equal to or greater than a round lot, and that such aggregation shall occur across multiple prices and shall be disseminated at the least aggressive price of all such aggregated odd-lots.[150]

Finally, the proposed definition of core data did not include certain information—specifically, OTC Bulletin Board (''OTCBB'') data, and corporate bond and index data—that is currently provided by the exclusive SIPs.[151]

2. Final Rule and Response to Comments

(a) Expansion of Core Data, Generally

Multiple commenters supported the expansion of NMS information generally [152] and of core data [153] in

[141] U.S. Const. amend. 5 (''No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.'').

[142] Nasdaq Letter IV at 50.

[143] *Id.*

[144] *Id.* at 50–51.

[145] *See supra* note 5.

[146] *See Ruckleshaus* v. *Monsanto Co.,* 467 U.S. 986, 1005–07 (1984) (noting that the reasonableness of an investment-backed expectation depends in part on whether the regulated activity has been in an area ''that has long been the source of public concern and the subject of government regulation''); *District Intown Properties Ltd. P'ship* v. *District of Columbia,* 198 F.3d 874, 884 (D.C. Cir. 1999) (''Businesses that operate in an industry with a history of regulation have no reasonable expectation that regulation will not be strengthened to achieve established legislative ends.''); *Me. Educ. Ass'n Benefits Tr.* v. *Cioppa,* 695 F.3d 145, 154 (1st Cir. 2012) (the plaintiff's ''expectations are substantially diminished by the highly regulated nature of the industry in which it operates'').

[147] *See* Proposing Release, 85 FR at 16730.

[148] *See, e.g.,* Rules 601, 602, and 603 of Regulation NMS.

[149] *See supra* note 16.

[150] As discussed below, the proposed definition of core data also specified an odd-lot aggregation methodology for protected quotations. *See infra* Section II.E.2(b).

[151] *See* Proposing Release, 85 FR at 16736.

[152] *See* T. Rowe Price Letter at 1–2 (''Expanding the content of NMS information would improve its utility when consumed electronically (*e.g.,* by algorithmic trading systems or smart order routers).''); BlackRock Letter at 2 (''BlackRock is supportive of expanding and revamping the content of NMS information. We agree that this would help to reduce information asymmetries between market participants who rely upon SIP data and those who purchase proprietary data feeds from the national securities exchanges.'').

[153] *See* Clearpool Letter at 11 (supporting ''the inclusion of this additional information in core data, which can reduce the reliance on exchanges' proprietary data feeds and provide market participants with additional information to make informed order routing and execution decisions,'' while also ''recommend[ing] that the Commission require a 'retail interest indicator' to be added to quotes to assist market participants in defining what portion of the quote is attributable to retail interest''); RBC Letter at 4 (stating that RBC ''generally support[s] the Proposal's definition of Core Data''); letter from Tim Lang, Chief Executive

Continued

particular.[154] One commenter, ''agree[ing] that the proposed information to be included in core data has become much more important to broker-dealers in recent years . . .,'' ''strongly support[ed] expanding core data to include additional information of significance to investors.'' [155] Another commenter stated that ''add[ing] more pricing information to the consolidated tape . . . would be a fundamental improvement that would expand data access to Main Street investors in a very meaningful way.'' [156] A different commenter said that ''all data is 'core data.' '' [157]

Some commenters opposed the expansion of core data, however. One commenter, though agreeing that Regulation NMS should define core data, stated that the new proposed core data elements are not necessary or useful for all market participants but will raise the costs of core data for all market participants by requiring them to receive and process core data to meet their regulatory obligations. [158] Similarly, another commenter, though supportive of the Commission formally defining core data in its regulations, argued that the proposed definition was ''poorly designed'' because it ''only consider[s] the requirements of market participants that need, and are able to consume, a richer data set'' and that the proposed definition ''would require non-professional investors who do not need such rich data to purchase and consume even more unnecessary data elements (*e.g.,* depth of book data) than the current SIP product provides.'' [159] Another commenter argued that the Commission falsely assumed that the decision by some market participants to supplement current core data with proprietary data means that this additional data is necessary to all market participants and investors, and that the expanded set of information included in the proposed definition of core data ''is neither necessary nor relevant to the business models and trading or investment strategies of many, if not most, ordinary investors and market participants.'' [160] Additionally, the commenter stated that the Commission ''failed to collect data regarding whether any meaningful number of market participants that desire access to non-core data are actually unable to obtain it, either directly from exchanges or indirectly (and often free of charge) from their brokers.'' [161]

The Commission is adopting the definition of core data largely as proposed, as discussed further below.[162] In the Proposing Release, the Commission stated its preliminary belief that the content of core data has not kept pace with market developments and that the proposed expansion of core data would enhance its usefulness to address the needs of a broad cross-section of market participants.[163] Comments received from a variety of market participants—including exchanges, buy-side firms, and sell-side firms—have borne this out. Numerous commenters expressed support for the proposed definition of core data, stating that the specific subcomponents of core data, such as five levels of depth of book data, would help market participants to trade more effectively.[164] Several commenters also pointed out that expanding core data would promote a wider dissemination of this data, including to market participants who cannot afford expensive proprietary feeds.[165] For the reasons discussed in the Proposing Release and as set forth in detail below with respect to the specific elements of core data,[166] the Commission believes that the expanded definition of core data will be useful to market participants and will help fulfill needs that are not currently being met by SIP data. Additionally, and for the same reasons, the Commission disagrees with comments suggesting that proposed core data would not be useful to many market participants, that proprietary market data products are adequately meeting the needs of all market participants, and that all market participants that have a need to access

Officer, ACS Execution Services, LLC, to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''ACS Execution Services Letter'') at 2; IEX Letter at 2 (''We support the Market Infrastructure Proposal because it will update the content of 'core data' to better reflect the information needed to participate in today's markets . . . .''); ICI Letter at 4 (''We support the Commission expanding the scope of core data, which will benefit funds and their shareholders.'').

[154] As discussed below, many commenters also expressed views on the specific elements of the definition of core data. *See infra* Sections II.D; II.E; II.F; II.G.

[155] ACS Execution Services Letter at 2.

[156] Letter from Jeffrey T. Brown, Senior Vice President Legislative and Regulatory Affairs, Charles Schwab & Co., Inc., to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''Schwab Letter'') at 2–3.

[157] Virtu Letter at 2, 5 (''[T]he 'core data' offered through the SIPs is no longer sufficient for most market participants to trade competitively in today's marketplace.'').

[158] *See* TD Ameritrade Letter at 3.

[159] NYSE Letter II at 3–4.

[160] Nasdaq Letter IV at 7–8.

[161] *Id.* at 8 (footnote removed). *See also* NYSE Letter II at 3–8; TD Ameritrade Letter at 4.

[162] The Commission is revising the proposed definition of core data to include odd-lots priced at or better than the NBBO, to specify how quotation sizes are to be displayed in core data, and to require SRO attribution of core data elements. The Commission is also modifying the proposed definitions of depth of book data and auction information and is not adopting the proposed amendments to the definition of protected bid or protected offer, which definitions are embedded in the definition of core data. The particular elements of the definition of core data are discussed below. *See infra* Sections II.C.2(b); II.D; II.E; II.F; II.G.

[163] *See* Proposing Release, 85 FR at 16735–76.

[164] *See, e.g.,* T. Rowe Price Letter at 2 (''We believe the addition of depth of book data (specifically, the five price levels above the protected offer and below the protected bid) and auction imbalance information, including opening, reopening, and closing auctions, will make SIP data a much more viable alternative to proprietary market data. . . . This additional data will help reduce the information asymmetries that currently exist between SIP data and proprietary data.''); ACS Execution Services Letter at 2 (''ACS strongly supports expanding core data to include additional information of significance to investors. As the proposal notes, through the provision of such additional information, market participants may have access to data to make better routing and trading decisions.'').

[165] *See, e.g.,* Virtu Letter at 5 (''[I]ncluding depth of book information in the SIP will allow investors who cannot afford to pay for costly Exchange proprietary feeds to trade more competitively in the marketplace, and we believe five levels of depth of book is a reasonable and appropriate place to land.''); Clearpool Letter at 11 (''[C]urrently, the 'core data' provided through the SIP only includes the NBBO and top-of-book data. For this reason, there continues to be no viable alternatives for broker-dealers to paying exchanges for their proprietary market data, both to provide competitive execution services to clients and, equally important, to meet best execution obligations. Clearpool therefore strongly supports the inclusion of this additional information in core data, which can reduce the reliance on exchanges' proprietary data feeds and provide market participants with additional information to make informed order routing and execution decisions.''); IEX Letter at 5–6 (''For these reasons, the NBBO no longer encompasses the 'core data' that market participants need to stay competitive and satisfy best execution responsibilities. The fact that depth of book data can only be obtained through exchange proprietary data feeds allows exchanges to charge extraordinarily high prices completely disproportionate to any reasonable estimation of the cost of producing that data. . . . Importantly, however, to the extent that a significant subset of market participants could rely on this data as a viable alternative to purchasing proprietary data, or could viably choose to purchase less proprietary data than they need today, it could help to harness market competition to restrain data fee increases that today are largely unrestrained.''); letter from James J. Angel, Associate Professor of Finance, Georgetown University, to the Commission, dated June 12, 2020, (''Angel Letter'') at 7–8 (''Providing data on a visibly level playing field will increase public trust in the integrity of the markets. . . . Freely available information about the entire market, including orders inside the spread and the depth of book, will reduce the asymmetry of information in the market between small retail investors and larger players. This added transparency will reduce the notion that markets are 'rigged' in favor of larger players.'').

[166] *See* Proposing Release, 85 FR at 16735–59 (discussing market developments such as rising stock prices and increased odd-lot trading, decimalization, and the growth of auctions and the need to expand core data to include smaller-sized orders in higher priced stocks, depth of book data, and auction information to help market participants use core data to trade in a more informed and effective manner in light of these developments); *infra* Sections II.D through II.G.

these products are able to do so. Rather, the definition of core data specifies important information that would be useful to a wide variety of market participants—including those who do not obtain it through proprietary market data products today—and facilitates a broader dissemination of this information.[167]

In addition, the Commission disagrees with comments that the definition of core data would require market participants, including non-professional investors, to purchase or consume all data that would be defined as core data, and thereby increase the cost of core data for all.[168] Competing consolidators are not required to offer a data product that includes all consolidated market data,[169] and the Commission has explicitly stated that the proposed definitions of core data and consolidated market data do not ''mandat[e] the consumption'' of particular data elements.[170] Thus, the Commission believes it has considered and addressed the needs of market participants that do not directly need all elements of core data. The purpose of expanding core data is to promote wider dissemination of data that will be useful in meeting the needs of a broad array of market participants. As explained below, the enhanced core data content will benefit all investors, regardless of whether they directly consume it.[171] Furthermore, the Operating Committee of the effective national market system plan(s) could develop fees for data content underlying consolidated market data offerings for different subsets of consolidated market data to suit the needs of various market participants, as one member of the Operating Committee has already suggested.[172] Within this framework, the Commission believes that the market would develop to enable market participants to consume and pay for the market data that best suits their needs and that there would be downward pressure on data content fees.[173]

Moreover, the Commission believes that all investors will benefit, directly or indirectly, from the expanded definition of core data. Even if only a subset of market participants may choose to acquire directly a data product that includes the full set of data elements included within the definition of core data, the Commission believes that there will be ample demand for expanded core data[174] and a corresponding incentive for competing consolidators to offer more content-rich products. The Commission expects that direct purchasers of such products likely will include many broker-dealers that are electronically routing orders for execution or executing orders internally. As discussed below, the additional data elements included within the definition of core data are useful to efficiently and effectively route and execute orders in today's dispersed electronic markets,[175] and their widespread availability should facilitate broker-dealers' ability to achieve best execution for customers.[176] Thus, broker-dealers will be incentivized to acquire products containing the expanded core data elements to compete effectively for customer business. In addition, by including these additional, important market data elements as part of expanded core data, this rulemaking should help facilitate executing broker-dealers' access to information, to the benefit of all investors. Accordingly, while the Commission expects only some market participants to choose to purchase a data product that includes the full set of core data, any market participant that submits an order in an NMS stock should benefit indirectly from their doing so because more executing broker-dealers will receive the data elements that will help them place customer orders in a more informed and effective manner.

Finally, in response to the comment recommending that a ''retail interest indicator'' be added to quotes,[177] the definition of self-regulatory organization-specific program information already incorporates retail interest indicators disseminated in current SIP data and established pursuant to exchange retail liquidity programs in the definition of consolidated market data.[178]

(b) Odd-Lot Quotations

In the Proposing Release, the Commission solicited comment on whether core data should include odd-lot quotations, but did not include odd-lot quotes in the definition of core data other than by incorporating them through the proposed definition of round lot.[179] Several commenters recommended directly including odd-lots in core data rather than doing so through the mechanism of the proposed definition of round lot.[180] Specifically, one commenter suggested including odd-lots priced better than the PBBO in core data,[181] and another suggested including the best-priced odd-lot quotation from each exchange.[182] Another commenter supported the Commission's aim of increasing odd-lot transparency for higher priced securities but questioned doing so through the proposed definition of round lot.[183] One commenter recommended adding unprotected odd-lots to core data, combined with best execution guidance on broker-dealer obligations with respect to odd-lot quotations, rather than redefining round lot.[184] Similarly, another commenter recommended including odd-lot quotations in core data while leaving the definition of round lot as it currently stands.[185] A

[167] *See supra* note 114 (describing the authority under Section 11A of the Exchange Act to specify additional information that must be made available within the national market system); Section I.A (explaining the need to improve and modernize the national market system to fulfill the goals of Section 11A of the Exchange Act and to meet the current core data needs of all market participants). As stated below, some market participants stated that those who do not buy the exchange proprietary DOB feeds and associated connectivity and transmission offerings are at a competitive disadvantage relative to market participants who purchase these feeds. *See infra* note 1620 and accompanying text. *See also infra* Sections III.E.2(c); V.C.2(b)(i)a (discussing how the amendments will affect data content fees).

[168] *See* TD Ameritrade Letter at 3; NYSE Letter II at 3–4; Nasdaq Letter IV at 7–8.

[169] *See infra* Section III.C.8(a).

[170] Proposing Release, 85 FR at 16775.

[171] *See infra* notes 174–176 and accompanying text.

[172] *See* letter from Elizabeth K. King, Chief Regulatory Officer, ICE, General Counsel and Corporate Secretary, NYSE to Vanessa Countryman, Secretary, Commission, dated Feb. 5, 2020, (''Feb. NYSE Letter'') (recommending that the Commission expand SIP content and ''create products designed for modern use cases, including a SIP product with depth-of-book quotes for institutional traders and a National Best Bid and Offer ('NBBO') only version for retail customers, with fees based on content entitlements (or levels) instead of user type''). *See also infra* notes 1201–1208 and accompanying text.

[173] *See supra* note 28 (describing comments received by the Commission regarding the high cost of proprietary data products that contain data needed for effective participation in the markets); *infra* Sections III.E.2(c); V.C.2(b)(i)a (discussing how the amendments will affect data content fees).

[174] *See infra* notes 878–880; *supra* notes 163–167 and accompanying text.

[175] *See infra* notes 878–880 and accompanying text.

[176] *See supra* Section I.E.

[177] *See* Clearpool Letter at 6.

[178] *See infra* Section II.K.

[179] *See* Proposing Release, 85 FR at 16746.

[180] *See* letter from Patrick Sexton, Executive Vice President, General Counsel, and Corporate Secretary, Cboe, to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''Cboe Letter'') at 15; NYSE Letter II at 5; Nasdaq Letter IV at 14; RBC Letter at 5; letters to Vanessa Countryman, Secretary, Commission, from Kimberly Unger, Chief Executive Officer and Executive Director, STANY, dated June 11, 2020, (''STANY Letter II'') at 3; Anders Franzon, General Counsel, MEMX LLC, dated May 26, 2020, (''MEMX Letter'') at 2 (''[A]ll data currently made available through proprietary data feeds should be available through NMS data feeds. This includes complete depth-of-book data (and thus all odd lot data). . . .'').

[181] *See* CBOE Letter at 15.

[182] *See* NYSE Letter II at 5.

[183] *See* Nasdaq Letter IV at 14.

[184] *See* RBC Letter at 5.

[185] *See* STANY Letter II at 3.

different commenter recommended delaying odd-lots to mitigate the impact on processing times.[186] On the other hand, one commenter expressed concerns that adding odd-lot quotations to core data would harm investor confidence in the markets resulting from confusion over protected and unprotected quotes and increased costs and latency for core data by adding more information that needs to be disseminated.[187] A different commenter presented data showing that, for a significant percent of orders in each of the Commission's proposed round lot tiers, there would still be a contra-side odd-lot quote better than the NBBO.[188]

The Commission continues to be concerned that the availability of odd-lot order information solely to market participants who have purchased proprietary market data products creates a potentially significant information asymmetry relative to market participants who purchase only SIP data.[189] For the reasons discussed below, the Commission is also modifying the definition of round lot.[190] While the proposed definition of round lot, as modified, would incorporate a substantial proportion of odd-lot quotations that occur at a price better than the NBBO for certain higher-priced stocks, the Commission is concerned that a significant amount of liquidity that could be available at better prices would be excluded from core data.[191] After considering comments, and given that the adopted round lot definition, on its own, would have resulted in less odd-lot information being included in core data, the Commission is adopting a definition of core data that includes all odd-lots that are priced at or better than the NBBO, aggregated at each price level at each national securities exchange and national securities association.

As summarized in Tables 1 and 2 below, staff analyzed data on the portion of all corporate stock and ETF volume executed on an exchange, transacted in a quantity less than 100 shares, at a price better than the prevailing NBBO, occurring in a quantity that would be defined as a round lot under both the adopted and proposed definitions of round lot.

TABLE 1

Adopted round lot tier	Adopted round lot definition	Portion of all corporate stock and ETF volume executed on an exchange, transacted in a quantity less than 100 shares, at a price better than the prevailing NBBO, occurring in a quantity that would be defined as a round lot under the adopted definition of round lot
$0–$250.00	100 Shares	0%.
$250.01–$1,000	40 Shares	65.35%.
$1,000.01–$10,000.00	10 Shares	88.28%.
$10,000.01 or more	1 share	100.00%.

Source: Equity consolidated data feeds (CTS and UTDF), as collected by MIDAS (May 2020); NYSE Daily TAQ.

TABLE 2

Proposed round lot tier	Proposed round lot definition	Portion of all corporate stock and ETF volume executed on an exchange, transacted in a quantity less than 100 shares, at a price better than the prevailing NBBO, occurring in a quantity that would be defined as a round lot under the proposed definition of round lot
$0–$50	100 shares	0%.
$50.01–$100	20 shares	86.32%.
$100.01–$500	10 shares	93.57%.
$500.01–$1,000	2 shares	98.85%.
$1,000.01 or more	1 share	100%.

Source: Equity consolidated data feeds (CTS and UTDF), as collected by MIDAS (May 2020); NYSE Daily TAQ.

In comparison to the proposed tiers, the round lot tiers in the final rule would have excluded a significant proportion of better-priced odd-lot liquidity, particularly for stocks priced between $50.01 and $250.00, and thus would not have included this liquidity in core data absent the Commission also including certain odd-lots in the definition of core data.

The Commission believes that this better-priced odd-lot liquidity needs to be reflected in core data because it will help investors and other market participants to trade in a more informed and effective manner and to achieve better executions and reduce the information asymmetries that currently exist between subscribers to SIP data and subscribers to proprietary data. However, the Commission continues to be concerned that adding all odd-lot quotations, particularly those at less aggressive price levels, could ''burden systems, increase complexity, and degrade the usefulness of information in a manner that may not be warranted by the relative benefit of the additional information to investors and market participants'' and that the inclusion of

[186] *See* Data Boiler Letter I at 19.

[187] *See* TD Ameritrade Letter at 4–5.

[188] Memorandum from the Division of Trading and Markets regarding a June 19, 2020, meeting with representatives of JP Morgan (''JP Morgan Memo to File'') at 2 (''Under today's rules: 11.6% of orders contain a contra-side oddlot [sic] quote better than the NBBO. Under SEC's proposed round lot parameters: (i) Bucket A ($50.00 and less) – 100 share round lot – 6.3% of orders would still contain a contra-side oddlot [sic] quote better than the NBBO; (ii) Bucket B (between $50.01 and $100.00) – 20 share round lot – 10.9% of orders would still contain a contra-side oddlot [sic] quote better than the NBBO; (iii) Bucket C (between $100.01 and $500.00) – 10 share round lot – 11.6% of orders would still contain a contra-side oddlot [sic] quote better than the NBBO; (iv) Bucket D (between $500.01 and $1,000.00) – 2 share round lot – 23% of orders would still contain a contra-side oddlot [sic] quote better than the NBBO; (v) Bucket E ($1,000.01 and higher) – 1 share round lot – all quotes are at round lot levels.'').

[189] Proposing Release, 85 FR at 16741.

[190] *See infra* Section II.D (explaining that the Commission is adopting a four-tiered definition of round lot rather than the five-tiered definition that was proposed).

[191] *See* JP Morgan Memo to File at 2.

odd-lot quotations in proposed core data should be ''reasonably calibrated.'' [192]

Therefore, the Commission is modifying the proposed definition of core data to include odd-lots that are priced at or more aggressively than the NBBO.[193] Specifically, pursuant to the revised definition of core data that the Commission is adopting, core data will include odd-lot quotations priced greater than or equal to the national best bid and less than or equal to the national best offer, aggregated at each price level at each national securities exchange and national securities association, in addition to odd-lot transaction data.[194] Making the best priced quotations available in core data is consistent with the Commission's goals in expanding the content of NMS information: Enhancing the availability and usefulness of the information, reducing information asymmetries, and facilitating best execution. In addition, this modification is reasonably calibrated to include the odd-lot quotation data that would be of the most interest to investors and other market participants—namely, quotations that offer pricing at or superior to the NBBO—thus limiting complexity and systems burdens, and therefore costs, relative to alternatives such as including all odd-lot quotations.[195]

The Commission is also adopting the proposed inclusion of odd-lot transaction data in the definition of core data, through the definition of odd-lot information.[196] Odd-lot transaction data is included in SIP data today, and it constitutes part of the baseline information that provides the foundation of transparency and price discovery in the U.S. securities markets.[197] The Commission therefore believes that it should be included in the definition of core data so that investors and other market participants who consume core data can continue to use it to make informed trading and investment decisions.[198]

To further limit the cost and complexity of the inclusion of odd-lots priced at or better than the NBBO in core data, the definition of core data requires these odd-lots to be represented in the aggregate at each price level at each national securities exchange or national securities association rather than on an order-by-order basis.[199] Finally, as discussed below, the Commission is modifying the proposed definition of round lot, which, relative to the proposal, will reduce the number of round lot tiers and eliminate certain better priced quotation information from the NBBO.[200] However, the inclusion of odd-lot quotes priced at or better than the NBBO will make available additional quotation information market participants can use to trade in a more informed and effective manner, which counterbalances this reduction in information.

The Commission believes that including only the best-priced odd-lot quote from each exchange, as one commenter suggested,[201] would not include sufficient information about better-priced odd-lot liquidity in core data. Because for many securities there are odd-lot quotes priced better than the NBBO at multiple price levels,[202] the Commission believes that including only the best-priced odd-lot quote from each exchange in core data would perpetuate some of the critical information asymmetries between SIP data and proprietary data and could impair the usability of core data for many market participants.

Furthermore, the Commission does not share the view of some commenters that its adoption of a modified definition of core data that incorporates odd-lots priced at or better than the NBBO is an alternative to redefining round lot sizes. Defining smaller-sized orders in higher-priced stocks as round lots, in addition to providing transparency into such quotations, ensures that these smaller-sized orders can establish the NBBO, receive order protection, and invoke the applicability of several other rules under Regulation NMS.

The Commission does not agree that including quotation information about odd-lot orders priced at or better than the NBBO in core data, and enabling more investors to see and access this information, will undermine investor confidence in the markets resulting from potential confusion over protected versus unprotected quotes.[203] As is the case today, Rule 611 will not protect these odd-lot orders except to the extent that they are aggregated into round lots. Investors and other market participants who do not believe they need to consume information on odd-lots priced at or better than the NBBO may choose not to do so, and therefore the

[192] Proposing Release, 85 FR at 16741.

[193] As discussed below, the Commission is adopting a standard odd-lot aggregation methodology for all elements of core data, including the NBBO, wherein odd-lots across multiple price levels would be aggregated and disseminated at the least aggressive price. *See infra* Section II.C.2(d). As a result, odd-lots priced at or better than the NBBO could be both included in the NBBO and displayed in the aggregate at each price level by exchange. The Commission believes that this is appropriate, since the NBBO and odd-lot interest at or better than the NBBO provide independently valuable information to market participants. For example, odd-lots priced at or better than the NBBO are beneficial for order routing and achieving best execution, while the NBBO is protected under Rule 611 and must be provided in certain contexts pursuant to the Vendor Display Rule (Rule 603(c)). Additionally, as discussed below, competing consolidators will have the ability to customize data products for their customers, allowing investors to receive only the information they are able to process, so the Commission does not believe that including better-priced odd-lots both at each price level at each exchange and as part of an aggregated round lot would confuse investors.

[194] The Commission is adding odd-lots priced at or better than the NBBO through a new definition, ''odd-lot information,'' that is included in the definition of core data. The definition of odd-lot information will include both odd-lots priced at or better than the NBBO and odd-lot transaction data. Odd-lot transaction data, which was added to SIP data by the national market system plans in 2013 (*see* Proposing Release, 85 FR at 16739), was proposed to be included in core data as a separate element, but the Commission believes it will simplify the definition of core data to include in a single defined term as ''odd-lot information'' odd-lots priced at or better than the NBBO and odd-lot transaction data. *See infra* Section VIII.

[195] As discussed below, odd-lots priced less aggressively than the NBBO are not included in core data unless they aggregate to a round lot and are within the first five price levels after the NBBO. *See infra* Section II.F.2(e) (discussing odd-lot aggregation in the depth of book context).

[196] *See supra* note 194.

[197] *See* Proposing Release, 85 FR at 16736, 16739.

[198] *See also infra* Section II.C.2(c) (discussing why certain other data that is included in SIP data today is not included in core data but will be available through other means).

[199] This would not reintroduce a single-price-only odd-lot aggregation methodology in the same sense that prompted concerns from some commenters. *See infra* note 232 and accompanying text; Section II.C.2(d). Aggregating better-priced odd-lots at each price level at each exchange is not the same as aggregating odd-lots into round lots. Rather, it simply means that better-priced odd-lot orders will be represented in core data in terms of the total number of shares available at each price level at each exchange rather than on an order-by-order basis. For example, if the NBB for XYZ, Inc. is 100 shares at $25.00, and there are three orders of five shares and two orders of ten shares at $25.01 on Exchange A, a competing consolidator's core data product would show 35 shares at $25.01 on Exchange A.

[200] *See infra* Section II.D (stating that increasing the minimum stock price for the first sub-100 share round lot tier from $50 to $250 will not improve odd-lot transparency for stocks priced between $50 and $250). *See also supra* Tables 1 and 2.

[201] *See* NYSE Letter II at 5.

[202] In response to the comment suggesting only including the best-priced odd-lot quote from each exchange, staff supplemented the analysis above (*see, e.g.,* Tables 1 and 2) that evaluated the volume of trades occurring in a quantity that would be defined as a round lot under the adopted definition, by also considering the volume of quotation data for the week of May 22–29, 2020, for stocks priced from $250.01 to $1000.00, which will have a round lot size of 40 shares pursuant to the modified definition of round lot that the Commission is adopting herein. Staff found that there is odd-lot interest priced better than the new round lot NBBO 28.49% of the time, and, in 48.49% of those cases, there are better priced odd-lots at multiple price levels, confirming the view that only including the best-priced odd-lot quote from each exchange would not include sufficient information about better-priced odd-lot liquidity in core data.

[203] *See* TD Ameritrade Letter at 4–5.

Commission does not believe the inclusion of this information in core data will confuse investors.[204] Moreover, odd-lots are subject to best execution requirements,[205] so investors have the assurance that their broker-dealers are required to seek the most favorable terms reasonably available under the circumstances for such orders despite the fact that the odd-lot quotes are not protected quotations pursuant to Rule 611.[206] Furthermore, the Commission does not believe adding odd-lot quotations priced at or better than the NBBO to core data would materially increase latency for core data. Market participants are not required to consume and process this additional odd-lot data, and could choose a consolidated market data product offered by a competing consolidator that does not contain such information, reducing concerns about the latency effects of additional odd-lot information on core data more broadly. In addition, the Commission believes that the decentralized consolidation model will result in lower latencies for the delivery of all consolidated market data.[207]

The Commission does not believe that including a subset of odd-lot quotes in core data is, as one commenter suggested, likely to ''drag the processing time of SIP[s] and CC[s].'' [208] The Commission believes that the most sophisticated, latency-sensitive market participants rely on proprietary market data feeds that include all odd-lots simultaneously with all other market data, which suggests that the inclusion of odd-lots, particularly the subset of odd-lots that will be included as part of core data, will not materially slow data dissemination. Therefore, the Commission does not believe it is necessary to consider new rulemaking that would ''make odd-lots become true 'outliers' '' and/or require the publication of '' 'delayed' odd-lot trades and quotations statistics.'' [209]

(c) OTC Equity, Corporate Bond, Index, and Other Information

In the Proposing Release, the Commission solicited comment regarding the exclusion of information related to OTC equities,[210] certain corporate bonds, and indices from the definition of core data.[211] Commenters had mixed views about whether to include such information in the definition. One commenter favored the exclusion of this information on the grounds that core data should be kept ''light,'' [212] while others agreed with the Commission that this information does not relate to ''NMS securities'' and that it should not be included on that basis.[213] One of those commenters, however, suggested the Commission ensure the information remain available to retail investors.[214]

On the other hand, FINRA highlighted that excluding such data ''would reduce investor access to [such data] and raise investor costs.'' [215] FINRA argued that because OTC equities may become listed and become NMS stocks and vice versa, providing that information in the same data feed ''facilitates more orderly markets and transparency continuity in relation to transitioning issuers.'' [216] Excluding such data would also, FINRA argued, increase costs for both FINRA and market participants.[217]

Given that OTC equities, corporate bonds, and indices are not NMS stocks,[218] the Commission is not revising the proposed definition of core data to include this information, even though this information is currently disseminated by the SIPs. Nothing in these amendments prohibits SROs from independently providing this kind of market data. As discussed below,[219] under the decentralized consolidation model, competing consolidators would be permitted to purchase data from the SROs and offer data products to subscribers that go beyond core data or consolidated market data.[220] Therefore, the exclusion of these types of data from the definitions of core data and consolidated market data does not preclude the provision of this data to market participants who wish to receive it.[221]

Additionally, as trades in OTC equities are reported to only one SRO (*i.e.,* FINRA) while NMS stocks are traded on multiple SROs, there is less need to consolidate OTC data pursuant to an effective national market system plan, which functions primarily to consolidate data across market centers. Furthermore, FINRA makes information on OTC trades widely available to market participants through its ORF.[222] In addition, FINRA's rules related to the reporting of OTC equity transaction data remain in effect, and any change to FINRA's rules would require Commission review.[223] Finally, pursuant to Exchange Act Sections 15A(b)(5), (b)(6), and (b)(9), FINRA could recoup the costs of providing OTC quotation and transaction data by

[204] *See infra* Section III.B.

[205] *See* Order Execution Obligations, *supra* note 90, at 48305 (''The market maker still will have best execution obligations with respect to the remaining odd-lot portion of the customer limit order.'').

[206] *See supra* note 95 and accompanying text. *See also supra* Section I.E.

[207] *See supra* note 199; *infra* Section III.B.5.

[208] Data Boiler Letter I at 19.

[209] *Id.*

[210] ''OTC Equity Security'' is defined in FINRA Rule 6420(f) to mean ''any equity security that is not an 'NMS stock' as that term is defined in Rule 600(b)(47) of SEC Regulation NMS; provided, however, that the term 'OTC Equity Security' shall not include any Restricted Equity Security.'' In its comment letter, FINRA notes that the Proposing Release refers to ''OTCBB'' data to describe the quotation and transaction data for OTC equities, which includes both transaction data from the FINRA OTC Reporting Facility (''ORF'') and quotation data from the OTCBB. *See* FINRA Letter at 9.

[211] Currently, Nasdaq UTP Plan Level 1 subscribers can obtain OTC equity quotation and transaction feeds for unlisted stocks. Similarly, the CTA Plan permits the dissemination of ''concurrent use'' data relating to NYSE-listed corporate bonds and indexes. *See* Proposing Release, 85 FR at 16736.

[212] Data Boiler Letter I at 21.

[213] *See* TD Ameritrade Letter at 4; MEMX Letter at 6.

[214] *See* TD Ameritrade Letter at 4.

[215] FINRA Letter at 9.

[216] *Id.* at 11.

[217] *Id.*

[218] *See* Proposing Release, 85 FR at 16736–37.

[219] *See infra* Section III.B.

[220] As discussed below, the fees for such additional data would be proposed and filed by an individual SRO pursuant to Section 19(b), 15 U.S.C. 78s(b), and Rule 19b–4, rather than by the effective national market system plan(s). *See infra* Section III.B.

[221] In addition, one commenter suggested including exchange-traded product (''ETP'') intraday indicative values (''IIVs'') in core data and standardizing symbology across equity data feeds. *See* Angel Letter at 1, 11. The Commission is not including IIVs in core data because IIVs are not NMS stock quote or trade information and are therefore outside the scope of this proposal. In addition, the Commission did not require exchange-traded funds (''ETFs'') to disseminate IIVs in adopting Investment Company Act Rule 6c-11. *See* Securities Act Release Nos. 33–10695; IC–33646 (Sept. 25, 2019), 84 FR 57162, 57179–80 (Oct. 24, 2019) (describing various shortcomings of IIV and stating that the Commission ''do[es] not believe that IIV will provide a reliable metric for retail investors . . .''). The commenter also argued that the different suffixes for various securities—including preferred shares, rights, and warrants—cause ''confusion for investors and increases the risk of costly trading mistakes.'' *Id.* at 11. This comment is unrelated to the dissemination of NMS stock quote or trade information and is therefore outside the scope of this proposal.

[222] *See supra* note 210. On September 24, 2020, FINRA filed a proposed rule change to eliminate its OTCBB. Historically, FINRA operated the OTCBB to provide an electronic quotation medium for OTC equity securities. However, FINRA represents that quoting on the OTCBB has declined and that the OTCBB does not currently display or widely disseminate quotation information on any OTC equity securities. FINRA represents that all quotation activity in OTC equity securities now occurs on member-operated interdealer quotation systems. As a result, in place of the OTCBB, FINRA is proposing to adopt enhanced requirements governing member interdealer quotation systems that provide real-time quotations in OTC equity securities. Among other things, the proposed rules would require such systems to maintain and enforce written policies and procedures relating to the collection and dissemination of quotation information in OTC equity securities on or through their systems. *See* Securities Exchange Act Release No. 99067 (Oct. 1, 2020), 85 FR 63314 (Oct. 7, 2020) (SR–FINRA–2020–031).

[223] *See* FINRA Rule 6600.

charging fees that are fair, equitable, and do not impose an unnecessary burden on competition.[224] The Commission will monitor, during the transition period and thereafter,[225] the impact of these amendments on the provision of OTC quotation and transaction data, including its cost and availability, and consider whether additional steps are necessary or appropriate.

(d) Odd-Lot Aggregation

The Commission proposed that the best bid and best offer, national best bid and national best offer, and depth of book data shall include odd-lots that when aggregated are equal to or greater than a round lot, and that such aggregation shall occur across multiple prices and shall be disseminated at the least aggressive price of all such aggregated odd-lots.[226] Several commenters supported odd-lot aggregation across multiple price levels for purposes of determining these elements of core data.[227] One commenter argued that this method would ''provide market participants with a reasonably complete view of the best bids and offers for each security.'' [228] Another commenter stated that ''a common odd-lot aggregation logic should be employed by all exchanges for the purpose of displaying meaningful size.'' [229] However, a different commenter recommended that odd-lot quotes not be aggregated across multiple price levels because it ''would cause unnecessary confusion.'' [230]

The Commission is adopting the definition of core data with odd-lot aggregation across multiple price levels and specifying that such aggregation is for each market.[231] Specifically, the best bid and best offer, national best bid and national best offer, and depth of book data shall include odd-lots that when aggregated are equal to or greater than a round lot, and such aggregation shall occur across multiple prices and shall be disseminated at the least aggressive price of all such aggregated odd-lots.[232] The Commission does not believe that this would cause unnecessary confusion [233] because many exchanges currently aggregate odd-lot prices in this manner. Setting forth this cross-price aggregation methodology in Commission rules will promote consistency in the calculation and display of core data. Additionally, this method of odd-lot aggregation will enable market participants to obtain a more reasonably complete view of the best bids and best offers of each security than they would if odd-lots were not aggregated or aggregated at only a single price level because the aggregation methodology the Commission is adopting captures liquidity dispersed across multiple prices. Furthermore, this odd-lot aggregation methodology would benefit market participants by promoting tighter spreads in all stocks, especially high priced ones.[234]

(e) Quotation Sizes and SRO Attribution in Core Data

Currently, the size of the NBBO is represented in core data in terms of the number of round lots. For example, if a 200 share bid at $25.00 establishes the national best bid, the SIP feed shows ''2'' at $25.00.

One commenter, believing that this practice might be confusing given the new round lot sizes, particularly to retail investors, recommended requiring size to be represented in actual shares rather than round lots.[235]

The Commission agrees that continuing the current size representation convention—*i.e.,* the number of round lots—could be confusing. Accordingly, the Commission is modifying the proposed definition of core data to require quotation sizes for core data elements—including the NBBO, each SRO's best and protected quotes, depth of book data, and auction information—to be disseminated in share sizes, rounded down to the nearest round lot multiple. For example, a 275 share buy order at $25.00 for a stock with a 100 share round lot would be disseminated as ''200.'' [236]

The Commission is also modifying the proposed definition of core data to specify that core data elements—specifically, the best bid and best offer, NBBO, protected bid and protected offer, transaction reports, last sale data, odd-lot information, depth of book data, and auction information—to the extent that they are disseminated in a consolidated market data product, must be attributed to the national securities exchange or national securities association that is the source of each such element.[237] The Commission believes that SRO attribution is critical to the utility of these core data elements so that market participants know where to access a displayed quotation.[238] This requirement is consistent with the inclusion of exchange information in current SIP data.[239]

D. Definition of ''Round Lot'' Under Rule 600(b)(82)

1. Proposal

To better ensure the display and accessibility of significant liquidity for higher-priced stocks, the Commission proposed a definition of round lot that would assign different round lot sizes to individual NMS stocks depending upon their stock price. Specifically, the Commission proposed to define round lot as: (1) For any NMS stock for which the prior calendar month's average closing price on the primary listing exchange was $50.00 or less per share, an order for the purchase or sale of an NMS stock of 100 shares; (2) for any NMS stock for which the prior calendar month's average closing price on the primary listing exchange was $50.01 to $100.00 per share, an order for the purchase or sale of an NMS stock of 20 shares; (3) for any NMS stock for which the prior calendar month's average closing price on the primary listing exchange was $100.01 to $500.00 per share, an order for the purchase or sale of an NMS stock of 10 shares; (4) for any NMS stock for which the prior calendar

[224] 15 U.S.C. 78*o*–3(b)(5), (b)(6), and (b)(9).

[225] *See infra* Section III.H.

[226] For example, if Market A had 25 shares offered at $1.98, 25 shares offered at $1.99, and 50 shares offered at $2.00, the round lot offer would be displayed as 100 shares offered at $2.00. As discussed below, the Commission proposed a single-price odd-lot aggregation methodology for purposes of protected quotations. *See infra* Section II.E.1.

[227] *See* Fidelity Letter at 4; IEX Letter at 4.

[228] IEX Letter at 4–5.

[229] TD Ameritrade Letter at 2. *See also* IEX Letter at 5 (''[I]t is important that this method be specified in SEC rules so as to ensure a common understanding of the NBBO by all market participants.'').

[230] Data Boiler Letter I at 24.

[231] The Commission is specifying that the definition of core data does not require cross-market odd-lot aggregation.

[232] As explained below, the Commission is also extending the multiple-price odd-lot aggregation methodology to protected quotations. *See infra* Section II.E.

[233] *See* Data Boiler Letter I at 24.

[234] *See infra* Section II.E.2(b).

[235] *See* CBOE Letter at 13–14. For example, an investor would have to know that, for a $300 stock, ''2'' means 80 shares pursuant to the adopted round lot sizes.

[236] The Commission has considered whether the entire size should be displayed including any odd-lot portion rather than rounding down to the nearest round lot multiple. The purpose of rounding down to the nearest round lot multiple is to ensure that the enumerated elements of core data reflect orders of meaningful size. Specifically with respect to the NBBO, rounding down also helps to ensure that the protected portion of the order is clearly represented, which addresses concerns about impacts on investor confidence and confusion that could result from showing unprotected size at the NBBO. In addition, as discussed above, odd-lots priced at or better than the NBBO, including the odd-lot portion of a mixed lot order at the NBBO, will be included in core data.

[237] *See infra* Section VIII.

[238] *See also* Section II.F.2(b).

[239] *See supra* note 17 and accompanying text (stating that core data currently includes the price, size, and exchange of the last sale; each exchange's current highest bid and lowest offer, and the shares available at those prices; and the NBBO).

month's average closing price on the primary listing exchange was $500.01 to $1,000.00 per share, an order for the purchase or sale of an NMS stock of 2 shares; and (5) for any NMS stock for which the prior calendar month's average closing price on the primary listing exchange was $1,000.01 or more per share, an order for the purchase or sale of an NMS stock of 1 share. The Commission proposed using the IPO price if the prior month's average closing price is not available.

As explained in the Proposing Release, a significant proportion of quotation and trading activity occurs in odd-lots, particularly for frequently traded, high-priced stocks.[240] The proposed definition of round lot would incorporate information about meaningfully sized orders, including many odd-lot quotations in higher-priced stocks that are priced more favorably than the current round lot NBBO, into core data.[241] This would improve the comprehensiveness and usability of core data, facilitate the best execution of customer orders, and reduce information asymmetries.

2. Final Rule and Response to Comments

The Commission received multiple comments on the definition of round lot. Commenters offered suggestions on various ways the proposed round lot tiers should be adjusted and opined on the proposed methodology for determining a stock's price for purposes of assigning a round lot size to a stock.

(a) Round Lot Tiers

Generally: Several commenters expressed general support for a revised definition of round lot for higher-priced securities, but some suggested certain modifications to the proposed definition or otherwise qualified their support.[242] Some commenters agreed with the Commission's proposed tiers of round lot sizes,[243] while others agreed with the tier-based approach, but suggested fewer tiers.[244] One commenter, stating that a one-share round lot for stocks over $1,000 could have ''unintended negative impacts'' on price discovery and routing complexity, suggested that the Commission ''defer action'' on defining round lots (and including them in core data) until the Commission receives further public input.[245]

Some commenters recommended the Commission eliminate the concepts of round lots and odd-lots in favor of displaying the exact number of shares of every order, arguing that the concepts are ''obsolete'' because ''[m]odern computer processing power is up to the task'' of calculating ''in real time the cost to buy or sell a given number of shares at the displayed prices.'' [246]

Several commenters suggested that the proposed five tiers would increase complexity, add confusion, compound costs, create execution-quality challenges, and undermine the usefulness of the proposal, although these commenters offered different suggestions to improve the proposal.[247] One commenter, however, stated that

[240] Staff, using the week of June 8–12, 2020, instead of the week of September 10–14, 2018, repeated the analysis from the Proposing Release of odd-lot trade and message volume, duration on the inside, order-book distribution, and quoted spreads for the top 500 securities by dollar volume included in the Proposing Release (*see* Proposing Release, 85 FR at 16739–40). The results were very similar and confirmed observations discussed in the Proposing Release. Bid-ask spreads widened significantly when calculated using only round lots relative to the odd-lot quotations displayed on proprietary feeds, and as average stock share prices rose, bid-ask spreads based only on round lots generally widened by a greater amount than did spreads based on round lots and odd-lots. Specifically, for the 500 most frequently traded securities by dollar volume, the average bid-ask spread of the 50 securities with the highest share prices decreased (improved or tightened) by $0.19839 when calculated using the proprietary feeds relative to the exclusive SIP feed. Bid-ask spreads for the 50 securities with the lowest share prices showed less improvement when using the proprietary feeds relative to the exclusive SIP feed, decreasing (or tightening) on average by $0.00093. Moreover, frequently traded, high priced securities were more likely to have executions occur in odd-lot sizes (about 34% of the share volume of the 50 securities with the highest share prices) than lower priced securities (about 3.4% of the share volume of the 50 securities with the lowest share prices). Finally, around 91% of the trades that occurred in the two largest securities by market capitalization that have share prices greater than $1,000 occurred in odd-lot share amounts.

[241] Staff, using data from May 2020 instead of September 2019, repeated the analysis from the Proposing Release of the proportion of odd-lot trades that occurred at prices that are better than the prevailing NBBO included in the Proposing Release (*see* Proposing Release, 85 FR at 16740). The results were very similar and confirmed observations discussed in the Proposing Release. During May 2020, a substantial proportion of odd-lot trades occurred at prices that were better than the prevailing NBBO. Specifically, approximately 45% of all trades executed on exchange and approximately 10% of all volume executed on exchange in corporate stocks and ETFs (6,926 unique symbols) occurred in odd-lot sizes (*i.e.,* less than 100 shares), and 40% of those odd-lot transactions (representing approximately 35% of all odd-lot volume) occurred at a price better than the NBBO.

[242] *See, e.g.,* BlackRock Letter at 3 (stating that the proposed round lot definition is ''an elegant solution for increasing odd-lot transparency which innately extends the inclusion of odd-lots to complementary rules and mechanisms such as the determination of the national best bid and offer ('NBBO'), the behavior of order types, and the disclosure of execution statistics'' and strikes an appropriate balance between including every odd-lot order and enhancing the quality of market data by establishing a threshold notional amount, but cautioning that round lots should be judiciously calibrated into groups to minimize complexity); Fidelity Letter at 6 (supporting a revised definition of round lot for higher priced securities but urging the Commission to undertake an investor education campaign and to provide sufficient implementation time); Schwab Letter at 4; letter from Joan C. Conley, Senior Vice President and Corporate Secretary, Nasdaq, to Vanessa Countryman, Secretary, Commission, dated July 22, 2020, (''Nasdaq Letter V'') at 3 (''Of 31 total comments on the proposed introduction of round lot tiers, fewer than half (14) supported the actual proposal; 11 comments supported a definition different from what the Commission proposed, and 6 opposed it.''); letter from Luc Burgun, President and CEO, NovaSparks S.A., to Vanessa Countryman, Secretary, Commission, dated Aug. 7, 2020, (''NovaSparks Letter'') at 1; letter from Christopher Solgan, VP, Senior Counsel, MIAX Exchange Group, to Vanessa Countryman, Secretary, Commission, dated Aug. 18, 2020, (''MIAX Letter'') at 5–6 (recommending that the Commission periodically review the definition of round lot).

[243] *See, e.g.,* IEX Letter at 3–4 (stating that the proposed round lot definition would make round lots ''less arbitrary and more comparable across securities . . . [because] [e]ach round lot tier above the $50 price level would represent a minimum notional value of $1,000, resulting in relatively comparable treatment across securities, regardless of per share price''); letter from Hitesh Mittal, Founder and Chief Executive Officer, BestEx Research, to Vanessa A. Countryman, Secretary, Commission, dated May 21, 2020, (''BestEx Research Letter'') at 2; Data Boiler Letter I at 24.

[244] *See, e.g.,* T. Rowe Price Letter at 4; Capital Group Letter at 3.

[245] *See* State Street Letter at 3.

[246] Angel Letter at 15. *See also* Nasdaq Letter V at 17–19 (suggesting adding intelligent ticks, in which the standard one cent tick that applies to all NMS stocks would be replaced with tick sizes that vary depending upon the trading characteristics of each such stock, while eliminating round lots).

[247] *See, e.g.,* Clearpool Letter at 11–12; STANY Letter II at 3 (''A more prudent and nonetheless effective approach to addressing the increased trading in odd-lots, would be to include odd-lot quotations in core data while leaving the definition of round-lot as it currently stands.''); Capital Group Letter at 3; Letter from Gerald D. O'Connell, SIG Compliance Coordinator, Susquehanna International Group, to Vanessa Countryman, Secretary, Commission, dated July 27, 2020, (''Susquehanna Letter'') at 2 (stating that any benefits of the proposing release ''will be impacted by . . . quoting congestion; . . . customer confusion; and . . . gaming strategies.''); Nasdaq Letter IV at 10; STANY Letter II at 3–4 (recommending that the Commission conduct a derivative market impact analysis because ''STANY is concerned the Commission has not considered the impact and potential for investor confusion when trading options on securities with round-lots quotes in sizes less than the 100-share option contract convention''); TD Ameritrade Letter at 10 (''In the current Proposal for round lot tiers at five different increments, the Firm is also concerned for the potential confusion that may also be posed to investors trading options when contracts remain at 100 shares and the NBBO is quoted in lesser sizes.''); letter from Robert W. Holthausen, Professor of Accounting and Finance, and Robert Zarazowski, Managing Director, Wharton Research Data Services, The Wharton School, University of Pennsylvania, to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''Wharton Letter'') at 4 (''A top of book replacement product for TAQ, despite possible cheaper costs from competing consolidators, even if it did not consist of more consolidated market data, would incur significantly greater storage costs than TAQ due to changes in the definition of 'round lot.' '') (footnotes removed).

adding tiers would not significantly increase complexity.[248]

Notional Value: Some commenters stated that the definition of core data should include all quotes over a certain notional value.[249] Another commenter recommended basing round lots on the notional value of an order, rather than the number of shares, and suggested that the Commission ensure that anything over a minimum threshold qualifies as a round lot, eliminating mixed lots.[250]

Different Threshold: Some commenters suggested increasing the $1,000 price-based threshold but did not suggest a specific number.[251] One commenter suggested, as an alternative to including all quotes above a notional level in core data (as noted above), increasing the price-based threshold to $2,000, stating that ''the notional value of the median trade today is about $2,000.'' [252]

Different Tiers: Multiple commenters offered recommendations to recalibrate the tiers in the proposed round lot definition, ranging from two to four tiers.[253] One commenter, who opposed changing the definition of round lot,[254] suggested that, if the Commission is committed to changing the definition of round lot, it should use two tiers: 100 shares for stocks priced under $500 and 50 shares for stocks priced over $500.[255] Another commenter suggested a different definition using two tiers: 100 shares for stocks priced less than $250 and 10 shares for stocks at or greater than $250, where the 10 share round lot would remain unprotected.[256] Another commenter suggested three tiers: 100 shares for stocks priced under $100, 10 shares for stocks priced between $100.01 and $1,000, and 1 share for stocks priced over $1,000.01.[257] Some commenters suggested a different three-tiered definition: 100 shares for stocks priced under $500, 10 shares for stocks priced from $500.01 to $1,000, and 1 share for stocks priced $1,000.01 or more.[258] One of these commenters stated that their ''recommended round lot sizes of 1, 10 and 100 shares are ones that are used today and that market participants are accustomed to seeing.'' [259] Another commenter suggested another three-tiered definition: 100 shares for securities priced up to $50, 20 shares for securities priced between $50.01 and $500, 2 shares for securities priced from $500.01 and higher.[260] Another commenter suggested reducing the proposed five tiers to four by collapsing the two-share and one-share highest-priced tiers because there are so few stocks in each of those tiers.[261]

Inadequate Justification for the Proposed Tiers: One commenter stated the Commission failed to explain adequately its rationale for choosing the tiers it chose, suggesting the levels are arbitrary.[262] That commenter also argued that the tiers are ''clunky'' and could result in large shifts in a round lot size in response to a small change in a stock's price.[263] The commenter further stated that the Commission failed to consider alternatives to the round lot definition, including the commenter's ''intelligent tick'' proposal, which would vary tick size based upon the trading characteristics of each NMS stock.[264] Additionally, that commenter argued that the tiers would complicate the national market system and ''upend longstanding conventions'' for market participants and their systems as to how they view and process quotes, especially the convention that one order of a security is generally thought of as 100 shares of that security.[265] Similarly, in a subsequent letter, this commenter stated that the Commission did not undertake ''data driven analysis'' of the proposed round lot definition, that commenters raised concerns about the complexity of the proposal, and that therefore the Commission cannot determine whether the benefits of the proposal outweigh the costs.[266]

The Commission is adopting a modified definition of round lot (and, as discussed above, is including odd-lots that are priced at or more aggressively than the NBBO in core data).[267] Specifically, the Commission is adopting a four-tiered definition of round lot: 100 shares for stocks priced $250.00 or less per share, 40 shares for stocks priced $250.01 to $1,000.00 per share, 10 shares for stocks priced $1,000.01 to $10,000.00 per share, and 1 share for stocks priced $10,000.01 or more per share. These adjustments are responsive to comments that the proposed five-tiered approach is unnecessarily complex and that the new tiers should be based on a higher

[248] *See* MEMX Letter at 4.

[249] *See* Clearpool Letter at 11–12 (recommending, in the alternative, reducing the number of tiers to three with round lot sizes of 100, 50, and 20); letter from Roman Ginis, Founder, Intelligent Cross, to Vanessa Countryman, Secretary, Commission, dated June 1, 2020, (''IntelligentCross Letter'') at 3; ACS Execution Services Letter at 3.

[250] *See* letter from Alec Hanson, Founder, AHSAT LLC, to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''AHSAT Letter'') at 3–5. A mixed lot is an order for a number of shares greater than a round lot that is not a multiple of a round lot (for example, an order for 107 shares). *See, e.g.,* Cboe BZX Rule 11.10.

[251] *See* ICI Letter at 7–8; letter from Stephen John Berger, Managing Director, Global Head of Government and Regulatory Policy, Citadel Securities, to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''Citadel Letter'') at 2; ACS Execution Services Letter at 3; STANY Letter II at 3.

[252] *See* IntelligentCross Letter at 3.

[253] *See, e.g.,* TD Ameritrade Letter at 6–7; T. Rowe Price Letter at 4; Capital Group Letter at 3.

[254] *See* TD Ameritrade Letter at 6–7 (''The Proposal for changing the nearly universal 100 share round lot to a price-tiered model appears to be based on some misconceptions. Odd lot trade frequency, which is cited as the justification for the price-tiered model, is not a valid proxy for passive order interest. In reality, trade size is more often dictated by the liquidity-taker than the liquidity-provider and is often a result of algorithmic 'pinging' behavior. TD Ameritrade performed a review in 2019 showing that the increase in odd lot trades was largely due to small liquidity-taking orders, not small passive orders.'') (footnotes removed).

[255] *See id.* at 10–11.

[256] *See* T. Rowe Price Letter at 4.

[257] *See* Capital Group Letter at 3.

[258] *See* Virtu Letter at 3; SIFMA Letter at 9; MFA Letter at 10; Susquehanna Letter at 2–4 (stating that the proposal would be likely to increase significantly, for many high-priced securities, ''growth in quote changes, order routes, missed executions, and reroutes from missed executions,'' but acknowledging that these consequences would be reduced to the extent that fewer tiers are adopted); STANY Letter II at 3 (stating that ''[a]mong those members who support a change in the definition of round-lots, there is a decided preference for'' this particular three-tiered definition).

[259] SIFMA Letter at 9.

[260] *See* Schwab Letter at 4. In a subsequent letter, this commenter provided further support for its suggestion of these three tiers. *See* letter from Jeffrey T. Brown, Senior Vice President, Legislative and Regulatory Affairs, Charles Schwab & Co., Inc., to Vanessa Countryman, Secretary, Commission, dated Oct. 13, 2020, (''Schwab Letter II'') at 1 (''An analysis of orders filled for Schwab clients in the first quarter of 2020 shows that just 5 percent of all odd lot orders are placed for stocks priced greater than $500. Of these orders, roughly the same number of orders are placed for stocks priced from $500 to $1000 and stocks priced greater than $1000. With such a low proportion of orders at prices greater than $500, Schwab believes the additional data provided by the SEC's proposed highest tier would not justify the operational complexity it would create or potential to confuse investors.'').

[261] *See* BlackRock Letter at 3.

[262] *See* Nasdaq Letter IV at 14–15. *See also* Angel Letter at 14 (''The Commission appears to have done little in the way of substantive economic analysis to determine the optimal round lot size as a dollar value. If it had, the proposed dollar value would not be oscillating between $100 and $5,000.'').

[263] *See* Nasdaq Letter IV at 14.

[264] *See id.* at 18.

[265] *See id.* at 17.

[266] *See* Nasdaq Letter V at 4–5.

[267] *See supra* Section II.C.2(b). One commenter suggested an ''intelligent tick'' regime as an alternative to new round lots. However, the commenter's intelligent tick proposal states that the proposal ''attempts to address a discrete set of challenges in the national market system'' and that policy makers also need to consider ''other, related challenges,'' including round lots. *See* Nasdaq, Intelligent Ticks: A Blueprint for a Better Tomorrow (Dec. 2019) at 8, *available at https://www.nasdaq.com/docs/2019/12/16/Intelligent-Ticks.pdf.* Therefore, the commenter's intelligent tick proposal is not presented as an alternative to adopting new round lot sizes. Changes to the tick size of stocks are outside the scope of the rulemaking and the market data issues the Commission is addressing herein.

notional value threshold. The Commission agrees that the number of round lot tiers should be decreased to reduce cost and complexity, avoid potential confusion among market participants, and promote a smoother transition to the new price-based round lot structure. In addition, the Commission believes that the objective of including additional information regarding orders currently defined as odd-lots in core data to enhance the usefulness of this data to market participants, reduce information asymmetries, and facilitate best execution would still be achieved with the simplified definition that the Commission is adopting.[268]

Moreover, under the modified approach, the new round lot tiers would still be normalized at a particular notional value threshold, albeit higher than the $1,000 notional value reflected in the proposed definition, promoting more consistent treatment of securities of varying prices than the 100-share definition that predominates today irrespective of how much a stock is worth. Commenters submitted data suggesting that average trade and order sizes are significantly higher than $1,000.[269] To confirm those comments, staff evaluated all trades that occurred in 2019 and observed that the average number of shares for all trades was about 193 shares, with an average trade size of $8,842 (excluding auctions, the average number of shares per trade was 178 shares, with an average trade size of $8,068). As a round lot is a trading unit that reflects an order of meaningful size to market participants, and since average trade or order sizes are a reasonable proxy for what market participants consider to be a meaningfully sized order, the Commission believes it is appropriate to adjust the notional value threshold of the new tiers upward to $10,000 in response to these comments. The Commission believes that using a round figure that is in line with data provided by commenters and internal staff analysis (*i.e.,* $10,000) will reduce potential investor confusion and implementation cost and complexity.

In addition, as discussed in more detail below, commenters overwhelmingly favored protecting orders in the new, smaller round lot sizes, and the Commission is not adopting its proposal to require protected quotations to be of at least 100 shares.[270] In a market environment where the new round lots are protected, adjusting the notional value threshold upward is appropriate so that order protection under Rule 611, and the applicability of other rules under Regulation NMS, are limited to meaningfully sized orders. Similarly, a higher notional value threshold for the new round lot tiers will prevent orders of a smaller notional value from establishing a new NBBO, which could have added significant cost and complexity to the national market system.

The Commission acknowledges that increasing the minimum stock price for the first sub-100 share round lot tier from $50 to $250 will not improve odd-lot transparency for stocks priced between $50 and $250.[271] However, as discussed above,[272] the Commission is including information about all odd-lots priced at or better than the NBBO in core data, which will counterbalance this loss of odd-lot transparency. In making these choices, the Commission has balanced the competing objectives of: (a) Improving the display and accessibility of orders that are of significant notional size; (b) reducing quoted spreads; and (c) reducing an excessive amount of complexity that comes with having too many tiers.

The Commission is also not revising the proposed definition of round lot to reflect a ''pure'' notional value approach—whereby all quotes over a certain notional amount, regardless of the number of shares, would constitute a round lot—as some commenters suggested.[273] The new 40-, 10-, and 1-share tiers effectively require orders to be over a certain notional value to be assigned to those round lot sizes, but the Commission is reluctant to disrupt the longstanding practice of defining a round lot in terms of a number of shares. Doing so could substantially increase complexity and require significant additional systems reprogramming costs.[274]

While 100, 10, and 1 are the round lot sizes in use today, the Commission does not believe that the round lot sizes of 100, 40, 10, and 1 that the Commission is adopting will materially increase the difficulty of transitioning to the new round lot sizes. Only a few, infrequently traded stocks have round lot sizes other than 100 today, so market participants are not accustomed to 10 or 1 share round lot sizes on a significant scale. Additionally, the thresholds of the new round lot tiers that the Commission is adopting are set at a consistent notional value of $10,000, which, as one commenter observed, results in a more consistent treatment of securities regardless of per-share price[275] and helps to ensure that orders of meaningful size across securities of various prices are defined as round lots. The Commission believes that this structure will facilitate the transition to the new round lot sizes. Moreover, regulatory data includes an indicator of the applicable round lot size,[276] and the Commission is requiring the representation of quotation sizes in terms of the number of shares rather than the number of round lots. These requirements should alleviate concerns regarding potential confusion caused by the switch to different round lot sizes because the size of each quotation and the round lot of each stock will be included in consolidated market data. Finally, only 134 stocks currently have share prices above $250.00, further limiting the cost and complexity of the introduction of the new round lot sizes.[277] For these reasons, the Commission does not believe that the price-based definition of round lot will be confusing to investors.

Additionally, the Commission does not believe that a one-share round lot for stocks priced at or above $10,000.01 would have ''unintended negative impacts'' on price discovery and routing

[268] *See supra* Table 1 (showing that under the four-tiered round lot approach that the Commission is adopting, 0%, 65.35%, 88.28%, and 100% of all corporate stock and ETF volume transacted in a quantity less than 100 shares and at a price better than the prevailing NBBO would be captured in the $0–$250.00, $250.01–$1,000.00, $1,000.01–$10,000.00, and $10,000.01 or more tiers, respectively).

[269] *See* IntelligentCross Letter at 3 (''[T]he notional value of the median trade today is about $2,000''); Virtu Letter at 3–4 (estimating that ''average retail trade size between 2007 and the present is around 436 shares or $14,581'' but also stating that data from 2019 to present show that the vast majority (over 75%) of all trades are still for less than $10,000); Angel Letter at 17 (''[T]he median trade size is roughly $10,000.'').

[270] *See infra* Section II.E.2(a).

[271] *See supra* Tables 1 and 2.

[272] *See supra* Section II.C.2(b).

[273] *See supra* notes 249–250 and accompanying text.

[274] Similarly, the Commission does not believe that the concept of a round lot should be eliminated as ''obsolete'' because round lot orders continue to play an important role in the national market system by delineating orders of meaningful size and focusing regulatory requirements and protections—such as those set forth in Rules 602 and 603, 17 CFR 242.604, 242.605, 242.606, and 242.610 (Rules 604, 605, 606, and 610), and Rule 611 of Regulation NMS—on such orders as opposed to less significant orders. *See* Proposing Release, 85 FR at 16743–46. Rather, the Commission believes that eliminating the concept of a round lot could cause investor confusion and other unintended consequences.

[275] IEX Letter at 4.

[276] *See infra* Section II.H.

[277] According to data analyzed by staff for September 2020, 9,023 stocks would be included in the 100-share tier, while only 117 stocks would be included in the 40-share tier, 16 stocks would be included in the 10-share tier, and 1 stock would be included in the one-share tier.

complexity[278] because, based on current pricing, only one stock would be included in the one-share tier, and that stock already has a round lot size of one.

Furthermore, the Commission does not believe it should defer action on defining round lot until it receives further public input, as one commenter recommended,[279] because the Commission received substantial comment on this issue from a wide range of market participants during this rulemaking process and in connection with the Market Data Roundtable.[280] Moreover, the definition of round lot is based on data-driven analysis. The Proposing Release included, among other things, data on the increasing prevalence of odd-lot trades, particularly among higher-priced stocks, the proportion of odd-lot trades occurring at prices better than the NBBO, and the proportion of these better-priced odd-lots that would be captured by the proposed definition of round lot.[281] As discussed above, staff has updated these data analyses and has performed similar data analyses.[282] The adopted definition is consistent with and supported by these analyses.

Finally, in response to the comment on the impact of the definition of round lot on options markets and on the standard convention that an options contract represents 100 shares of the underlying equity, the Commission does not believe that any such impact will be substantial or disruptive. As stated above, only a limited number of stocks will experience a change in their round lot sizes as a result of the amended definition of round lot.[283] Moreover, options on at least one stock that currently has a sub-100 round lot size are traded in standard units of 100 shares, so there is some precedent for deviation between the standard number of shares for an options contract and the standard unit of trading for the underlying stock. Similarly, corporate actions, such as rights offerings, stock dividends, and mergers can result in adjusted contracts representing something other than 100 shares of stock.[284] For these reasons, the Commission believes that options markets will be able to adjust without undue cost to the new round lot sizes that will apply to some NMS stocks. The Commission will monitor the impact of these amendments on options markets going forward, including during the transition period.[285]

Monthly Round Lot Calculation: Some commenters disagreed with using the prior calendar month's average closing price on the primary listing exchange to determine a stock's price for purposes of assigning a round lot size to a stock, as proposed.[286] One commenter stated that the proposed monthly calculation for determining round lot size would be operationally risky and prone to errors and confusion.[287] That commenter suggested a monthly calculation might ''cause a stock's round lot size to become significantly out of step with what it should be, particularly during periods of significant market volatility or when stock splits occur.''[288] Another commenter suggested that monthly updates would be ''messier'' than updating continuously.[289] A different commenter suggested ''mak[ing] the referenced price that of the order itself (so each price level has a corresponding round lot size, and a given stock may have multiple round lot sizes at once).''[290] Another commenter recommended quarterly recalculations because the proposed monthly process ''will add an administrative burden.''[291] On the other hand, some commenters agreed with the proposal, stating that a monthly calculation time period strikes an appropriate balance.[292] One commenter noted that the monthly calculation ''should not be too much hassle as long as the requirements are . . . clear.''[293]

Selecting an appropriate stock price metric for the round lot size determination involves striking an appropriate balance between using accurate, up-to-date pricing information and avoiding the cost and complexity of over-frequent computation and potential round lot reassignment. The Commission continues to believe the proposed monthly approach strikes an appropriate balance.[294] The Commission believes continuous updating of round lot size or an order-based calculation would be too complex and would be subject to short-term price fluctuations, while quarterly updating could result in severely out-of-date tier assignments. Additionally, market participants are accustomed to other kinds of monthly updates, including for SRO fees, so monitoring for round lot size changes resulting from price moves and making corresponding systems adjustments would not be overly burdensome or costly.[295] Therefore, the Commission is adopting a stock price calculation methodology based on the prior calendar month's average closing price on the primary listing exchange, as proposed. Additionally, to alleviate concerns that a stock's round lot size changing as its stock price changes could be confusing to market participants, the new definition of regulatory data, as discussed below, includes an indicator of the applicable round lot. The Commission believes that including this information about the applicable round lot size in consolidated market data will reduce confusion as market participants adjust to the new round lot sizes.[296]

As stated above,[297] the proposed definition of round lot provided that the IPO price would be used to determine an NMS stock's round lot size if the prior calendar month's average closing price is not available, and the Commission solicited comment regarding the stock price calculation methodology that should be utilized in this situation.[298] The Commission received one comment in response.[299] The Commission recognizes that there are other scenarios aside from IPOs—such as listings of securities traded in the OTC market or direct listings—where there may not be a full prior

[278] *See* State Street Letter at 3 (suggesting there could be such impacts for a one-share round lot for stocks over $1,000).

[279] *See* State Street Letter at 3.

[280] *See* Market Data Roundtable, *supra* note 33.

[281] *See* Proposing Release, 85 FR at 16739–43.

[282] *See supra* Table 1 and Table 2; notes 240 and 241.

[283] *See supra* note 277 and accompanying text.

[284] *See* Options Clearing Corporation, Equity Options, *available at https://www.theocc.com/Clearance-and-Settlement/Clearing/Equity-Options-Product-Specifications* (last accessed Sept. 17, 2020).

[285] *See infra* Section III.H.

[286] *See* Nasdaq Letter IV at 17; Angel Letter at 17; AHSAT Letter at 4; NovaSparks Letter at 1.

[287] *See* Nasdaq Letter IV at 17.

[288] *Id.*

[289] Angel Letter at 17.

[290] AHSAT Letter at 4.

[291] NovaSparks Letter at 1.

[292] *See* MFA Letter at 10; Data Boiler I at 25.

[293] Data Boiler I at 25.

[294] *See* Proposing Release, 85 FR at 16743. One commenter ''suspect[ed]'' that calculating round lot sizes automatically in real time might be operationally simpler and urged the Commission to ''listen carefully to the brokerage ops people'' with respect to this issue. *See* Angel Letter at 17. However, the Commission did not receive any comments from brokerage operations professionals or other commenters that provided a reasoned explanation for a different approach.

[295] *See infra* Section V.C.1(b)(v).

[296] Moreover, the Commission does not believe the round lot tiers will be ''clunky,'' as one commenter suggested. Nasdaq Letter IV at 14. The Commission appreciates the commenter's concern that a small price shift around certain thresholds could cause large changes in round lot size, but the monthly methodology would address this concern by requiring a more sustained or extensive price shift to cause a stock to switch tiers.

[297] *See supra* Section II.D.1.

[298] *See* Proposing Release, 85 FR at 16743, 47.

[299] Data Boiler Letter I at 25 (''We tend to think: no round lot size information until there is a prior full calendar month's average closing price on the primary listing exchange was [sic] $500.01 or greater. Yet, we remain flexible to accommodate whatever minimum number of trading days as [sic] required by the industry and the SEC.'').

month of closing prices on the primary listing exchange that can be averaged to ascertain the stock's price. Therefore, the Commission is modifying the proposed definition of round lot to delete references to the IPO price and to add a new provision that for any NMS stock for which the prior calendar month's average closing price is not available, that stock's round lot shall be 100 shares.[300] This more general formulation will capture IPOs as well as other types of initial stock listings. In addition, assigning an initial, default round lot size of 100 shares to newly listed stocks will provide certainty and consistency and avoid the need to make last minute computations. Finally, the default assignment of a 100-share round lot size should be accurate for almost all new listings, since their prices tend to be well below $250 per share.[301]

(b) Impact on Other Rules in Regulation NMS

The Commission received multiple comments regarding how the proposed definition of round lot would impact Rules 602, 603, 604, 605, and 610.[302]

Rule 602 Comments: One commenter suggested that having multiple NBBOs would make the concept of locked and crossed markets and execution quality ''depend on your data provider and location. That in turn makes 'fair access' of exchange data (Rule 602) a little redundant. The SEC hopes there are around a dozen consolidators, so it's likely some will be faster than others.'' [303] On the other hand, another commenter agreed with the Commission ''that the bids and offers collected and made available under Rule 602(a) should be in the proposed round lot sizes, and the proposed round lot definition should apply to the obligations of responsible brokers or dealers under Rule 602(b).'' [304]

The amendments to the definition of NBBO to accommodate the decentralized consolidation model and the notion of ''multiple NBBOs,'' which already exist today,[305] do not have any direct bearing on the requirements of Rule 602, which relate to the collection and provision of certain quotation data to vendors.

Rule 603 Comments: A number of commenters addressed the impact of the definition of round lot on Rule 603(c), the Vendor Display Rule. One commenter argued that the Commission did not consider the ''indirect impact'' of ''the NBBO reflecting smaller-sized orders'' on the Vendor Display Rule.[306] That same commenter stated, ''[t]he Commission also fails to consider whether the costs associated with retaining the Vendor Display Rule outweigh its benefits if the Commission adopts its proposed changes to the definition of 'round lot.' '' [307] Another commenter argued that the round lot change would mean a ''SIP, broker, or dealer would be required to provide a consolidated display reflecting smaller-sized orders in higher-priced stocks.'' [308]

A different commenter suggested that the protected quotation definition would increase complexity because the Vendor Display Rule ''generally requires a 'consolidated display,' which would include an NBBO based on the revised round-lot sizes, in a context in which a trading or order routing decision can be implemented but would not require the display of valuable information about the protected quotation.'' [309]

The Commission continues to believe that providing a consolidated display that includes the new round lot NBBO is appropriate to help ensure that market participants receive basic quotation information, in a context in which a trading or order routing decision can be implemented. This information should reflect orders of meaningful size, including smaller-sized orders in higher-priced stocks.[310] Moreover, the commenter did not describe any specific costs, including any indirect costs, that it believed the Commission had not considered.[311]

Rule 604 Comments: One commenter suggested the round lot definition would create a burden on market participants to engage in ''careful monitoring and changes to the programming of market makers[']systems . . . each month'' in order to remain compliant with Rule 604, given the potential for month-to-month changes in round lot sizes for individual securities.[312] That commenter recommended a three-tiered structure to reduce such a burden.[313]

Another commenter suggested that the round lot definition's narrowing of the Rule 604 odd-lot exception, resulting in the display of customer limit orders at the NBBO but less than 100 shares, in combination with the proposed amendment to the definition of protected quotation, would ''separate[ ] brokers' Rule 604 requirements from their best execution obligations . . . [and] create[ ] challenges for a broker-dealer to meet its best execution obligations because under the proposed amendments, a customer limit order that is less than 100 shares would not be protected under Rule 611.'' [314]

The Commission continues to believe that Rule 604 should use round lots, as defined and adopted herein, as the measure for customer limit orders that must be reflected in a specialist or OTC market maker's published bid or offer because customer limit orders of meaningful size should be displayed. The Commission believes this will further the objective of Rule 604: ensuring that customers have the ability to effectively seek price improvement through the dissemination of their limit orders by specialists or OTC market makers.[315] Moreover, the concerns raised regarding Rule 604 complexities that would arise as a result of the proposed five-tier round lot definition and the proposed amendments to the definition of protected quotation are diminished significantly since the Commission is adopting a four-tiered definition of round lot with a higher notional value size and is not adopting the proposed amendments to the definition of protected quotation.[316]

Rule 605 Comments: Many commenters discussed the effects of the definition of round lot on the execution

[300] *See infra* Section VIII.

[301] Staff analysis found that for U.S. equity IPOs traded on U.S. exchanges and issued over the last year (as of November 12, 2020), the average share price was $13.75 and the highest share price was $120.

[302] *See* Proposing Release, 85 FR at 16743–45 (explaining the requirements of Rules 602, 603, 604, 605, and 610 of Regulation NMS and the impact of the proposed round lot definition upon these rules). Rule 602 governs the dissemination of quotations in NMS securities. Rule 603 governs the distribution, consolidation, and display of information with respect to quotations for and transactions in NMS stocks. Rule 604 governs the display of customer limit orders for NMS stocks. Rule 605 governs the disclosure of order execution quality information. Rule 610(d), 17 CFR 242.610(d), requires each national securities exchange and national securities association to establish, maintain, and enforce rules that, among other things, require its members to reasonably avoid displaying quotations that lock or cross any protected quotation in an NMS stock and that prohibit its members from engaging in a pattern or practice of displaying quotations that lock or cross any protected quotation in an NMS stock, absent an applicable exception.

[303] Letter from Phil Mackintosh, Chief Economist, Nasdaq, to Vanessa Countryman, Secretary, Commission, dated May 26, 2020, (''Nasdaq Letter III'') at 24–25.

[304] Data Boiler Letter I at 26.

[305] *See infra* Section III.B.10.

[306] NYSE Letter II at 6–7.

[307] *Id.*

[308] Fidelity Letter at 6.

[309] Cboe Letter at 8.

[310] Proposing Release, 85 FR at 16744.

[311] *See* NYSE Letter II at 6–7. In addition, the comment related to additional complexity in the Vendor Display Rule as a result of the proposed amendment to the definition of protected quotation is no longer applicable, as the Commission is not adopting the proposed amendment to that definition. *See infra* Section II.E.2.

[312] MFA Letter at 12–13.

[313] *Id.*

[314] Nasdaq Letter IV at 20–21 (footnotes removed).

[315] *See* Proposing Release, 85 FR at 16744.

[316] *See supra* Section II.D; *infra* Section II.E.

quality statistics under Rule 605. One commenter argued that ''Rule 605 reports would no longer . . . provid[e] uniform comparisons because the NBBO that each market center will use will be different,'' and some suggested changes to Rule 605 in response.[317] Another commenter argued that the monthly round lot calculation could create investor confusion if a stock is near a different tier threshold regarding whether ''the execution information about such stocks needs to be added to Rule 605 reports,'' leading ''investors to be misled by execution quality statistics.'' [318] However, other commenters suggested the proposal would improve the accuracy of Rule 605 reports.[319]

Some commenters argued for ''moderniz[ing]'' Rule 605.[320] One suggested ''(a) creating a 'marketable benchmark' statistic that reflects the size of the quote at the NBBO, (b) adding notional buckets as an additional method of categorization, and (c) incorporating all customer orders regardless of size.'' [321] Another commenter provided an example of how the exclusion of odd-lot quotes from the SIP feeds can skew Rule 605 price improvement statistics.[322] Additionally, a different commenter suggested measuring Rule 605 price improvement statistics using an ''Effective Best Bid or Offer'' calculated using the average fill price of an order at a given time.[323]

The Commission continues to believe that the order execution disclosures required under Rule 605 should be based on an NBBO that reflects orders in the new round lot sizes.[324] The definition of round lot will allow additional orders of meaningful size to determine the NBBO, and, therefore, the execution quality and price improvement statistics required under Rule 605 would be based upon an NBBO that the Commission believes is a more meaningful benchmark for these statistics.[325] As explained below, the Commission does not believe that the amendments to the definition of NBBO to accommodate the decentralized consolidation model or the notion of ''multiple NBBOs,'' which already exist today, will confuse market participants.[326] Similarly, the Commission does not believe the accuracy or comparability of Rule 605 statistics will be impaired. On the contrary, the Commission believes that an NBBO that incorporates orders that often reflect superior pricing by comparison to today's round lot orders [327] will provide market participants with more accurate information about the true quality of the executions they are receiving, even if this information may show a reduction in the number of shares that received price improvement.[328] Finally, while the Commission has reviewed the comments about the need to modernize and update Rule 605, any changes to Rule 605—as opposed to the more limited impact on Rule 605 as a result of the Commission's adoption of the definition of round lot—are beyond the scope of the present rulemaking.

Rule 610 Comments: Commenters discussed the effects of the definition of round lot on 17 CFR 242.610(c) and (d) (Rule 610(c) and (d)). One commenter stated that, with the definition of round lot affecting Rule 610(c), the Commission did ''not consider the harm that an expanded fee limitation would have on competition, or the burdens it would place on market participants, including trading centers that display quotes.'' [329] The commenter stated that in not expanding order protection to orders in the new round lots, the Commission is eliminating one of the bases it used when it first created the fee limitation in Regulation NMS.[330] On the other hand, another commenter agreed the Commission should change Rule 610(c) to apply to quotations in the proposed round lot sizes because doing so ''would further that rule's objectives of ensuring the accuracy of displayed quotations by establishing an outer limit on the cost of accessing them.'' [331]

Multiple commenters raised concerns that the proposed amendment to the definition of protected quotation would limit the restrictions in Rule 610(d) on locked and crossed markets, allowing round lots smaller than 100 shares to be locked and crossed.[332] Some commenters recommended ''the locking and crossing requirements . . . be extended to orders reflected in the NBBO.'' [333] Another commenter stated that the Commission did not ''justify why it is proposing to expand the fee limitation applicable to SROs' best bids and offers under Rule 610(c), but not proposing to expand the limits in Rule 610(d) on SRO members locking and crossing protected quotations.'' [334] Furthermore, one commenter argued that the Rule 610(d) effects ''could add significant complexity to broker-dealers'

[317] STANY Letter II at 4, 6. *See also* Nasdaq Letter IV at 19–20 (stating that the proposed definition of round lot will render Rule 605 execution quality statistics less accurate, that statistics on price improvement for higher-priced stocks may show a reduction in the number of shares of marketable orders that received price improvement because price improvement would be measured against a narrower NBBO, that an increase in the frequency or length of crossed markets resulting from the proposed definitions of round lot and protected quote could cause more orders to be excluded from Rule 605 execution quality statistics, rendering those statistics less accurate, and that the creation of multiple NBBOs would undermine the comparability of Rule 605 statistics across different market centers).

[318] Nasdaq Letter IV at 17.

[319] ICI Letter at 6–7. *See also* T. Rowe Price Letter at 2 (stating that one objective of the Commission's rulemaking was to improve the accuracy of Rule 605 reports).

[320] *See, e.g.,* Virtu Letter at 4 (''many of the Rule 605 execution quality share buckets now bear little relation to the average trade sizes sent by the majority of investors. . . . [F]or stocks with prices over $50, about 70% of trades are odd-lot orders which would not be captured by the current Rule 605. . . . [A] significant overhaul of Rule 605 would be necessary, including possibly expanding measurement of execution quality to include depth of book'').

[321] Citadel Letter at 4.

[322] Healthy Markets Letter I at 1.

[323] *See* Angel Letter at 16.

[324] *See* Proposing Release, 85 FR at 16745.

[325] *See id.*

[326] *See infra* Section III.B.10(b).

[327] *See supra* note 241 and accompanying text.

[328] Additionally, because the Commission is adopting modified definitions of round lot and protected quotation, one commenter's concern is no longer applicable—specifically, that an increase in the frequency or length of crossed markets as a result of the proposed definitions of round lot and protected quotation could cause more orders to be excluded from Rule 605 execution quality statistics. *See* Nasdaq Letter IV at 19–20.

[329] NYSE Letter II at 7–8.

[330] *Id.*

[331] Data Boiler Letter I at 26.

[332] *See* Clearpool Letter at 13–14; TD Ameritrade Letter at 9 (''Because the proposed round lot sizes would allow stepping ahead by economically insignificant amounts, locked and crossed markets may not simply be arbitraged away. At times liquidity-takers may perceive a sophisticated trader has locked or crossed the market for an economically insignificant amount and be reluctant to interact with them. This may lead to occasions of sustained locked and crossed markets, similar to what was observed prior to Reg. NMS Rule 610's prohibition on locked and crossed markets.''); ICI Letter at 7, n. 24 (expressing ''concern'' about this approach); BlackRock Letter at 4 (''This would directly contravene the intent of employing the round lot definition as a mechanism for expanding odd-lot coverage, as the application of other provisions, such as order protection, to round lot orders was a key consideration of this approach. Further, this policy perpetuates an archaic double standard for odd-lot quotations which seem incongruous to the acknowledged economic significance and prevalence of odd-lot activity in the market.'') (footnotes removed); SIFMA Letter at 1–2 (arguing the Commission should make any changes to Rule 610(d) of Regulation NMS in a separate proposal after ''further industry dialogue and consideration''); Nasdaq Letter IV at 18 (''Many of the same concerns that Nasdaq has with respect to the Commission's round lot and trade-through protection proposals also apply to the Commission's proposal to allow orders to lock or cross unprotected round lot displayed quotes of less than 100 shares.'').

[333] Clearpool Letter at 13–14; BlackRock Letter at 5.

[334] NYSE Letter II at 8. *See also* Nasdaq Letter IV at 19 (''[E]ven if the Commission is correct that protection against locked and crossed markets is no longer warranted, the Commission fails to explain why it is reasonable, and not arbitrary, for it to roll back Rule 610(d) only for quotes of under 100 shares, rather than for all quotes in NMS stocks.'').

best execution analyses and could create confusion and uncertainty regarding the quotations that a broker-dealer should rely upon to provide best execution for its customers.'' [335]

The Commission continues to believe that applying the fee limitations of Rule 610(c) to orders of meaningful size, as reflected in the proposed definition of round lot, would further the rule's objectives of ensuring the accuracy of displayed quotations by establishing an outer limit on the cost of accessing them and would help ensure that the rule applies consistently to orders of meaningful size.[336] Further, the Commission does not believe that an expanded fee limitation would harm competition or unduly burden market participants, as one commenter stated.[337] The national securities exchanges do not distinguish between protected or best quotations and other quotations for purposes of their transaction fees,[338] so the extension of the requirements of Rule 610(c) to orders in the new round lot sizes will not affect an area of exchange pricing that has been subject to competition or differentiation among exchanges. In addition, as a result of the amended definition of round lot, a relatively small number of NMS stocks will have their round lot size change,[339] so the impact on exchanges and other trading centers and market participants should be small.[340]

E. Definition of ''Protected Bid or Protected Offer'' Under Rule 600(b)(70)

1. Proposal

In connection with the proposed round lot definition, the Commission proposed to amend the definition of protected bid or protected offer in 17 CFR 242.700(b)(70) (Rule 600(b)(70)) by requiring automated quotations that are the best bid or offer of a national securities exchange or national securities association to be ''of at least 100 shares'' in order to qualify as a protected bid or protected offer. The Commission proposed this change to maintain the status quo with regard to protected quotes, which are currently required to be round lots, and to avoid expanding to the proposed smaller round lots the order protection requirements of Rule 611 and the requirements of Rule 610(d) to prevent locked/crossed markets.[341]

Additionally, the Commission proposed that protected quotations would only include odd-lots at a single price (rather than multiple price levels) that, when aggregated, are equal to or greater than 100 shares.[342]

2. Final Rule and Response to Comments

The Commission received multiple comments on the definition of protected bid or protected offer. Many commenters opposed the proposal to amend the definition and argued that round lots, which determine the NBBO, should be protected quotations. These commenters stated that not protecting the round lot NBBO would result in unnecessary complexity, investor confusion, more trade-throughs, additional locked and crossed markets, and harm to retail investors. Other commenters also discussed odd-lot aggregation for the purposes of the definition of protected bid or protected offer. Commenters also addressed the effects of withdrawing the protected status of the 12 stocks that currently have round lots smaller than 100 shares. Additional commenters discussed the effects of a different PBBO and NBBO on best execution.

(a) Expanding Protection to New Round Lots

Most commenters that mentioned order protection suggested that the definition of protected quotation should reflect the new round lot NBBO and not be limited to those quotations that are of at least 100 shares.[343] One commenter supported the proposal not to protect the new round lots of less than 100 shares,[344] and two were neutral.[345] In support, one commenter stated that the order protection rule would continue to function similarly to the way it does today and that extending order protection to the new round lots would have significant negative trading implications, such as encouraging the posting of quotes in insignificant sizes, which would cause asset managers to break down large orders to avoid signaling their full trading intent.[346]

Complexity and Confusion: Multiple commenters suggested that the amendment to the definition of protected quote would add complexity, including by requiring market participants to monitor an NBBO and a PBBO throughout the trading day.[347] One commenter noted that the ''confusion and complexity of a NBBO that deviates from the PBBO outweighs concerns about protecting quotes that otherwise may not be 'meaningful.' '' [348] Similarly, another commenter argued that the round lot definition, in combination with the definition of protected bid or protected offer, would create a bifurcated system of displayed orders where better priced displayed orders are not protected against trade-throughs.[349]

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[335] FINRA Letter at 7.

[336] The concern expressed by one commenter suggesting that the Commission is eliminating one of the bases for the fee limitation in Rule 610(c) of Regulation NMS is no longer applicable in light of the Commission's decision not to adopt the proposed amendments to the definition of protected bid or protected offer. *See infra* Section II.E. Similarly, the concerns relating to Rule 610(d) of Regulation NMS expressed by several commenters that the proposed amendments to the definition of protected bid or protected offer would allow quotations in the new round lot sizes to be locked or crossed are no longer applicable. *Id.*

[337] *See* NYSE Letter II at 7–8.

[338] *See, e.g.,* Cboe U.S. Equities Fee Schedules, BZX Equities, Transaction Fees; NYSE Price List 2020 (last updated Nov. 2, 2020), *available at https://www.nyse.com/publicdocs/nyse/markets/nyse/NYSE_Price_List.pdf*; Nasdaq, Price List—Trading Connectivity, *available at http://nasdaqtrader.com/Trader.aspx?id=PriceListTrading2 (last accessed Nov. 25, 2020).*

[339] *See infra* notes 364 and 365 and accompanying text.

[340] *See infra* Section V.C.1(b)(vii) (stating that the impact of these amendments on 610(c) of Regulation NMS might not result in economic effects).

[341] *See* Proposing Release, 85 FR at 16747–50. Rule 611 of Regulation NMS requires trading centers to have policies and procedures that are reasonably designed to prevent ''trade-throughs'' on that trading center of protected bids or protected offers in NMS stocks, subject to specified exceptions. Rule 600(b)(94) of Regulation NMS defines ''trade-through'' as ''the purchase or sale of an NMS stock during regular trading hours, either as principal or agent, at a price that is lower than a protected bid or higher than a protected offer.'' Rule 600(b)(94) of Regulation NMS, 17 CFR 242.600(b)(94).

[342] *See* Proposing Release, 85 FR at 16737.

[343] *See* Submitted Comments, Comments on Proposed Rule: Market Data Infrastructure, Commission, *available at https://www.sec.gov/comments/s7-03-20/s70320.htm;* Nasdaq Letter V at 3 (''Just five commenters supported the Commission's proposed treatment of the Order Protection Rule; 24 others opposed it outright.''). *See, e.g.,* Cboe Letter at 8; MIAX Letter at 6; Fidelity Letter at 7; Citadel Letter at 2; BestEx Research Letter at 6–9.

[344] *See* T. Rowe Price Letter at 2.

[345] *See* IEX Letter at 7; Data Boiler Letter I at 21.

[346] *See* T. Rowe Price Letter at 3. In addition, one commenter highlighted that extending order protection to the new round lots would create complexity and confusion: ''Protecting the new round lots could also significantly alter the behavior of market makers like Virtu, impacting their approach to internalization and affecting their capacity to provide price improvement to retail investors. It could also dramatically alter the flow of orders to the exchanges and other trading venues. And, of course, it would impose unknown, but surely significant, implementation costs on market participants.'' Virtu Letter at 5.

[347] *See, e.g.,* Cboe Letter at 8; MEMX Letter at 4; NYSE Letter II at 6; Nasdaq Letter IV at 13–17; Fidelity Letter at 7; Citadel Letter at 2; FINRA Letter at 6–7; Healthy Markets Letter I at 5.

[348] STANY Letter II at 4. *See also* Schwab Letter II at 2 (stating that protecting only transactions of 100 shares or more ''would create [an NBBO] that is distinct from the [PBBO] and would leave broker-dealers with uncertainty over order routing and data display decisions. Schwab believes this would confuse investors.'').

[349] *See* Fidelity Letter at 7.

Additionally, one commenter suggested that amending the definition of protected quote would de-couple the order protection rule and the duty of best execution, creating confusion where brokers have access to a wide swath of required core data but may, or may not, be obligated to use that data to benefit customers.[350]

Locked and Crossed Markets: Some commenters argued that the proposal to limit the definition of protected quotation to orders of 100 shares or more partially rescinds the rule against locked or crossed markets, allowing some orders to lock or cross the market depending on the price of the stock, the size of the order, and the state of the NBBO.[351]

Best Execution:[352] Some commenters argued that a bifurcated approach to protected and unprotected round lots would add complexity regarding best execution obligations, including routing and execution decisions.[353] Others suggested that if the Commission were to adopt the proposed bifurcated approach, the Commission should ''promulgate clear guidance'' surrounding market participants' best execution obligations.[354] However, one commenter stated that it was ''not convinced by criticisms that the Proposal would alter asset managers' best execution obligations as a result of potentially different reference prices (*i.e.,* NBBO vs. PBBO).''[355]

Effects on Retail Investors: Some commenters suggested that limiting protected quotations to those of 100 shares would harm retail orders/investors because displayed retail orders in the new round lot sizes would be traded-through.[356] Furthermore, a commenter argued that the Commission provided no reasonable basis for the proposal to treat round lots differently and that the proposal would unfairly discriminate against retail investors.[357] One commenter suggested that the order protection rule fosters retail investor confidence and that not protecting the new round lots could erode trust in the markets.[358] Another commenter suggested that market makers may not protect round lot orders that are not within the scope of the order protection rule and stated that limiting order protection to transactions of 100 shares or more would ''discourage limit orders—a valuable driver of price discovery—as investors would be less likely to receive execution without price protection.''[359]

Separate Rulemaking: Some commenters stated that they disagreed with the proposal to separate order protection from the NBBO, and if the Commission were to make such a change, it should do so in a separate rulemaking.[360]

The Commission is not adopting the proposed amendment to the definition of protected bid or protected offer.[361] A wide range of commenters expressed significant concerns regarding this aspect of the proposal, including concerns about complexity and ambiguity that could stem from the best execution, routing, and order handling ramifications of introducing round lot quotes that are unprotected, a potential increase in trade-throughs and locked and crossed markets, and possible erosion of confidence among retail investors that their orders are being treated fairly. The Commission recognizes these concerns and does not believe that adopting the proposed amendments to the definition, at this time, would appropriately advance the broader objectives of the proposal, particularly enhancing the utility and availability of consolidated market data.

In support of its preliminary belief that Rules 611 and 610(d) should not be extended to the smaller-sized quotations reflected in the proposed definition of round lot, the Commission cited concerns expressed by various market participants about the existing scope of these rules.[362] However, given the concerns expressed in comments on the proposal, the Commission believes that not extending Rules 611 and 610(d) to the new round lot sizes could create unnecessary complexity and confusion. For example, the Commission continues to believe that improvements in trading and order routing technology since 2005 and the applicability of best execution requirements to orders of all sizes would incentivize market participants to engage with orders in the new round lot sizes even if they were not protected, and that these technological improvements and market forces would also help mitigate excessive locking or crossing of quotations in the new round lot sizes. However, the Commission also agrees with commenters that consistently applying Rules 611 and 610(d) to all round lot sizes would promote confidence among investors and other market participants that market participants will engage with orders in the new round lot sizes and that orders in the new round lot sizes will not be excessively locked or crossed.

Furthermore, other modifications to the proposal that the Commission is adopting herein mitigate the Commission's concerns, as expressed in the Proposing Release, about the expansion of the order protection requirements in Rule 611 and the prohibitions on locked and crossed markets in Rule 610(d). Specifically, as discussed above, the Commission is: (a) Modifying the proposed definition of round lot so that only stocks priced over $250.00 will be assigned to a round lot size less than 100; and (b) increasing the notional size thresholds of the new round lot sizes so that protected order interest at the new round lot sizes is more meaningful.[363] Further, since currently only 134 stocks are priced over $250.00,[364] the scope of the extension of Rules 611 and 610(d) would be fairly limited, extending to a much smaller number of stocks than under the proposed amendments.[365] Furthermore, of this number, six NMS stocks already have a round lot size of less than 100 today.[366] Therefore, only 128 NMS stocks would receive trade-through protection for smaller-sized orders. Additionally, with the larger notional size of $10,000 adopted for the definition of round lot,[367] the extension of order protection to round lots would apply only to orders of a more substantial size.

(b) Odd-Lot Aggregation for Protected Quotations

A number of commenters discussed odd-lot aggregation with respect to protected quotes, and most stated that

[350] *See* Nasdaq Letter IV at 21.

[351] *See id.* at 16.

[352] *See supra* Section I.E.

[353] *See, e.g.,* Fidelity Letter at 7; BlackRock Letter at 4; MFA Letter at 10–12.

[354] Nasdaq Letter IV at 21. *See also* SIFMA Letter at 10, 13; FINRA Letter at 7.

[355] T. Rowe Price Letter at 2.

[356] *See* Cboe Letter at 6–7; Nasdaq Letter IV at 13–17. *See also* BlackRock Letter at 4 (''[A] recent academic study has identified that 'trade-throughs of non-protected odd-lot orders are frequent' such that this 'limitation in the National Market System . . . results in a hidden cost to equity traders.' '').

[357] *See* Nasdaq Letter IV at 16.

[358] *See* TD Ameritrade Letter at 10.

[359] Schwab Letter II at 2.

[360] *See* SIFMA Letter at 14; Nasdaq Letter IV at 14–15.

[361] However, the Commission is still making the technical change to delete the references to ''The Nasdaq Stock Market, Inc.'' in the definition. The Commission did not receive comments on this piece of the proposal and continues to believe the language is redundant because the Nasdaq Stock Market is now a national securities exchange. *See* Proposing Release, 85 FR at 16749.

[362] *See* Proposing Release, 85 FR at 16747–49.

[363] *See supra* Section II.D.

[364] This information is based on data analyzed by staff for September 2020.

[365] By comparison, under the proposed definition of round lot, Rules 611 and 610(d) of Regulation NMS would have extended to over 1,600 stocks in the absence of the proposed amendment to the definition of protected bid or offer.

[366] *See infra* Section II.E.2(c).

[367] *See supra* Section II.D.

the Commission should allow aggregation across multiple price levels, instead of at just one level.[368] Some commenters stated that preventing odd-lot orders from being aggregated across different price levels to create protected quotes, as proposed, would cause spreads to widen, with one commenter providing empirical data, based on quoting activity during the month of April 2020, showing that average spreads would widen by over $0.50 for shares with prices of $500.01 to $1,000.00 and nearly $1.50 for shares with prices of $1,000.01 or more.[369] One commenter suggested this restriction would hurt retail investors because it would result in their orders being executed at inferior prices.[370]

Another commenter suggested that only allowing odd-lot aggregation at one price level, instead of across price levels, would lead to fewer protected quotes.[371]

One commenter suggested that different odd-lot aggregation methodologies between the NBBO and the PBBO would create confusion among market participants.[372] That commenter also suggested that different methodologies could raise confusion from a best execution perspective.[373] Similarly, one commenter suggested only allowing odd-lot aggregation at one price level, combined with the proposal to provide all levels of depth up to the PBBO, would ''create[] implementation difficulties.'' [374]

Another commenter suggested that, given the proposal's intent to maintain the status quo with respect to the scope of orders that are subject to Rule 611, the Commission should consider continuing the existing market practice, as codified in exchange rules, to aggregate quotes at multiple price levels.[375]

One commenter stated that if order protection were extended to all round lots, the commenter would ''support aggregating odd lots in the manner currently described for the PBBO.'' [376]

In light of these comments, the Commission is modifying the proposed definition of core data to require odd-lot aggregation across multiple prices for purposes of the NBBO and protected quotations.[377] The Commission believes that this approach will: (a) Provide a consistent odd-lot aggregation methodology for all elements of core data; (b) be consistent with existing practices, as some commenters pointed out,[378] and would avoid potential costs associated with changing these practices; and (c) avoid unintended consequences that could adversely affect investors, such as widening spreads or reducing the number of protected quotes. As stated in the Proposing Release,[379] this methodology effectively extends order protection to the aggregated odd-lot orders. However, as discussed above,[380] a majority of commenters who opined on odd-lot aggregation for protected quotations preferred a cross-price methodology. Lastly, the comment raised regarding the need for a consistent odd-lot aggregation methodology for the NBBO and protected quotations is less relevant in light of changes the Commission is adopting herein—namely, that the new round lot NBBO will be protected.

(c) Removing Protected Status From Certain NMS Stocks

Some commenters stated that removing protected status for those NMS stocks that currently have a protected quotation size of under 100 shares would potentially increase the number of locked and crossed markets for the twelve current NMS stocks that have protected quotations of under 100 shares.[381] One commenter stated that the Commission did not analyze the effects of removing order protection from those twelve stocks.[382]

The Commission understands these concerns regarding the possible reduction of order protection and locked/crossed markets restrictions for these 12 stocks in their current round lot sizes. However, as discussed above,[383] the Commission is not adopting the proposed amendments to the definition of protected bid or offer, so all NMS stocks—including the 12 that currently have non-100 round lot sizes—would be assigned to round lot sizes based on their per share price, and all round lot orders in these stocks would be protected quotations subject to the trade-through prevention requirements of Rule 611 and the locked and crossed markets restrictions of Rule 610(d).

In addition, the Commission acknowledges that, based on staff analysis of stock prices as of September 2020, one stock will have its round lot size increased from 10 to 40, one will have its round lot size increased from 1 to 10, and six will have their round lot size increased from 10 to 100. As a result, order protection pursuant to Rule 611 and the locked/crossed markets prohibitions of Rule 610(d) will no longer apply to some smaller orders in these stocks.[384] However, the Commission continues to believe that determining the round lot sizes of all stocks based upon price, without special exceptions for certain stocks that currently have non-standard round lot sizes, will reduce complexity and implementation costs, set consistent expectations regarding round lot sizes among market participants, facilitate the transition to price-based round lots, and justify any potential costs of increasing the round lot sizes of a limited number of stocks.[385]

F. Definition of ''Depth of Book Data'' Under Rule 600(b)(26)

1. Proposal

The Commission proposed to include ''depth of book data,'' defined as follows, as an element of core data: All quotation sizes at each national securities exchange, aggregated at each price at which there is a bid or offer that is lower than the best bid down to the protected bid and higher than the best offer up to the protected offer, and all quotation sizes at each national securities exchange, aggregated at each of the next five prices at which there is a bid that is lower than the protected bid and offer that is higher than the protected offer.

The Commission solicited comment on various aspects of the proposed definition of depth of book data, including whether the definition captures the appropriate level of depth data and whether the Commission should include more or fewer levels of

[368] *See, e.g.,* AHSAT Letter at 4.

[369] *See* Cboe Letter at 9–12; IEX Letter at 7; Nasdaq Letter IV at 16–17; Virtu Letter at 5.

[370] *See* Cboe Letter at 10–11.

[371] *See* TD Ameritrade Letter at 11.

[372] *See* BlackRock Letter at 4; SIFMA Letter at 7–8 (suggesting different odd-lot aggregation methodologies would ''rais[e] additional technical issues'' and recommending that the Commission should provide clarification as to how depth-of-book data is determined, ''particularly because the aggregation process appears to work differently for the PBBO versus the NBBO, BBO and depth-of-book determinations'').

[373] *See* BlackRock Letter at 4.

[374] MEMX Letter at 4.

[375] IEX Letter at 7.

[376] Capital Group Letter at 4.

[377] For example, if there is one 50-share bid at $25.10, one 50-share bid at $25.09, and two 50-share bids at $25.08, the adopted cross-price odd-lot aggregation method would show a protected 100-share bid at $25.09, while the proposed single-price odd-lot aggregation method would show a protected 100-share bid at $25.08.

[378] *See, e.g.,* BlackRock Letter at 4.

[379] *See* Proposing Release, 85 FR at 16747–50.

[380] *See supra* notes 368 through 376.

[381] *See* SIFMA Letter at 13–14.

[382] *See* NYSE Letter II at 6.

[383] *See supra* Section II.E.2(a).

[384] In addition, for four of the twelve stocks that currently have non-100 share round lot sizes, the round lot size would not change, and these stocks would not experience a change in terms of the applicability of Rules 611 or 610(d) of Regulation NMS.

[385] *See* Proposing Release, 85 FR at 16749.

depth or otherwise revise the definition to capture the key depth information that would be useful to market participants.

2. Final Rule and Response to Comments

The Commission received comments expressing support for the proposed definition of depth of book data and comments raising various concerns, recommendations, and requests for clarification. As discussed in more detail below, the Commission is adopting a modified definition of depth of book data in response to comments.

(a) Support for Five Levels of Depth

Several commenters expressed general support for including depth of book data in core data [386] or specifically agreed with the Commission's proposed five levels of depth,[387] with some explaining that five levels of depth is suitable for certain market participants or trading practices.[388] One commenter expressed general support for the expansion of core data, including depth of book data, provided that it does not materially increase overall latency.[389]

The Commission agrees that including depth of book data in core data will be useful for and beneficial to a variety of market participants and is adopting the definition of depth of book data largely as proposed, with certain modifications.[390] The Commission does not believe that including depth of book data in core data will materially increase the overall latency of core data for several reasons. First, only five levels of depth are included, limiting the number of quotes necessary to be processed.[391] Moreover, the decentralized consolidation model will result in consolidated market data, including depth of book data, being delivered to market participants with lower latencies.[392] In addition, the Commission believes that market participants that choose to receive the full set of consolidated market data, including depth of book data, will either leverage the existing technology that they currently use to receive depth of book data on a proprietary basis or make the investments in technology to receive the data so that the additional content will not add significant latency.[393]

(b) Proposed Definition Would Include More Than Five Levels of Depth

Some commenters stated that the proposed definition would include five levels of depth on each exchange, which could be confusing and costly and could add latency by increasing actual quote traffic and information to be processed significantly beyond five levels.[394] Some commenters also stated that the proposal to include price levels between the best and protected quotes could similarly include a large number of additional data points.[395] Some commenters recommended that the Commission clarify how depth of book data will be determined and made available on an individual exchange basis, particularly with respect to how odd-lots would be aggregated at depth of book price levels.[396]

The Commission believes that these comments highlight the need to more clearly articulate the scope of data that the definition of depth of book data includes and how this data will be attributed to individual SROs [397] in the consolidated market data products made available by competing consolidators. The Commission is therefore adopting a modified version of the definition of ''depth of book data.''

First, the revised definition of depth of book data will not include the first clause of the proposed definition, which referred to ''all quotation sizes at each national securities exchange, aggregated at each price at which there is a bid or offer that is lower than the best bid down to the protected bid and higher than the best offer up to the protected offer.'' As discussed above, the Commission is not adopting the proposed amendments to the definition of protected bid or protected offer, which would have required such quotations to be ''of at least 100 shares.'' [398] As a result, as is the case today, in the vast majority of cases the best quotes and the protected quotes will be the same.[399] Therefore, the definition of depth of book data does not need to include quotation interest between the best and protected quotes. This modification also addresses commenters' concerns that this aspect of the proposed definition would have

[386] *See* Angel Letter at 1–9 (stating that including depth of book in core data is a ''great idea'' and emphasizing the importance of depth of book data, particularly to retail investors trading in illiquid stocks of smaller companies and using liquidity-providing limit orders); letter from Allison Bishop, President, Proof Trading, to Vanessa Countryman, Secretary, Commission, dated May 1, 2020, (''Proof Trading Letter'') at 1; Healthy Markets Letter at 3; DOJ Letter at 2–4; NovaSparks Letter at 1.

[387] *See* IEX Letter at 5; Capital Group Letter at 2–3; Fidelity Letter at 4–5; Schwab Letter at 4; T. Rowe Price Letter at 2; Wellington Letter at 1; Virtu Letter at 5; SIFMA Letter at 7; STANY Letter II at 4; IntelligentCross Letter at 4. In addition, staff conducted the same analysis of book depth that was included in the Proposing Release but evaluated proprietary market data from a more recent time period (the week of May 4, 2020) than was included in the Proposing Release (July 19, 2019). The results were very similar and confirmed the Commission's view that there is a substantial amount of quotation volume several levels below the best bid. Staff observed substantial quotation volume several levels below the best bid (the offer side was not examined). On average, there is quotation interest at every $0.01 increment at least ten levels out for the most liquid stocks; for the least liquid stocks, there is a large gap between the best bid and the next highest bid, and large gaps are generally also present between the next several bid levels. In addition, the staff review found a significant percentage of the total notional value of all depth of book quotations for both liquid and illiquid stocks falls within the first five price levels.

[388] *See* State Street Letter at 2–3 (stating that institutional firms generally use up to five levels of depth for order routing); ICI Letter at 8–9 (stating that depth of book data ''should consist of at least five price levels, based on the typical trading needs of funds''); Clearpool Letter at 14 (stating that five levels of depth of book data is sufficient to improve the usefulness of core data for most market participants and that ''five price levels typically tend to be a sufficient level of depth for Clearpool for sweeping multiple levels of the book in executing an order''); SIFMA Letter at 7 (''[A] review of our institutional member firms found that while some used less than five levels and others used more, five levels of depth strikes an appropriate balance for the order routing purposes of most.'').

[389] *See* Citadel Letter at 1.

[390] *See infra* Sections II.F.2(b) through II.F.2(c).

[391] *See infra* Section II.F.2(d) (discussing comments suggesting that full, order by order depth of book should be included in core data and the potential latency ramifications thereof).

[392] *See infra* Section III.B.5.

[393] *See infra* Section V.C.1(c)(iv).

[394] *See* STANY Letter II at 4; TD Ameritrade Letter at 5 (''[T]he proposal to include five levels of depth would add ten quotes per security for every exchange, which today amounts to 130 new data points per security.'').

[395] *See* STANY Letter II at 4; TD Ameritrade Letter at 5 (''[T]the Proposal includes all price levels between the BBO and the protected quote, which for higher priced securities could add hundreds more data points.''); NYSE Letter II at 5 (stating that the number of price levels between the best and protected quotes, as proposed, could be more than five levels and could fluctuate intra-day as quotes update).

[396] *See* SIFMA Letter at 7.

[397] As discussed below, an indicator of the national securities exchange or national securities association on which the liquidity at a depth of book price level resides will be included in the adopted definition of depth of book data.

[398] *See supra* Section II.E.2.

[399] Among other things, a protected bid or offer must be an ''automated quotation,'' which means a quotation displayed by a trading center that: (1) Permits an incoming order to be marked as immediate-or-cancel; (2) Immediately and automatically executes an order marked as immediate-or-cancel against the displayed quotation up to its full size; (3) Immediately and automatically cancels any unexecuted portion of an order marked as immediate-or-cancel without routing the order elsewhere; (4) Immediately and automatically transmits a response to the sender of an order marked as immediate-or-cancel indicating the action taken with respect to such order; and (5) Immediately and automatically displays information that updates the displayed quotation to reflect any change to its material terms. Rules 600(b)(6), (70) of Regulation NMS, 17 CFR 242.600(b)(6), (70). Therefore, a ''manual quotation'' that is not automated—also known as a ''slow quote''—can sometimes be the best quotation without being a protected quotation. Rule 600(b)(45) of Regulation NMS, 17 CFR 242.600(b)(45).

included an excessive amount of information in core data that would be difficult to calculate and consume as prices fluctuate throughout the trading day.

Second, in response to comments suggesting that the proposed definition of depth of book data would require five price levels from each exchange to be included in core data, the Commission is modifying the second clause of the proposed definition so that it refers to the next five prices at which there is a bid (offer) that is lower (higher) than the *national best bid (offer)* rather than five price levels from the *protected bid or offer.* These changes specify that the starting points for the ''next 5 prices'' are the highest priced bid and lowest priced offer on *any* exchange (*i.e.,* the national best bid and national best offer) rather than on *each* exchange. Thus, the modified definition specifies that depth of book data includes five levels of aggregated quotation sizes; it does not include more than five levels to account for differences in the highest priced bid or lowest priced offer on each exchange.

The following example illustrates the price levels that are included in the definition of depth of book data.

Example 1: Bids for XYZ, Inc. on Three Exchanges

	Exchange A	Exchange B	Exchange C
Best bid	100 shares at $25.02	100 shares at $25.01	100 shares at $25.00
DOB 1	100 shares at $25.01	100 shares at $25.00	100 shares at $24.99
DOB 2	100 shares at $25.00	100 shares at $24.99	100 shares at $24.97
DOB 3	100 shares at $24.99	100 shares at $24.98	100 shares at $24.95
DOB 4	100 shares at $24.98	100 shares at $24.96	100 shares at $24.92
DOB 5	100 shares at $24.97	100 shares at $24.95	100 shares at $24.90

Note: Prices in shaded areas would not be included in core data pursuant to the definition of depth of book data as amended.

In this example, depth of book data would include aggregate quotation sizes at each price level at and between $25.01 [400] and $24.97 because the starting point for the ''next five prices'' is $25.02 (the best bid on Exchange A and the national best bid) rather than $25.01 (the best bid on Exchange B) or $25.00 (the best bid on Exchange C). Depth of book data would not include the interest at or below $24.96, even if that interest is within the top five levels of any given exchange, because it is not within the first five price levels from the national best bid. A competing consolidator could provide interest beyond the first five levels of depth across exchanges but would have to acquire such data on a proprietary basis from the exchanges.[401]

The Commission believes that revising the definition of depth of book data so that the included price levels are the five prices below the national best bid and above the national best offer, rather than the five prices above and below the best quotes on each exchange, is appropriate because it limits the amount of information that competing consolidators will process and display,[402] which mitigates concerns raised by some commenters about adverse consequences—such as unnecessary complexity or increased processing demands and latency—that could result from a broader interpretation of the proposed definition.[403] In addition, the Commission believes, consistent with the views expressed by various commenters, that a broad array of market participants could use five levels of depth of book data away from the national best bid and national best offer to trade in an informed and effective manner.[404]

Third, the Commission is modifying the definition of depth of book data to specify that, in addition to quotation sizes at the first five price levels from the NBBO, the aggregate size at each

[400] The Commission notes that, in this example, the interest at $25.02 would also be included in core data because the NBBO is one of the elements of core data.

[401] As explained below, Rule 614(d) requires competing consolidators to calculate, generate, and make available to subscribers a consolidated market data product, which can contain all elements of consolidated market data or a subset thereof, but competing consolidators are permitted to offer custom products containing more information as well. Competing consolidators would compensate SROs for the data necessary to generate consolidated market data through fees established by the effective national market system plan(s) and would compensate SROs for data that goes beyond consolidated market data on a proprietary basis pursuant to individual SRO fee schedules. *See infra* note 1132.

[402] *See id.*

[403] *See* Proposing Release, 85 FR at 16753 (stating that defining depth of book data to include a finite number of price levels would limit ''processing demand on systems'' and avoid ''excessive message traffic or complexity'').

[404] *See* Proposing Release, 85 FR at 16753 (stating that depth of book data should ''enhance[ ] the utility of proposed core data for a wide range of market participants'' rather than ''supplanting the proprietary depth offerings of the exchanges that contain additional content and that may be more appropriate for certain market participants or more specialized use cases''). Market participants in need of more depth than included in the definition of depth of book data could purchase a custom depth product separately from exchanges or through a competing consolidator.

included price level shall be attributed to each exchange on which the interest is available. Although the proposed definition of depth of book data referred to quotation sizes ''at each national securities exchange'' in order to require the price and size information in depth of book data to be associated with the source exchange, the Commission believes that specifying that depth of book data includes the aggregate [405] quotation size available at each price at each national securities exchange and national securities association would clarify where the liquidity resides.[406] For instance, with respect to Example 1, depth of book data would include:

$25.01 (100 on Exchange A, 100 on Exchange B)
$25.00 (100 on Exchange A, 100 on Exchange B, 100 on Exchange C)
$24.99 (100 on Exchange A, 100 on Exchange B, 100 on Exchange C)
$24.98 (100 on Exchange A, 100 on Exchange B)
$24.97 (100 on Exchange A, 100 on Exchange C)

The Commission believes that attributing the quotation size at each price to its source national securities exchange or association can, in many circumstances, be essential to achieving the benefits of including depth of book data in consolidated market data. Improved placement of liquidity-taking and liquidity providing orders, for example,[407] requires knowledge of the exchange at which the liquidity resides so that market participants can direct orders to that exchange.

(c) Expand Definition to FINRA's Alternative Display Facility

The proposed definition of depth of book data referred to quotations only on national securities exchanges, but the Commission solicited comment on whether to include the depth of book quotations of national securities associations to account for the possibility of quotes being reported to FINRA's Alternative Display Facility (''ADF'') in the future.[408] One commenter stated that while the ADF does not currently have quoting participants, it is an actively maintained FINRA facility and could readily add quoting participants in the future.[409] This commenter recommended including future potential ADF quotations by modifying the definition of depth of book data to refer to all quotation sizes at each national securities exchange and ''on a facility of a national securities association.'' [410]

The Commission agrees and is modifying the proposed definition of depth of book data so that it refers to quotation sizes on a facility of a national securities association as well as quotation sizes on a national securities exchange. The Commission agrees with the commenter that any depth of book quotation activity displayed through the ADF or similar facilities is comparable to the exchange depth of book data that would be included as core data under the proposal and that it should be made available on the same terms as exchange depth of book data. To provide market participants with a more complete view of the liquidity that may be available at depth of book price levels, the Commission is modifying the proposed depth of book data definition so that any future ADF depth of book quotation data—or data from similar national securities association facilities that may be developed—would be included in core data without the need for additional Commission rulemaking. In addition, by modifying the definition to refer generally to a facility of a national securities association, rather than specifically to FINRA's ADF, the definition will include any potential national securities association depth of book quotations.

(d) Include Full Depth of Book and Order by Order Data

Some commenters suggested including full depth of book data in core data rather than five levels of depth of data.[411] One commenter stated that the proposal could be ''counterproductive and confusing'' and recommended adding full depth of book data, including order-by-order data across all price levels.[412] Another commenter recommended including complete, order-by-order depth of book data in core data, explaining that ''the existence of proprietary data feeds alongside a public tape creates incentives which are incompatible with promoting fair and orderly markets.'' [413] One commenter agreed with the proposed five-levels of depth of book data but stated that, while not necessary for all market participants, providing full depth of book would not tax systems much more than providing five levels, since ninety percent of ''quote changes'' occur at the top five price levels.[414] However, another commenter stated that providing complete depth of book data is not necessary at this time, explaining that additional data results in increased data processing, latency, and complexity that could impair the usability of the data.[415] Finally, one commenter suggested that the Commission should replicate the full depth of book curve to help subscribers of consolidated data better understand the supply and demand imbalance of liquidity in real time.[416]

The Commission does not believe that the definition of depth of book data should be expanded to include complete, order-by-order depth of book at all price levels. As explained in the Proposing Release, the expansion of NMS information generally, and the inclusion of depth of book data in core data specifically, was intended to provide additional information that would be useful to a broad cross-section of market participants and to reduce information asymmetries between users of proprietary data and users of SIP data.[417] However, the Commission explained that these objectives must be balanced against the risk of excessive complexity, message traffic, processing demand on systems, and associated operational costs that might result from the inclusion of more complete depth of book information.[418] The Commission recognized that some market participants may need more granular and expansive data, such as the proprietary depth of book products offered by many exchanges, for certain use cases.[419] Including complete depth of book data in core data would go beyond the needs of a wide array of market participants or standard use cases for depth of book data in trading, and could result in additional operational costs and latency because of increased message traffic with order by

[405] For example, if the national best bid is $25.10, Exchanges A and B have 100-share bids at $25.09, and Exchange C has two 100 share bids at $25.09, the competing consolidator would disseminate: 100 shares at Exchange A, 100 shares at Exchange B, 200 shares at Exchange C. The Commission believes that aggregating quotation sizes at each price level at each exchange will limit the number of messages included in depth of book data as compared to an order by order approach, reducing potential concerns about processing demands on systems, latency, and operational costs. *See infra* Section II.F.2(d).

[406] *See infra* Section II.F.2(c) for an explanation of why the Commission is revising the definition of depth of book data to include quotations on a facility of a national securities association.

[407] Proposing Release, 85 FR at 16754.

[408] Proposing Release, 85 FR at 16756.

[409] FINRA Letter at 12–13.

[410] *Id.* The commenter recommended this particular formulation, rather than a direct reference to the ADF, ''to account for the possibility that other quotation facilities may be developed in the future.'' *Id.* at 13.

[411] *See* MEMX Letter at 5; BlackRock Letter at 2.

[412] *See* MEMX Letter at 5.

[413] *See* BlackRock Letter at 2.

[414] *See* IntelligentCross Letter at 4.

[415] *See* Clearpool Letter at 14.

[416] *See* Data Boiler Letter I at 19.

[417] Proposing Release, 85 FR at 16734, 53.

[418] *Id.* at 16753.

[419] *Id.*

order data at all price levels. Therefore, consistent with the views of several commenters,[420] the Commission continues to believe that while five levels of depth of book data would significantly enhance the usability of core data for many market participants, including complete depth of book data in core data could impair the usability of core data for many subscribers.

Moreover, while the Commission has considered the view expressed by one commenter that providing depth of book data at all price levels would not be overly burdensome and would not tax systems much more than providing five levels, this commenter also acknowledged that full depth of book data is not necessary at this time for all market participants.[421] The Commission shares some commenters' concern about the processing and latency ramifications of including complete depth of book data and therefore is not adopting a definition of depth of book data that goes beyond five levels.[422]

(e) Odd-Lots at Depth and Determination of Five Price Levels

One commenter recommended that ''depth-of-book quotations aggregated at each of the first five price levels where a displayed order is available to trade . . . regardless of the associated size displayed at those prices'' be disseminated.[423] This commenter requested that the Commission clarify, preferably with an example, how odd-lots would be aggregated at depth of book price levels, stating that the proposed definition of core data requires odd-lots to be aggregated across prices and disseminated at the least aggressive price for purposes of depth of book data, while the proposed definition of depth of book data provides that the required five price levels are determined by the presence of a ''bid'' or ''offer,'' which by definition, implies a round lot.[424]

The Commission does not agree that all odd-lots within the first five price levels of the NBBO should be displayed in core data or that the five price levels included in depth of book data should be determined by the presence of an odd-lot quotation at those price levels. First, as explained in detail above, the inclusion of odd-lot quotations in core data must be reasonably calibrated to include the information that is most relevant to investors and other market participants.[425] While the Commission believes that information on the most attractively priced individual odd-lots—namely, those priced at or better than the NBBO—should be included in core data, the inclusion of information regarding individual odd-lots at inferior prices is not warranted because these quotations do not represent direct and immediate opportunities for price improvement.[426] Second, the magnitude of the quotation size available at a particular price level should factor in to whether that price level counts as one of the five price levels that are included in core data. Otherwise, particularly in cases where liquidity is widely dispersed over a number of price levels, as is the case with many illiquid stocks, orders of insignificant notional value could ''take up'' price levels and prevent the dissemination of more significant interest at price levels further away. For example, if the NBB for stock A is $25.15, and there are 1 share bids at $25.14–$25.10 and a 100 share bid at $25.09, the five bids of relatively insignificant notional value at $25.14–$25.10 would prevent the bid of relatively significant notional value at $25.09 from being captured by the definition of depth of book data. For this reason, the proposed definition of depth of book data included a ''minimum size requirement'' for depth price levels—namely, the presence of a ''bid or offer,'' which incorporates the concept of a ''round lot.''[427]

That said, in response to the commenter's request, the Commission is clarifying that the requirement for the presence of a bid or offer in determining the five price levels does not require a ''pure'' or ''unitary'' round lot consisting of only one order to be present at a price level. Rather, odd-lots that aggregate into a round lot pursuant to the prescribed method could also establish a price level, as long as there is at least one round lot of interest—unitary or aggregated—on at least one SRO. As a round lot reflects trading interest of meaningful size to market participants, the Commission believes that odd-lots that in the aggregate reflect size equivalent to a round lot also represent trading interest of meaningful size and should be included in depth of book data. The following example illustrates how odd-lot aggregation would operate in the depth of book context.

Example 2: Odd-Lot Aggregation at Depth

Price	Number of shares bid for stock X		
	Exchange A	Exchange B	Exchange C
$25.50	100 (NBB)	0	0
25.49	0	100	0
25.48	0	0	50
25.47	60	0	50
25.46	0	0	0
25.45	60	0	0
25.44	0	25	0
25.43	0	75	0
25.42	100	0	0
25.41	0	0	2
25.40	0	5	0
25.39	0	0	100

[420] *See, e.g., supra* note 388.

[421] *See* IntelligentCross Letter at 4.

[422] Similarly, in response to the comment regarding the full depth of book curve, *see supra* note 416 and accompanying text, while full order book shape patterns may contain valuable information for certain sophisticated computerized models, the Commission, as discussed above, is concerned that mandating the inclusion of the entire depth of book across all national securities exchanges would have significant processing, latency, and cost ramifications.

[423] *See* Cboe Letter at 15.

[424] *See id.* at 16–17; *see also* SIFMA Letter at 7 (requesting clarification regarding how odd-lots will be aggregated at depth of book price levels).

[425] *See supra* Section II.C.2(b).

[426] *See also infra* Section II.F.2(h) (explaining the relevance of depth of book data to best execution analyses); Proposing Release, 85 FR at 16754 (explaining how depth of book data can enable market participants to trade in a more informed and effective manner).

[427] Proposing Release, 85 FR at 16754.

Here, the first five prices at which there is a bid that is lower than the NBB—measured in terms of the presence of at least one singular or aggregated round lot on at least one SRO—are $25.49 (100 shares on Exchange B), $25.47 (50 shares at $25.48 and 50 shares at $25.47 on Exchange C, aggregated and displayed at the less aggressive price), $25.45 (60 shares at $25.47 and 60 shares at $25.45 on Exchange A, aggregated and displayed at the less aggressive price), $25.43 (25 shares at $25.44 and 75 shares at $25.43 on Exchange B, aggregated and displayed at the less aggressive price), and $25.42 (100 shares on Exchange A). Hence, in Example 2, depth of book data would include: 100 shares at $25.49, $25.47, $25.45, $25.43, and $25.42 (with attribution to the relevant SRO, as explained above).

One commenter argued that allowing aggregation across multiple price levels to determine whether there is a round lot bid or offer at a particular depth of book price level could create significant computational issues, particularly when orders are cancelled and the five price levels would have to be redetermined, possibly resulting in diminished competing consolidator performance and higher capacity requirements for downstream users of the data. This commenter also argued that displaying depth of book price levels in this manner could potentially lead to a deceptive view of market activity at prices that are nowhere near current market prices, raising concerning issues related to investor protection.[428]

The Commission acknowledges that aggregating odd-lots to determine depth of book price levels will require computation by competing consolidators and that new orders or order cancelations and modifications could require the five levels to be redetermined. However, alternatives such as the inclusion of all odd-lots at inferior prices would require more outbound message traffic from competing consolidators to subscribers and would therefore raise similar concerns about system performance and the capability of subscribers to consume the data.[429] In addition, as explained below and in the Proposing Release, the decentralized consolidation model will foster a competitive environment for the provision of consolidated market data, and the Commission believes that this will lead to improvements in the use of more competitive, low-latency aggregation and transmission technologies, mitigating concerns about computational and performance issues related to the generation and dissemination of depth of book data.[430] Competing consolidator subscribers also have the option of consuming varying levels of depth of book data, depending on their needs, and could determine that the latency costs of consuming several levels of depth exceed the benefits. Furthermore, the Commission does not believe that aggregating odd-lots across prices will lead to a deceptive view of market activity or mislead investors because exchanges currently aggregate odd-lots across price levels to form round lots and provide their best bids and offers to the exclusive SIPs at the least aggressive price of all such odd-lots. In addition, Commission rules, which will include this methodology, will provide transparency to market participants regarding the inclusion in core data of odd-lots at depth of book price levels aggregated pursuant to this methodology, which addresses the concern that cross-price odd-lot aggregation would lead to a deceptive view of market activity or mislead investors.

(f) Insufficient Justification for Inclusion of Depth of Book Data in Core Data

Some commenters questioned whether there is sufficient need among market participants for depth of book data to be included in core data.[431] One commenter stated that depth of book data is for ''serious traders'' and is already available on a proprietary basis for anyone who needs it, and that it is not clear whether there would be demand for the ''truncated'' set of information reflected in the proposed definition of depth of book from any particular set of market participants.[432] In a subsequent letter, this commenter stated that the Commission's depth of book data proposal ''lacks data driven analysis'' and that the Commission ''released no independent studies or research analyzing the impact of this proposal or addressing the five price level demarcation.'' [433] Similarly, another commenter stated that depth of book data is not ''necessary or helpful for all investors'' and that its inclusion in core data would increase core data costs unnecessarily and create confusion as to what is necessary for regulatory compliance.[434]

The Commission disagrees with these comments. As evidenced by the support for including five levels of depth of book data expressed by a wide range of commenters—including exchange, buy-side, and sell-side market participants, many of whom explained with specificity why five levels of depth of book would meet their needs [435]—the Commission believes there is demand for core data that includes depth of book data, including the definition of depth of book data, as modified and adopted herein. The Commission also believes that including depth of book data in core data would promote a broader distribution of this data among market participants, particularly those who do not currently subscribe to the proprietary depth of book products offered by the exchanges.[436] Nevertheless, the Commission acknowledges that depth of book data may not be ''necessary or helpful for all investors'' [437] in a direct sense, but even investors who do not directly consume depth of book data will benefit from it indirectly,[438] since many of their broker-dealer intermediaries would likely use depth of book data for improved order placement,[439] which ultimately will improve the execution quality of customer orders.[440] Furthermore, the Commission has explained the implications of these amendments on best execution obligations in detail.[441] Therefore, the inclusion of depth of book data in core data should not ''cause confusion as to what may be required for regulatory compliance.'' [442] Finally, the Commission disagrees that the definition of depth of book data is unsupported by ''data driven analysis'' because the Commission considered staff analyses of depth of book data in both proposing [443] and adopting [444] the definition.

[428] CBOE Letter at 19.

[429] As discussed above, other alternatives presented by commenters, such as including five price levels of depth of book information without regard to whether those price levels are round lots, have other drawbacks. *See supra* notes 423–427 and accompanying text.

[430] *See* Proposing Release, 85 FR at 16768; *infra* Section III.B.5.

[431] *See* Nasdaq Letter IV at 33; TD Ameritrade Letter at 5; NYSE Letter II at 3–4.

[432] *See* Nasdaq Letter IV at 33.

[433] *See* Nasdaq Letter V at 5.

[434] *See* TD Ameritrade Letter at 5.

[435] *See supra* note 388.

[436] *See infra* note 1974 and accompanying text.

[437] *See* TD Ameritrade Letter at 5.

[438] *See supra* Section II.C.2(a).

[439] *See infra* note 879 and accompanying text.

[440] These indirect benefits would accrue to customer orders executed by broker-dealers that do not currently use proprietary depth of book data but that would use the depth of book data as adopted and as included in core data.

[441] *See supra* Section I.E (discussing the implications of these amendments generally for best execution obligations); *infra* Section II.F.2(h) (discussing best execution obligations in the context of depth of book data).

[442] *See* TD Ameritrade Letter at 5.

[443] *See* Proposing Release, 85 FR at 16754.

[444] *See supra* note 387.

(g) Need for Competing Consolidators To Offer Depth of Book

Some commenters supported requiring SROs to provide depth of book information to competing consolidators but opposed requiring competing consolidators to include depth of book in the products offered to their subscribers [445] or emphasized that competing consolidators should be provided with enough raw data to be competitive with proprietary offerings but permitted to offer a range of products due to investors' diverse market data needs.[446]

The Commission agrees that competing consolidators should be permitted to offer customers a range of products, including customized depth of book products that include more or less depth of book information than set forth in the definition of depth of book data. Modifying the requirements of Rule 614 so that competing consolidators will only be required to generate and offer one or more consolidated market data products, which can contain some or all of the elements of consolidated market data, will enable competing consolidators to specialize in different products to address their subscribers' market data needs.[447] Competing consolidators that receive proprietary data products from SROs to create products that go beyond consolidated market data (*e.g.,* full depth of book data), would compensate SROs for this use pursuant to individual SRO fee schedules, while competing consolidators that limit their use of SRO data to the creation of products that include consolidated market data or a subset thereof would be charged pursuant to the effective national market system plan(s) fee schedules. If the effective national market system plan(s) establishes fees for data content underlying consolidated market data offerings that use subsets of consolidated market data, the competing consolidator would have the option of providing customized products that do not, for example, include all five levels of depth of book data, including products providing only the NBBO and/or the top of book quotes of exchanges.[448]

(h) Best Execution Obligations Regarding Depth of Book Data

Some commenters discussed market participants' duty of best execution in light of the inclusion of depth of book data in core data. Some commenters noted that including depth of book data in core data would assist market participants in fulfilling their best execution requirements.[449] Others went further and stated that depth of book data is currently necessary to fulfill their best execution obligations.[450] However, one commenter stated that ''[s]upplementing core market data with depth-of-book data would confound market participants in fulfilling their best execution obligations.'' [451]

As explained above, these amendments do not change the duty of best execution.[452] Rather, the availability of additional data content as core data—including depth of book data—may be relevant to a broker-dealer's ability to achieve and analyze best execution, and broker-dealers should consider the availability of this information in connection with their best execution obligations.[453] However, for the reasons stated above, the Commission is not setting forth minimum data elements needed to achieve best execution or specifying the data elements that may be relevant to any specific situation or customer.[454] In addition, the Commission has explained the implications of these amendments on best execution obligations in detail,[455] and does not agree that market participants will be ''confounded'' in fulfilling their best execution obligations by the addition of depth of book data to core data.[456]

G. Definition of ''Auction Information'' Under Rule 600(b)(5)

1. Proposal

The Commission proposed to define ''auction information'' as an element of core data. Specifically, ''auction information'' would be defined as all information specified by national securities exchange rules or effective national market system plans that is generated by a national securities exchange leading up to and during an auction—including opening, reopening, and closing auctions—and disseminated during the time periods and at the time intervals provided in such rules and plans. Auctions have become increasingly important liquidity events in recent years and have come to represent a significant proportion of overall trading volume. The Commission proposed to include auction information in core data to promote more informed and effective trading in auctions, which could also facilitate price formation and improve execution quality for more traders and investors.[457] The Commission solicited comment on the proposed definition of auction information, including the scope of auction-related information that should be included in the definition.[458]

2. Final Rule and Response to Comments

Many commenters favored including auction information in core data, but some opposed doing so. The Commission is adopting the definition of auction information, as proposed, with one modification.[459] Specifically, the Commission is adding the word ''publicly'' before ''disseminated'' to specify that only auction information that is publicly disseminated on an exchange's proprietary feeds is included in the definition of auction information and hence as an element of core data. The Commission believes that this modification will help ensure that all auction information that an exchange includes in its proprietary feeds will be included in core data, addressing the information asymmetries that currently exist between users of SIP data and proprietary data and facilitating the ability of core data subscribers to participate in auctions in an informed

[445] *See* BestEx Research Letter at 2, 5 (''Given that exchanges have zero competition in providing their own market data feeds, we welcome the Commission's proposed mandate that exchanges provide depth of book information and auction information to competing SIP vendors, thus reducing information asymmetry among market participants. However, we believe that SIP providers should not be required to include that information in their products.'').

[446] *See* BlackRock Letter at 2–3.

[447] *See infra* Sections III.C.1(b); III.C.8(a).

[448] *See infra* Section III.E.2(e).

[449] *See, e.g.,* RBC Letter at 4; SIFMA Letter at 3–4; T. Rowe Price Letter at 1; Clearpool Letter at 1, 11 (stating that data content currently available only in proprietary feeds is necessary for best execution); Capital Group Letter at 2; McKay Letter at 1; Better Markets Letter at 1–2; DOJ Letter at 4.

[450] *See* State Street Letter at 2; IEX Letter at 5.

[451] Nasdaq Letter IV at 7. *See also* FINRA Letter at 7 (stating generally that the proposed changes to the content of consolidated market data and the manner in which it would be disseminated raise questions regarding best execution requirements and that the Commission should consider providing best execution guidance for broker-dealers).

[452] *See supra* Section I.E.

[453] *See id.*

[454] *See id.*

[455] *See id.*

[456] *See supra* note 451 and accompanying text. *See also supra* note 92.

[457] *See* Proposing Release, 85 FR at 16759.

[458] *See id.*

[459] The adopted definition of auction information also includes one technical change from the proposed definition—using the plural ''auctions'' rather than the singular ''an auction'' in the phrase ''generated by a national securities exchange leading up to and during auctions.'' The plural form is more consistent with the use of ''auctions'' in the next clause of the definition. *See infra* Section VIII.

and effective manner.[460] This modification would also clarify that auction information does not include auction-related information that is made available to a limited group of market participants under certain exchange models, but not made publicly available.[461]

(a) Support for Inclusion of Auction Information in Core Data

Many commenters supported the inclusion of auction information in core data, emphasizing the importance of this information in light of the increasing proportion of transaction volume that takes place during opening and closing auctions.[462] One commenter stated that including auction information in core data would eliminate proprietary data costs as a barrier to auction trading and encourage a broader range of market participants to submit trading interest into auctions, enhancing market liquidity and price discovery.[463] Another commenter cited recent market wide circuit breaker halts and the consequent re-opening auctions as reasons for its support of including auction information in core data.[464] Another commenter stated that retail investors should be properly informed with appropriate information about the indicative auction price and the trading imbalance.[465]

The Commission agrees with these comments on the growing significance of auctions and auction information to investors and other market participants. As the Commission stated in the Proposing Release, opening and closing auctions conducted by the exchanges have become increasingly important liquidity events and represent a significant proportion of overall trading volume.[466] The growth of passive, index-tracking investment strategies through mutual funds, ETFs, and similar products has contributed to the higher concentration of trading in closing auctions.[467]

For these reasons, the Commission believes that auction information should be included in core data to promote more informed and effective participation in auctions by market participants and to potentially broaden the range of market participants who participate in auctions, enhancing auction liquidity and price discovery. Specifically, the Commission believes that auction information, such as order imbalances and indicative prices, helps market participants determine whether to participate in auctions, how to trade leading up to an auction, and how to best place their trading interest into an auction.[468] Finally, the Commission agrees that recent market wide circuit breaker halts, which occurred after the Commission's issuance of the Proposing Release, further underscore the need for auction information to be included in core data so that information related to the reopening auctions that occur after such halts is broadly disseminated to market participants, promoting more informed participation in these auctions.

(b) Asserted Violation of Intellectual Property Rights

One commenter stated that it ''possesses copyright rights in its auction data as a compilation . . .'' and the proposal would require that it ''forfeit these copyrights rights.'' [469] The commenter noted that there have been ''auctions of financial instruments for hundreds of years,'' and that it ''has developed a unique approach to auctions that includes a creative selection and arrangement of auction data.'' [470] The commenter stated that it ''has the exclusive right to reproduce its compilation in copies, to prepare derivative works based on the compilation, and to distribute copies of the compilation.'' [471] The commenter further stated that the proposal would ''force Nasdaq to surrender these rights, robbing Nasdaq of its ability as copyright owner to obtain fair market value of licenses for its intellectual property.'' [472]

Some commenters disagreed.[473] One commenter stated that viewing auction information (or depth of book data) as the intellectual property of the exchanges would ignore the fact that the broker-dealers who submit the orders and the investors who generate the orders are the source of this data and would contravene broker-dealers and investors' ownership rights in the underlying data.[474]

The Commission does not agree that the definition of auction information or its inclusion in core data would violate any copyright interests of the commenter. The Commission has the authority to determine the content of the quotation and transaction information made available under the national market system rules, including information related to exchange auctions.[475] In addition, other Commission rules require the public disclosure or provision of information that must be compiled, such as Rules 601 (transaction reports), 602 (quotations), 605 (order execution

[460] *See* Proposing Release, 85 FR at 16758–59.

[461] *See* NYSE Rule 123C(6)(b) (relating to the dissemination of certain auction-related information to floor brokers).

[462] *See* IEX Letter at 6; MEMX Letter at 5–6; Cboe Letter at 21; BlackRock Letter at 2; Fidelity Letter at 5; Schwab Letter at 5; State Street Letter at 2–3; T. Rowe Price Letter at 2; Capital Group Letter at 2; ICI Letter at 9–10; SIFMA Letter at 7; Citadel Letter at 1 (supporting the inclusion of auction information in core data as long as it does not materially increase latency); Virtu Letter at 5; IntelligentCross Letter at 4; STANY Letter II at 4; BestEx Research Letter at 5 (stating that competing consolidators should be able to determine whether or not to include auction information in the products offered to subscribers); Healthy Markets Letter at 3; Clearpool Letter at 15; Wellington Letter at 1; Proof Trading Letter at 1 (stating that auction information could be useful for agency trading); NovaSparks Letter at 1.

[463] *See* ICI Letter at 9–10 (''Doing so also would eliminate proprietary data costs as a barrier to auction trading and encourage a broader range of market participants to submit trading interest.''); *see also* SIFMA Letter at 7.

[464] *See* RBC Letter at 5.

[465] *See* Angel Letter at 8.

[466] *See* Proposing Release, 85 FR at 16756 (stating that auctions account for approximately 7% of daily equity trading volume based on data available on Cboe's website from November 2019). Staff conducted the same analysis of auction data that was included in the Proposing Release but for a more recent time period (the month of June 2020) and observed that auctions account for approximately 7% of daily equity trading volume. Staff also observed that auctions accounted for more than 20% of total volume on two days (June 19 and June 26). *See* Cboe: U.S. Equities Market Volume Summary, *available at https://markets.cboe.com/us/equities/market_share/* (last accessed Aug. 30, 2020).

[467] *See* Proposing Release, 85 FR at 16756–57.

[468] *See id.* at 16826–27.

[469] Nasdaq Letter IV at 51.

[470] *See id.* (''When performing an opening or closing auction, Nasdaq receives orders and disseminates (via NOII messages) the results of those simulations. The frequency at which the NOII is disseminated changes over the course of an auction; for example, in the closing auction, the NOII is disseminated every ten seconds for the first five minutes of the auction, and then every second for the final five minutes of the auction. The NOII includes a number of data fields, including: Symbol (indicating the security to which the NOII relates); Near Indicative Price (which is based on orders in both the closing and continuous books); Far Indicative Price (which is based on orders solely in the closing book); Current Reference Price (which is based solely on orders in the continuous book); Paired Shares (indicating how many shares would execute at the Current Reference Price); Imbalance Shares (indicating the number of shares that would remain after execution at the Current Reference Price); and Imbalance Side (indicating whether the Imbalance Shares relate to buy orders or sell orders). The three prices in the NOII are not simply based on executed transactions, but rather they are simulations of what the price ''would be'' if the auction were to execute at that moment, based on different inputs. Each day, Nasdaq generates over 400 simulations of these three prices for each security. As there are over 3000 securities traded on Nasdaq each day, this means that Nasdaq compiles more than 1.2 million NOII records each day. The selection and arrangement of the NOII data fields are original and reflect Nasdaq's creative judgment; Nasdaq did not copy this selection of auction data, and there is no precedent for this unique and creative assembly of auction data fields. . . .'').

[471] *Id.*

[472] *Id.*

[473] *See* Fidelity Letter at 5; SIFMA Letter at 7.

[474] *See* SIFMA Letter at 7.

[475] *See supra* note 114.

information), and 606 (order routing information) of Regulation NMS and 17 CFR 240.15c2–12 (Exchange Act Rule 15c2–12) (credit rating and audit information related to municipal securities).[476]

Moreover, auction information, such as order imbalances and indicative pricing, pertains to certain outputs of an exchange's auction process. Such auction information does not require the disclosure of any details about the process of the auction or require the exchanges to ''reproduce'' their compilations. Rather, the exchanges can comply with the requirement to make information related to their auctions available to competing consolidators and self-aggregators without using their existing compilation systems; they are free to collect and publish the factual information required by the amendments to be made public by any means they choose in a manner that does not utilize any copyrightable format or collection methodology. Therefore, to the extent that any intellectual property rights attach to exchange auction processes themselves, these amendments do not violate those rights.[477]

Furthermore, exchanges will continue to be compensated for making auction information available to competing consolidators and self-aggregators through fees established by the effective national market system plan(s). The Operating Committee of the effective national market system plan(s) will propose fees for the data content underlying consolidated market data, including auction information, as well as updates to the formula for allocating revenues from this data among the SROs.[478] In so doing, the Commission expects the Operating Committee to assess the impact of the inclusion of auction information in consolidated market data on the fees to be charged for the data content underlying consolidated market data, as well as how exchanges that contribute auction information should be compensated for this data through the allocation formula.

(c) Assertion of Insufficient Justification for Inclusion of Auction Information in Core Data

One commenter characterized auction information as ''esoteric'' and ''designed to assist sophisticated market participants,'' arguing that anyone who needs this information can buy it now, that it is likely to be ''useless'' to anyone who does not currently buy it, and that including it in core data will not make it ''any more or less available.'' [479] Similarly, another commenter stated that auction information is not ''necessary or helpful for all investors'' and that its inclusion in core data would increase core data costs unnecessarily and create confusion as to what is necessary for regulatory compliance.[480]

A variety of commenters—including exchange, buy-side, and sell-side market participants—stated, and the Commission agrees, that auction information is not ''esoteric'' information that would be of use only to some small subset of ''sophisticated'' market participants.[481] Rather, the Commission continues to believe that auction information would be useful or beneficial to a broad cross-section of market participants—including retail investors, according to one commenter [482]—and would enable these market participants to participate in auctions, and to trade leading up to auctions, in a more informed manner.[483] Furthermore, as explained above, even market participants that do not directly acquire all elements of core data, including auction information, will still indirectly benefit from the inclusion of auction information in core data. The inclusion of auction information in core data will facilitate greater access to this information among a broader group of executing broker-dealers and will enable them to place orders into auctions more effectively and to achieve better executions for their customer orders.[484] As commenters stated, proprietary data costs may discourage some market participants from participating in auctions.[485] The Commission is sensitive to these concerns and believes that including auction information in core data would help facilitate its broader dissemination.[486] Finally, the Commission is not mandating the consumption of auction information and has explained the implications of these amendments on best execution obligations above.[487] The Commission believes the inclusion of auction information in core data will not create confusion as to regulatory requirements, as one commenter stated might happen.[488]

(d) Include Competing Crosses in Auction Information

One commenter recommended expanding the proposed definition of auction information to include data on competing crosses offered by national securities exchanges other than the listing market, such as one of the commenter's products (the Cboe Market Close product), so that investors have a full view of exchange trading in other mechanisms through which investors can seek to have their orders executed at official opening or closing prices.[489]

The Commission does not believe that information on competing crosses should be included in core data at this time. Auctions are held pursuant to exchange rules at specified periods during the trading day (*e.g.,* at the open, at the close, or during the day to reopen a stock that has been halted) when continuous trading is not occurring.

[476] *See also* Securities Exchange Act Release No. 74244 (Feb. 11, 2015), 80 FR 14564, 14669–70 (Mar. 19, 2015) (Regulation SBSR—Reporting and Dissemination of Security-Based Swap Information Adopting Release) (''Under the federal securities laws, the Commission imposes a number of requirements that compel the provision of information to the Commission itself or to the public. . . . Businesses that operate in an industry with a history of regulation have no reasonable expectation that regulation will not be strengthened to achieve established legislative ends.'').

[477] For example, the dissemination of auction information as required by these amendments does not violate any patents that the commenter has identified, as these amendments do not compel the disclosure of the process of how the auction prices are derived. *See* Rule 600(b)(5) of Regulation NMS (defining ''auction information,'' by reference to information specified in exchange rules, which do not disclose how auction prices are derived). Rather, these amendments require exchanges to make auction information available to competing consolidators and self-aggregators so that market participants may submit trading interest into auctions in a more informed manner.

[478] Auction data for a particular NMS stock will likely be generated by a single exchange, namely the primary listing exchange for that stock. However, all data elements that make up consolidated market data, such as individual quotes and trades or regulatory data, originate from a single SRO, and, as explained below, the Operating Committees of the effective national market system plans historically have determined how best to allocate consolidated market data revenues among the SROs to fairly reflect their individual contributions. *See infra* Sections III.E.2(b), III.E.2(f). In addition, certain NYSE auction data is currently included in Tape A. *See* Proposing Release, 85 FR at 16757.

[479] *See* Nasdaq Letter IV at 33.

[480] *See* TD Ameritrade Letter at 5.

[481] *See supra* note 462.

[482] *See* Angel Letter at 8.

[483] *See supra* note 468.

[484] *See supra* Section II.C.2(a); *infra* Sections V.C.1(c)(iii) (discussing how the amendments will affect access to auction information); III.E.2(c); V.C.2(b)(i)a (discussing how the amendments will affect data content fees).

[485] *See* ICI Letter at 9–10 (''Including auction information in the consolidated feed would enhance transparency into market activity. Doing so also would eliminate proprietary data costs as a barrier to auction trading and encourage a broader range of market participants to submit trading interest.''); SIFMA Letter at 7 (''Adding this [auction] data to the definition of core data would assist with alleviating some of the discrepancies in content between the exchange proprietary feeds and the current SIP feeds and provide market participants with the ability to rely on SIP feeds rather than incurring the substantial costs in being forced to purchase both the proprietary data and the SIP data.'').

[486] *See supra* note 484.

[487] *See supra* Section I.E.

[488] TD Ameritrade Letter at 4.

[489] *See* Cboe Letter at 21.

During auctions, buy and sell orders generally interact at the single price, within limits, that maximizes the trading volume that can be executed.[490] For example, a closing auction generally is held at the end of regular trading hours on the primary listing exchange pursuant to a process set forth in the primary listing exchange's rules to determine a security's official closing price.[491]

While the Cboe Market Close process seeks to provide executions on Cboe BZX Exchange at the official closing price published by the primary listing exchange, which is typically determined through an auction, it is not itself an auction process that establishes pricing.[492] In proposing to include auction information in core data, the Commission was responding to the growing importance of auctions themselves rather than competing cross processes that leverage auction-based pricing. Because competing cross processes are a derivative of the underlying auctions that establish prices, the Commission does not believe that including information regarding Cboe Market Close or similar competing cross processes would further the objective of promoting more informed participation in auctions. The Commission's decision does not preclude the dissemination of information related to such processes on a proprietary basis or prevent competing consolidators from acquiring and providing this information to their subscribers. Additionally, self-regulatory organization-specific program information can also be required to be included in consolidated market data pursuant to the national market system plan or plans required under Section 242.603(b) or amendments thereto that are approved by the Commission.[493]

(e) Classification of Auction Information

One commenter stated that auction information (along with odd-lots and depth of book data) should be part of the consolidated market data, rather than core data, and expressed its doubt that firms would have an option to receive only a portion of core data.[494] Another commenter stated that auction information should be further split into three products: (1) Core data that has no auction data but includes Cboe Market Close orders in order not to drag the processing speed of normal data distribution; (2) separate subscription for auction imbalance information (matched quantity, imbalance size, near price, far price, paired shares, and imbalance shares); and (3) integrated auction data in a combined feed, the speed of which may be slower than (1) and (2).[495]

The Commission believes that auction information should be part of core data. Core data includes elements that the Commission has determined to be useful to inform trading decisions by today's investors. Auction information is important to investors who wish to participate in the opening, reopening, and closing auctions, which make up an increasing proportion of overall trading volume. However, as discussed above,[496] the Commission is not creating any new regulatory obligation to consume auction information.[497] Furthermore, the Operating Committee of the effective national market system plan(s) could set separate fees for different data content subsets, and competing consolidators could offer a variety of customized market data products to meet their subscribers' the diverse needs. This would help ensure that market participants pay for only the data that they consume and addresses the commenter's recommendation to provide for product differentiation and customer choice with respect to auction data.

H. Definition of ''Regulatory Data'' Under Rule 600(b)(78)

1. Proposal

The Commission proposed defining regulatory data as follows: (1) Information required to be collected or calculated by the primary listing exchange for an NMS stock and provided to competing consolidators and self-aggregators pursuant to the effective national market system plan or plans required under Rule 603(b), including, at a minimum: (A) Information regarding Short Sale Circuit Breakers pursuant to Rule 201 of Regulation SHO; (B) information regarding Price Bands required pursuant to the LULD Plan; (C) information relating to regulatory halts or trading pauses (news dissemination/pending, LULD, and market wide circuit breakers (''MWCBs'')) and reopenings or resumptions; (D) the official opening and closing prices of the primary listing exchange; and (E) an indicator of the applicable round lot size; and (2) information required to be collected or calculated by the national securities exchange or national securities association on which an NMS stock is traded and provided to competing consolidators and self-aggregators pursuant to the effective national market system plan(s) required under Rule 603(b), including, at a minimum: (A) Whenever such national securities exchange or national securities association receives a bid (offer) below (above) an NMS stock's lower (upper) LULD price band, an appropriate regulatory data flag identifying the bid (offer) as non-executable; and (B) other regulatory messages including sub-penny execution and trade-though exempt indicators. For purposes of item (1)(C) of the proposed definition, the primary listing exchange that has the largest proportion of companies included in the S&P 500 Index shall monitor the S&P 500 Index throughout the trading day; determine whether a Level 1, Level 2, or Level 3 decline, as defined in self-regulatory organization rules related to Market-Wide Circuit Breakers, has occurred; and immediately inform the other primary listing exchanges of all such declines (so that the primary listing exchange can initiate trading halts, if necessary).

2. Final Rule and Response to Comments

The Commission received several comments regarding the definition of

[490] *See, e.g.,* NYSE Rule 123C(8). *See also* Proposing Release, 85 FR at 16756.

[491] *See, e.g.,* NYSE Rule 123C(1)(e). *See also* Proposing Release, 85 FR at 16756.

[492] Securities Exchange Act Release No. 88008 (Jan. 21, 2020), 85 FR 4726 (Jan. 27, 2020). Through Cboe Market Close, buy and sell market on close orders for stocks not listed on Cboe are matched together and executed at the closing price of the stock's primary listing exchange. Because the Cboe Market Close process is using the primary listing exchange's closing price as the execution price, the Cboe process is not independently discovering a closing price different than the primary listing exchange. *Id.* at 4727, 4738 (''The Commission finds that . . . Cboe Market Close should not disrupt the price discovery process in the closing auctions of the primary listing exchanges. Importantly, Cboe Market Close will only accept, match, and execute unpriced MOC orders with other unpriced MOC orders (*i.e.,* paired-off MOC orders). Contrary to some commenters' assertions that MOC orders contribute to the determination of the official closing price, the Commission believes that paired-off MOC orders, which do not specify a price but instead seek to be executed at whatever closing price is established via the primary listing exchange's closing auction, do not directly contribute to setting the official closing price of securities on the primary listing exchanges but, rather, are inherently the recipients of price formation information.'').

[493] *See supra* Section II.B.2; *infra* Section II.K.2.

[494] *See* TD Ameritrade Letter at 6 (''Inclusion under the broader Consolidated Market Data definition would still require for the collection, aggregation, and dissemination of the data to make it available to self-aggregators and competing consolidators but would avoid future confusion about what is required of end users for regulatory purposes in the future.'').

[495] *See* Data Boiler Letter I at 20.

[496] *See supra* Section II.C.2(a).

[497] *See supra* Section I.E. These amendments do not mandate the consumption of auction information, regardless of whether auction information is defined as core data or consolidated market data, contrary to what one commenter suggested. *See supra* note 494 and accompanying text.

regulatory data.[498] Some commenters supported including regulatory data in consolidated market data and did not comment on the substance of the definition of regulatory data.[499] Other commenters pointed out difficulties or unintended consequences that they believed would result from the proposed definition.[500]

The Commission is adopting the definition of regulatory data as proposed. As discussed below, the Commission believes that the information in the definition of regulatory data should help market participants meet their regulatory obligations and be informed of trading halts, price bands, or other market conditions that may affect their trading decisions.

(a) Complexity of Shifting Responsibilities to Primary Listing Exchanges

One commenter stated that shifting the dissemination of LULD and Short Sale Circuit Breaker information from the exclusive SIPs to multiple primary listing exchanges would lead to these key market functions becoming disaggregated, more expensive, more prone to errors, and more complex due to multiple calculation methodologies and the need to uniformly adapt to change requests that impact the calculations.[501] Another commenter stated that the Commission did not consider how a primary listing exchange responsible for calculating and disseminating regulatory data would obtain the information needed to perform these calculations from the other exchanges and failed to account for the financial costs, competitive implications, and latency impacts of this design.[502]

The Commission does not believe that the proposal would significantly increase the cost, complexity, or error rate of regulatory data such as LULD or Short Sale Circuit Breakers information. With respect to LULD information, just as the primary listing exchanges provide trading pause and reopening auction messages to the two exclusive SIPs today, the primary listing exchanges will provide this same information to competing consolidators and self-aggregators under the decentralized consolidation model. Similarly, with respect to Rule 201 information, the primary listing exchange currently determines whether a Short Sale Circuit Breaker has been triggered and notifies the exclusive SIPs; under the decentralized consolidation model, the primary listing exchange will notify competing consolidators and self-aggregators. The Commission does not believe the incremental cost of providing this data to additional entities—*i.e.,* competing consolidators and self-aggregators—will be substantial. Further, the Commission does not believe that the competing consolidator model would significantly increase complexity because the primary listing exchanges today already disseminate regulatory messages to the two exclusive SIPs. Finally, the Commission does not believe that shifting the calculation of regulatory data to primary listing exchanges would lead to more errors as the commenter suggested, since primary listing exchanges are capable of generating regulatory messages accurately and already generate many of these messages today.

Moreover, the primary listing exchanges, and not only those that oversee the operation of exclusive SIPs, are qualified and capable to calculate LULD price bands, as the exclusive SIPs do today. The Commission does not agree with the commenter that the costs of performing these calculations at the primary listing exchange would be greater than the costs of doing so at the exclusive SIPs because the mechanical nature of these calculations would not introduce variable costs depending upon the entity performing the calculation. Furthermore, the Commission anticipates that the Operating Committee of the effective national market system plan(s) could reimburse these costs from plan revenue prior to allocation. In addition, as discussed below, the Commission believes that various factors would exert a downward pressure on the fees for the data content underlying consolidated market data, including regulatory data.[503] Because the primary listing exchanges already calculate ''synthetic'' LULD price bands after reopening prices are disseminated but before the ''official'' price bands are sent by the SIPs,[504] any costs of requiring them to do so pursuant to the definition of regulatory data and the decentralized consolidation model should be limited. Finally, with respect to the comment that the Commission did not account for the financial costs of its regulatory data proposal, the Commission provided an estimate of the burdens and costs of providing competing consolidators and self-aggregators with the data necessary to generate consolidated market data, including regulatory data, and solicited comment on this estimate.[505]

With respect to the comment regarding how primary listing exchanges would obtain the information needed to calculate and disseminate regulatory data from the other exchanges, the Commission observes that many primary listing exchanges already subscribe to the proprietary feeds of many other exchanges and will continue to have this option under the decentralized consolidation model.[506] Like many other market participants, the primary listing exchanges do so to calculate their own NBBOs based on data from across the national market system and use the proprietary feeds, rather than the SIP feeds, for their matching engines.[507] Furthermore, the Commission is adopting rules to allow the primary listing exchanges the option of obtaining the data from other exchanges necessary to perform these calculations through self-aggregation.[508]

In addition, the Commission does not believe the proposal will introduce

[498] *See* FINRA Letter at 9; NYSE Letter II at 21; MFA Letter at 9; Capital Group Letter at 2; TD Ameritrade Letter at 3.

[499] *See* Capital Group Letter at 2; TD Ameritrade Letter at 3; MFA Letter at 9 (recommending that competing consolidators should be allowed to provide a regulatory data only feed and/or exchanges should be allowed to provide regulatory data on proprietary feeds); Data Boiler Letter I at 33; MEMX Letter at 6.

[500] *See* FINRA Letter at 7; NYSE Letter II at 21.

[501] *See* FINRA Letter at 7.

[502] *See* NYSE Letter II at 21.

[503] *See infra* Sections III.E.2(c); V.C.2(b)(i)a (discussing how the amendments will affect data content fees).

[504] *See* Nasdaq, Equity Trader Alert #2016–79: NASDAQ Announces Improved Protections for Equity Markets Coming Out of Halts (''Leaky Bands'') (Apr. 12, 2016), *available at https://www.nasdaqtrader.com/TraderNews.aspx?id=ETA2016-79*; NYSE, Trader Update: NYSE and NYSE MKT: Enhanced Limit Up Limit Down Procedures (Aug. 1, 2016), *available at https://www.nyse.com/trader-update/history#110000029205*; Securities Exchange Act Release No. 34–78435 (July 28, 2016), 81 FR 51239 (Aug. 3, 2016) (SR–FINRA–2016–028).

[505] Proposing Release, 85 FR at 16807–09.

[506] *See, e.g.,* NYSE Rule 7.37(e) (showing the data feeds for handling, execution, and routing of orders and subscribing to the direct feeds for all national securities exchanges except three exchanges (Investors' Exchange, LLC, Long-Term Stock Exchange, Inc., and MEMX LLC)); Nasdaq Rule 4759 (showing the data feeds for handling, routing, and execution of orders and subscribing to the direct feeds for all national securities exchanges except six exchanges (NYSE National, MIAX Pearl, Long-Term Stock Exchange, NYSE Chicago, MEMX, and IEX)).

[507] *Id.*

[508] *See infra* Section III.D.2(a). The exchanges today perform with proprietary data many functions that are similar to self-aggregation, such as calculating the best bid and offer to decide where to route routable orders. The Exchanges would continue to have the option to self-aggregate under the adopted rules, allowing the exchanges to perform many of the functions they do today, including, among other things, routing of orders and compliance with the order protection rule. *See also supra* note 503 (regarding the Commission's expectations with respect to the fees for data content, including regulatory data).

unwarranted complexity or inconsistency in the dissemination of regulatory data. While each primary listing exchange will calculate LULD price bands, the primary listing exchanges are not permitted to apply ''separate calculation methodologies'' as suggested by the commenter, since the reference price calculation methodology is set forth in the LULD Plan and not subject to deviations.[509] The definition of regulatory data that the Commission is adopting assigns a single entity, the primary listing exchange, with the responsibility to calculate regulatory data such as LULD price bands or to monitor the S&P 500 for purposes of sending MWCB alerts in order to avoid the complexity and confusion that could result from having multiple entities—competing consolidators and self-aggregators—performing these functions.

Finally, the Commission does not believe these additional requirements would impose any competitive disadvantages on primary listing exchanges. Listing securities already entails significant regulatory obligations, including, as discussed above, the provision of certain regulatory data to the exclusive SIPs, as well as other regulatory functions that are required of a listing SRO to regulate its listed securities and the issuing companies. The Commission estimates that the incremental burdens imposed by the amendments, including the calculations required to disseminate the elements of regulatory data, and costs, if any, necessary to obtain the data underlying those calculations, would be minimal, particularly because the primary listing exchanges already perform many of these functions today.[510]

(b) Geographic Latency of Regulatory Data

One commenter stated that as a result of competing consolidators being positioned at different locations, listing exchanges are likely to experience a delay in identifying the moment a LULD halt or a Regulation SHO restriction is triggered, which may result in executed trades that violate the LULD Plan and Regulation SHO, and that such latency issues will make it difficult for SROs to surveil and determine with certainty that a market participant intentionally violated a LULD or Regulation SHO rule.[511]

The Commission acknowledges that competing consolidators would be in different locations, likely co-located at the exchanges' primary data centers currently in Mahwah, Carteret, Secaucus, and Weehawken, New Jersey. However, the Commission does not believe that the different locations would make it more difficult for SROs to conduct their market surveillance with respect to LULD and Regulation SHO. Currently, the SROs develop surveillance systems using the data sources that allow them to perform their regulatory obligations.[512] As discussed below,[513] the varying distances between the existing SIPs and the locations of different exchanges ensure that SIP-provided regulatory messages will arrive at different times today, measured in microseconds or finer increments of time. The Commission believes that, in fact, there will be less of a latency differential experienced under the decentralized consolidation model because it eliminates other material geographic latencies in the consolidation and regulatory message generation process.[514]

One commenter stated that assigning responsibility to the primary listing exchanges to produce regulatory information such as LULD bands, market-wide circuit-breaker information, and Regulation SHO thresholds underscores the importance of the Governance Order [515] and having a single effective national market system plan and a single, independent plan administrator and of ''standing up the governance regime quickly'' prior to the launch of the competing consolidator model.[516] The Commission believes that ascribing the responsibility for calculating and providing regulatory data to primary listing exchanges pursuant to these amendments is not dependent on the changes contemplated in the Governance Order,[517] such as the submission of a single consolidated data plan. Independent of issues related to the governance of the effective national market system plan(s), the primary listing markets, which are already performing many of these functions, are well-situated to calculate and provide regulatory data under the decentralized consolidation model.[518]

One commenter recommended that the Commission should require competing consolidators, not the effective national market system plan(s) participants, to make available a regulatory-data-only feed at a fair and reasonable price because this information is a public good, or, alternatively should allow exchanges to provide regulatory market data through their proprietary feeds.[519]

Regulatory data is essential for the investing public and necessary for market participants to fulfill regulatory obligations. The fees for regulatory data must be fair and reasonable and not unreasonably discriminatory.[520] As discussed below, the Commission believes that the introduction of competitive forces and other factors will constrain regulatory data fees. Moreover, these amendments permit the Operating Committee of the effective national market system plan(s) to propose fees for data content underlying different consolidated market data offerings, including consolidated market data offerings that use a subset of consolidated market data, and permit competing consolidators to offer a variety of products—including, potentially, a regulatory-data-only product—suited to the needs of their subscribers. Therefore, the Commission is adopting the proposal without any changes.

I. Regulation SHO: Conforming Amendments to Rule 201

1. Proposal

Under the definition of regulatory data, the primary listing exchange for an NMS stock would make the determination regarding whether a Short Sale Circuit Breaker has been triggered. The Commission proposed to amend the process required under Rule 201 in two ways. First, if the Short Sale Circuit Breaker has been triggered, the listing market would be required immediately to notify competing consolidators and self-aggregators

[509] LULD Plan Section V(A).

[510] In addition, the Operating Committee of the effective national market system plan(s) could consider the costs of providing competing consolidators and self-aggregators with regulatory data in proposing fees for consolidated market data and could propose adjustments to the revenue allocation formula to compensate primary listing exchanges in particular.

[511] *See* Letter from Anthony J. Albanese, Chief Regulatory Officer, NYSE, *et al.* dated June 15, 2020 (''Joint CRO Letter'') at 3.

[512] *See infra* note 771 and accompanying text. In addition, time stamps will be added to all consolidated market data, including regulatory data, by the SROs as well as competing consolidators. *See infra* Sections III.C.8(b); III.E.2(h). These timestamps will help identify when LULD halts and Regulation SHO restrictions were triggered and communicated.

[513] *See infra* Section III.B.5.

[514] *See id.*

[515] *See infra* note 1128.

[516] RBC Letter at 7.

[517] *See infra* note 1127.

[518] *See* Proposing Release, 85 FR at 16759.

[519] *See* MFA Letter at 9 (''The Commission should require competing consolidators to provide a regulatory data-only feed at a fair and reasonable price relative to the cost of that subset of consolidated market data. Alternatively, we believe the Commission should explicitly permit exchanges to provide regulatory data through their proprietary market data feeds.'').

[520] *See infra* Section III.E.2(c).

(rather than notifying a single plan processor as was previously the case). Competing consolidators would then be required to consolidate and disseminate this information to their subscribers.

Specifically, the Commission proposed to amend Rule 201(b)(1)(ii)—which requires Short Sale Circuit Breakers to be applied ''the remainder of the day and the following day when a national best bid for the covered security is calculated and disseminated on a current and continuing basis by a plan processor pursuant to an effective national market system plan''—by removing the reference to the plan processor to reflect the proposed decentralized consolidation model. Furthermore, the Commission proposed amending Rule 201(b)(3)—which requires listing markets to immediately notify ''the single plan processor responsible for consolidation of information for the covered security pursuant to Rule 603(b)'' when a Short Sale Circuit Breaker has been triggered—by removing the single plan processor notice requirement and replacing it with the requirement for the listing market to immediately make such information available as provided in Rule 603(b) (*i.e.,* to competing consolidators and self-aggregators).

Second, under the proposed decentralized consolidation model with competing consolidators and self-aggregators, the listing market, in order to make determinations as to whether a Short Sale Circuit Breaker has been triggered as required by 17 CFR 242.201(b)(1)(i) (Rule 201(b)(1)(i)), would have the option of obtaining proposed consolidated market data from one or more competing consolidators (rather than from a single plan processor as is currently the case), to aggregate consolidated market data itself, or some combination of the two.[521]

The Commission also proposed certain conforming amendments in Rule 201 to harmonize that rule with the Proposing Release. Currently, 17 CFR 242.201(a) (Rule 201(a)) defines ''listing market'' by reference to the listing market as defined in the effective transaction reporting plan for the covered security. Since primary listing exchanges will be required to collect and calculate regulatory data, the Commission proposed to introduce a definition of ''primary listing exchange'' in Rule 600(b)(68) to provide greater clarity with respect to the responsibilities regarding regulatory data. Specifically, under proposed Rule 600(b)(68), primary listing exchange would be defined as, for each NMS stock, the national securities exchange identified as the primary listing exchange in the effective national market system plan or plans required under Rule 603(b).[522]

The Commission believes that it is appropriate for the effective national market system plan(s) to determine which exchange is the primary listing exchange for each NMS stock and that the definition would ensure that primary listing exchanges are clearly identified. The Commission also believes that the definition of listing market in Rule 201(a)(3) should be amended so that it cross-references this proposed definition of primary listing exchange to facilitate the consistent identification of primary listing exchanges across Regulation SHO and Regulation NMS and to avoid potentially duplicative or confusing definitions in the Commission's rules.

2. Final Rule and Response to Comments

The Commission received one letter supporting the amendments to Regulation SHO.[523] For the same reasons discussed above with regard to how the proposed amendments would facilitate the decentralized consolidation model, the Commission is adopting the amendments to Regulation SHO as proposed.

J. Definition of ''Administrative Data'' Under Rule 600(b)(2)

1. Proposal

The Commission proposed defining ''administrative data'' as administrative, control, and other technical messages made available by national securities exchanges and national securities associations pursuant to the effective national market system plan or plans required under § 242.603(b) or the technical specifications thereto as of the date of Commission approval of the proposal. Administrative data would be a component of the definition of ''consolidated market data,'' which permits additional administrative data elements to be added pursuant to amendments to the effective national market system plan(s). Examples of administrative messages include market center and issue symbol identifiers, and examples of control messages include messages regarding the beginning and end of trading sessions. As the Commission stated in the proposing release, the proposed definition was ''intended to capture administrative information that is currently provided in SIP data.'' [524]

2. Final Rule and Response to Comments

The Commission received one comment supporting the proposed definition of administrative data,[525] and is adopting the definition as proposed. The Commission continues to believe that including administrative messages in consolidated market data will facilitate market participants' efficient and accurate use of consolidated market data. Further, the Commission believes that this information is useful to market participants and should continue to be widely available. The Commission believes that SROs would be well-situated to provide administrative data messages, which relate to SRO-specific details such as the market-center identifiers or the beginning and ending of trading sessions, because SROs have direct and immediate access to this information and could efficiently integrate it into the data feeds that they will utilize to make available the data necessary for competing consolidators and self-aggregators to generate core and regulatory data.

K. Definition of ''Self-Regulatory Organization-Specific Program Data'' Under Rule 600(b)(85)

1. Proposal

The Commission proposed to define exchange-specific program data as: (1) Information related to retail liquidity programs specified by the rules of national securities exchanges and disseminated pursuant to the effective national market system plan or plans required under § 242.603(b) as of the date of Commission approval of the proposal and (2) other exchange-specific information with respect to quotations for or transactions in NMS stocks as

[521] For example, a listing market could self-aggregate for its own listings and obtain consolidated data from a competing consolidator for stocks listed elsewhere. The rules that the Commission is adopting do not require a listing market to purchase consolidated data from a competing consolidator.

[522] *See infra* Section III.E.2(j) (discussing the requirement that the effective national market system plan(s) be amended to include a list of the primary listing exchange for each NMS stock).

[523] *See* Data Boiler Letter I at 27.

[524] *See* Proposing Release, 85 FR at 16763.

[525] This commenter stated that the current administrative data ''provides additional context for market participants to understand, and efficiently and accurately use, the proposed core and regulatory data to support their trading activities.'' Data Boiler Letter I at 35. The commenter further added that ''there can be streamlining opportunity for [competing consolidators] to eliminate any repetitive information during distribution and recipients should have a choice to opt-out.'' *Id.* As stated above, the decentralized consolidation model permits competing consolidators to offer different products to market data end users, allowing end users to decide which data feeds to purchase and utilize.

specified by the effective national market system plan or plans required under § 242.603(b).

The Commission stated that existing retail liquidity programs, which offer opportunities for retail orders to receive price improvement, and, in certain cases, other exchange-specific program information should continue to be included in proposed consolidated market data. If (i) an exchange(s) develops new program(s) in the future, and (ii) the broad dissemination of information about such programs as part of consolidated market data would facilitate participation in such programs, an amendment to the effective national market system plan(s) could be filed with the Commission under Rule 608 of Regulation NMS to include such information in consolidated market data.

2. Final Rule and Response to Comments

The Commission received comments regarding the definition of exchange-specific program data. One commenter supported the inclusion of exchange-specific program data in consolidated market data, stating that this data, which is already carried by the SIPs, is highly relevant and important to all types of market participants.[526] Another commenter agreed with the inclusion of information related to existing retail liquidity programs but stated that there should be a ''procedural mechanism to review if there might be other new exchange-specific program information to be included in the future.'' [527]

Some commenters objected to the proposed definition of exchange-specific program data. One commenter stated that the proposal would require changes to exchange-specific programs to become effective through an effective national market system plan amendment even though exchanges are currently free to propose such programs through the SRO rulemaking process provided in Section 19(b) of the Exchange Act and that requiring such changes to be duplicatively filed as proposed plan amendments would serve no policy or regulatory purpose and would improperly give competing exchanges (as members of the plans' Operating Committee) a vote in whether or not an exchange may change its programs.[528] Another commenter characterized exchange-specific program information as ''an essentially unknown category of information that may or may not be useful to particular categories of investors'' and stated that the Commission has determined that ''virtually all categories of information—even indeterminate ones—constitute core data.'' [529]

The Commission is adopting the definition of exchange-specific program data largely as proposed, but is modifying the definition to ''self-regulatory organization-specific program data'' so that it extends to national securities associations in addition to all national securities exchanges.[530] The Commission believes that information related to any program developed by a national securities association in the future should also be able to be included in consolidated market data if specified by the effective national market system plan(s).[531] Information related to retail liquidity programs is already in the SIP feeds today, and the Commission agrees that this information is relevant to market participants who wish to submit orders to, or otherwise participate in, such programs and should therefore be included in consolidated market data. To the extent other exchange-specific or national securities association-specific programs may be developed in the future, the Commission believes such information would be similarly relevant to market participants who wish to engage with such programs.

The Commission also agrees that a procedural mechanism to modulate the inclusion in consolidated market data of information related to future SRO-specific programs is needed. The Commission believes that requiring such data to be included by amendment to the effective national market systems plan(s), as proposed, is the appropriate mechanism because, as explained above, it allows for the inclusion of additional SRO-specific program information data elements that may emerge periodically through the approval of new SRO rules.[532]

The Commission disagrees with the comment that this process would be ''duplicative'' of the Section 19(b) process or give an exchange's competitors a vote in whether an exchange may change its programs. The Section 19(b) process for approval of an SRO's rules and a plan amendment serve two distinct purposes. An individual SRO could develop a new program on its own initiative pursuant to the Section 19(b) process. The SRO could disseminate information related to any such program to market participants on a proprietary basis only. On the other hand, a plan amendment would only be required in order to include this information in consolidated market data if an SRO decides to pursue the option and the Operating Committee agrees it is appropriate to provide it to market participants under the national market system rules.

Finally, the Commission disagrees that exchange-specific program data is an ''essentially unknown category of information'' that may or may not be useful to market participants. The rules would allow the effective national market system plan(s) to add other SRO-specific information if the Operating Committee determines that the information would be useful to market participants. The Commission believes that allowing the Operating Committee(s) some flexibility to add additional SRO-specific information would be in the interest of investors and would strengthen the national market system. The Equity Data Plans have utilized such a mechanism in the past.

III. Enhancements to the Provision of Consolidated Market Data

A. Introduction

The Commission is adopting a decentralized consolidation model in which competing consolidators, rather than the exclusive SIPs, will collect, consolidate, and disseminate consolidated market data. This new model will address the geographic, aggregation, and transmission latencies that characterize the existing centralized consolidation model,[533] which has

[526] *See* IEX Letter at 7.

[527] Data Boiler Letter I at 35–36.

[528] *See* NYSE Letter II at 28.

[529] Nasdaq Letter IV at 33.

[530] The Commission is also modifying proposed Rule 600(b)(85)(ii) of Regulation NMS so that it refers to ''[o]ther self-regulatory organization-specific information with respect to quotations for or transactions in NMS stocks . . .'' rather than ''other exchange-specific information with respect to quotations for or transactions in NMS stocks . . .''. *See infra* Section VIII.

[531] *See also supra* Section II.F.2(c) (explaining that the Commission is adopting a modified definition of depth of book data that includes liquidity at depth of book price levels that may be available on FINRA's ADF or other facilities of a national securities association in the future).

[532] *See supra* Section II.B.2.

[533] *See* Proposing Release, 85 FR at 16765–66 (describing the latencies that exist in the current centralized consolidation model). The existing centralized consolidation model system suffers from three sources of latencies: (a) Geographic latency, (b) aggregation latency, and (c) transmission latency. Geographic latency is typically the most significant component of the latencies that the exclusive SIPs experience compared to the proprietary data feeds. Geographic latency, as used herein, refers to the time it takes for data to travel from one physical location to another, which must also take into account that data does not always travel between two locations in a straight line. Aggregation or consolidation latency, as used herein, refers to the amount of time an exclusive SIP takes to aggregate the multiple sources of SRO market data into SIP data and includes calculation of the NBBO. Transmission

Continued

relied upon the exclusive SIP for each NMS stock to centrally collect, consolidate, and disseminate SIP data from its location, regardless of the location of other exchanges, FINRA, or subscribers. The Commission believes this new model will foster a competitive environment for the dissemination of consolidated market data and will modernize the underlying architecture of the national market system.

The centralized consolidation model has largely remained unchanged despite significant market developments since it was developed in the 1970s. Today, the exclusive SIPs are located in disparate locations far from each other and from end users. Each exclusive SIP must collect data from geographically dispersed SRO data centers, consolidate that data, and then disseminate that data as SIP data from the exclusive SIP's location to end-users, which are often in other locations. The need for market information to travel back and forth across the ''New Jersey triangle'' [534] prior to reaching subscribers creates significant geographic and other latencies.[535] This structure, as well as the limited data content available in SIP data, has led many market participants to relegate SIP data to backup data.[536]

The national market system for the collection, consolidation, and dissemination of SIP data was established to be the heart of the national market system and is designed to provide broad public access to a consolidated, real-time stream of market information.[537] Investors' need for real time information has been recognized since the adoption of the 1975 Amendments and is reflected in Section 11A of the Exchange Act.[538] In the context of market data, the Commission has said that ''real time'' means that ''there is very little delay between the time a quotation is made or a transaction is effected and the time that this information is made available to investors and others who use the information.'' [539] Some market participants believe that the latencies inherent in the centralized consolidation model have affected the ability of brokers to trade competitively and to provide best execution to customer orders, especially when compared to proprietary data products that are not encumbered by centralized consolidation.[540]

Significant technological changes have occurred since the 1970s and the passage of the 1975 Amendments. Electronic trading has all but supplanted manual trading, and electronic trading systems can handle and process data at speeds unheard of when the national market system was established. While the Equity Data Plans have made various investments and systems upgrades over time, they have not kept up with the demands of all market participants. The concurrent existence of the centralized consolidation model for SIP data and the decentralized consolidation model for proprietary data has resulted in a two-tiered market in which certain market participants that can afford and choose to pay for proprietary data feeds receive content-rich data faster than those who do not purchase these feeds, including market participants who may face higher barriers to entry from data and other exchange fees. Market participants that do not receive proprietary DOB feeds may be affected in their efforts to seek best execution and otherwise effectively compete with market participants that receive proprietary DOB data feeds because they do not obtain access to the additional content and may be receiving data in a slower manner.

Therefore, the Commission believes that the national market system must be modernized to allow ''new data processing and communications systems [to] create the opportunity for more efficient and effective market operations.'' [541] The centralized consolidation model no longer meets market participants' need for real-time consolidated market data.[542] The purpose of the decentralized consolidation model is to modernize the infrastructure of the national market system by eliminating the outdated centralized architecture for data consolidation and dissemination.

Under the current model, each exclusive SIP must collect data for specific NMS stocks from geographically dispersed SRO data centers, consolidate the data, and then disseminate it from its location to end-users, which are often in other locations. The new decentralized consolidation model will speed up the dissemination of consolidated market data by allowing competing consolidators to collect data directly from each SRO and consolidate the data in the same data center as end users. Latency-sensitive data end-users will be able to receive consolidated market data products at the same data center location from which the competing consolidator operates.

Under this new model, the relevant exchange will provide quotes and trades in the NMS stocks they trade directly to competing consolidators and self-aggregators and the hub-and-spoke method of centralized collection and dissemination will be eliminated.[543] Further, by fostering a competitive environment for the collection, consolidation, and dissemination of consolidated market data, the

latency, as used herein, refers to the time interval between when data is sent (*e.g.,* from an exchange) and when it is received (*e.g.,* at an exclusive SIP and/or at the data center of the subscriber), and the transmission latency between two fixed points is determined by the transmission communications technology through which the data is conveyed.

[534] The CTA/CQ SIP is located in Mahwah, NJ, and the UTP SIP is located in Carteret, NJ. Other exchanges and broker-dealers are located in Secaucus, NJ. These three main data center locations are typically referred to as the ''New Jersey Triangle.''

[535] *See supra* note 533.

[536] *See, e.g.,* SIFMA Letter at 3 (''Even if a broker-dealer elects to consolidate market data through proprietary feeds, it must also purchase the core data from the SIPs for a number of reasons, such as to comply with the Vendor Display Rule, receive regulatory messages like trading halts and have a backup source of data in case an exchange experiences issues with its proprietary feeds.''). *But see* BestEx Research Letter at 2 (''Despite the claims of many market participants, the SIP is a critical component of the US equity market structure and is widely used by institutional broker-dealers.''). The commenter, however, also stated that ''the reforms to the SIP proposed by the Commission will make it even more robust and useful.'' *Id.* at 1. While SIP data is widely used, market participants, as well as the commenter, acknowledge that the decentralized consolidation model will modernize the national market system and make it more useful for today's trading.

[537] *See* Market Information Concept Release, *supra* note 22, at 70614.

[538] Section 11A(c)(1)(B) of the Exchange Act states that the Commission should assure, among other things, the ''prompt'' collection, processing, distribution, and publication of information. Further, the Senate Report for the enactment of Section 11A stated that ''it is critical for those who trade to have access to accurate, up-to-the-second information.'' S. Rep. No. 94–75 at 8 (1975) (''Senate Report'').

[539] Market Information Concept Release, *supra* note 22, at 70614.

[540] One commenter stated that ''[c]urrent market structure allows investors' order [sic] to be traded at stale prices.'' Better Markets Letter at 6. *See also* Capital Group Letter at 2, 4; Clearpool Letter at 2; DOJ Letter at 2, 4; Fidelity Letter at 2; MFA Letter at 2; State Street Letter at 2, 3; T. Rowe Price Letter at 1–2; Virtu Letter at 2, 5.

[541] Section 11A(a)(1)(B) of the Exchange Act.

[542] *See supra* Section II.C.2(a) (discussing the indirect benefits to market participants whose executing broker-dealers will receive expanded data content from competing consolidators); *infra* Section III.B.5 (discussing indirect benefits to investors from enhancements to trading by their broker-dealers resulting from reductions in latency, the expanded data content and the competitive environment fostered by the decentralized consolidation model).

[543] *See* Proposing Release, 85 FR at n. 395. Under the centralized consolidation model, quotes and trades that occur on Nasdaq for NYSE-listed stocks must be provided to the CTA/CQ SIP for dissemination. Under the decentralized consolidation model, such quotes and trades in NYSE-listed stocks will be provided directly by Nasdaq to competing consolidators and self-aggregators.

decentralized consolidation model will incentivize greater innovation, competitive pricing, and the timely adoption of updated technologies into the national market system.

The Commission believes that the decentralized consolidation model will better serve the needs of market participants and investors. It should address concerns about the costs associated with the current structure, in which many market participants are compelled to buy proprietary feeds and the exclusive SIP feeds to trade competitively and represent their customers' orders.[544] The amendments also should address the concerns about, and improve, the content and latency differentials that currently exist between SIP data and proprietary data.[545] The Commission believes that the amendments will provide all market participants with access to a real-time stream of consolidated market data, improve the national market system, help to ensure the continued success of the U.S. securities markets, and better achieve the goals of Section 11A of the Exchange Act by assuring ''the availability to brokers, dealers and investors of information with respect to quotations for and transactions in securities'' that is prompt, accurate, reliable, and fair.

B. Proposed Decentralized Consolidation Model

The Commission proposed a decentralized consolidation model in which new competing SIPs, called competing consolidators, would collect the data content underlying consolidated market data from the individual SROs, consolidate the information of all of the SROs, and disseminate that consolidated information as consolidated market data to end users. The proposed decentralized consolidation model also would allow broker-dealers to act as self-aggregators to collect all of the data content underlying consolidated market data from the individual SROs and consolidate that information solely for their internal use. The Commission proposed this model to reduce significantly the geographic and other latencies inherent in the existing centralized consolidation model. The proposed decentralized consolidation model would allow competing consolidators and self-aggregators to eliminate the back-and-forth travel of data associated with the centralized consolidation model, to operate in the data center of their choice (*i.e.,* in close proximity to data subscribers), and to foster a competitive environment for the aggregation and transmission of consolidated market data.[546]

1. Comments on the Decentralized Consolidation Model

The Commission received comments on the proposed decentralized consolidation model.[547] Many commenters supported the goals of the decentralized consolidation model and the potential positive impacts this model would have on the provision of consolidated market data,[548] while numerous commenters raised issues with—or questioned certain aspects of—the proposed model.[549]

Commenters that supported the decentralized consolidation model believed that it would inject needed competition into the consolidated market data environment,[550] address conflicts of interest in the centralized consolidation model,[551] reduce latency in the dissemination of consolidated market data,[552] improve the usefulness of consolidated market data as an alternative to proprietary market data feeds,[553] improve the reliability of the consolidated market data infrastructure,[554] and reduce the cost of consolidated market data[555] while increasing its quality.[556]

Commenters that raised concerns about the proposed decentralized consolidation model said that it would not achieve its goal of disseminating consolidated market data to market participants in a more timely, efficient, and cost-effective manner than the current centralized consolidation model;[557] that its impact on the markets would be uncertain until implementation;[558] that the impact on fees and costs for consolidated market data was uncertain;[559] that the new

[544] One commenter stated that it expects that its use of direct feeds would be eliminated if the proposal is implemented. *See* NBIM Letter at 4.

[545] *See* Proposing Release, 85 FR at 16764–65.

[546] *See* Proposing Release, 85 FR at nn. 419–20.

[547] *See* BlackRock Letter; Fidelity Letter; State Street Letter; Wellington Letter; ICI Letter; Virtu Letter; AHSAT Letter; IntelligentCross Letter; BestEx Research Letter; MEMX Letter; Clearpool Letter; T. Rowe Price Letter; ACS Execution Services Letter; IEX Letter; SIFMA Letter; MFA Letter; Schwab Letter; RBC Letter; STANY Letter II; Angel Letter; Nasdaq Letter III; Nasdaq Letter IV; NYSE Letter II; FINRA Letter; Cboe Letter; Proof Trading Letter; Citadel Letter; TD Ameritrade Letter; Data Boiler Letter I; Healthy Markets Letter I; Joint CRO Letter; Susquehanna Letter; NovaSparks Letter; Better Markets Letter; Capital Group Letter; McKay Letter; NBIM Letter; Wharton Letter; letter from Kermit R. Kubitz, dated May 26, 2020, (''Kubitz Letter''); letter from Kelvin To, Founder and President, Data Boiler Technologies, LLC, dated June 10, 2020, (''Data Boiler Letter II''); DOJ Letter; letter from Nandini Sukumar, Chief Executive Officer, World Federation of Exchanges, to Chairman Clayton and Commissioners Lee, Peirce, and Roisman, dated May 26, 2020, (''WFE Letter''); letters to Vanessa Countryman, Secretary, Commission, from Stephen J. McNeany Chief Executive Officer, and Frank W. Piasecki, President, ACTIV Financial Systems, Inc., dated May 26, 2020, (''ACTIV Financial Letter''); Doris Choi, Co-General Counsel, ICE Data Services, dated May 29, 2020, (''IDS Letter I''); John L. Thornton and R. Glenn Hubbard, Co-Chairs, and Hal S. Scott, President, Committee on Capital Markets Regulation, dated Apr. 23, 2020, (''Committee on Capital Markets Regulation Letter''); Kevin R. Edgar, Counsel, BakerHostetler LLP and Counsel, Equity Markets Association, dated June 30, 2020, (''Equity Markets Association Letter''); Joanna Mallers, Secretary, FIA Principal Traders Group, dated June 3, 2020, (''FIA PTG Letter''); Tom C. W. Lin, Professor of Law, Temple University Beasley School of Law, dated May 26, 2020, (''Temple University Letter''); Tyler Gellasch, Executive Director, Healthy Markets, dated July 27, 2020, (''Healthy Markets Letter II''); Doris Choi, Co-General Counsel, ICE Data Services, dated Aug. 12, 2020, (''IDS Letter II'').

[548] *See* BlackRock Letter; Fidelity Letter; State Street Letter; Wellington Letter; ICI Letter; Virtu Letter; AHSAT Letter; FIA PTG Letter; IntelligentCross Letter; Committee on Capital Markets Regulation Letter; BestEx Research Letter; Wharton Letter; MEMX Letter; Clearpool Letter; T. Rowe Price Letter; Capital Group Letter; DOJ Letter; ACS Execution Services Letter; IEX Letter; SIFMA Letter; ACTIV Financial Letter; MFA Letter; Better Markets Letter; NBIM Letter; NovaSparks Letter; letter from Anthony H Steinmetz, dated Feb. 17, 2020, (''Steinmetz Letter'') (supporting the proposal generally).

[549] *See* STANY Letter II; Angel Letter; Nasdaq Letter III; Nasdaq Letter IV; NYSE Letter II; FINRA Letter; Cboe Letter; Proof Trading Letter; Citadel Letter; TD Ameritrade Letter; Kubitz Letter; Data Boiler Letter I; Data Boiler Letter II; Healthy Markets Letter I; WFE Letter; Joint CRO Letter; Equity Markets Association Letter.

[550] *See* MEMX Letter at 3, 8; Committee on Capital Markets Regulation Letter at 3; BestEx Research Letter at 1; State Street Letter at 3; ACTIV Financial Letter at 1; Fidelity Letter at 9; SIFMA Letter at 5, 12; Wellington Letter at 1; IntelligentCross Letter at 4–5; ICI Letter at 4, 10; RBC Letter at 6; DOJ Letter at 5; Capital Group Letter at 4; T. Rowe Price Letter at 4; Virtu Letter at 6.

[551] *See* SIFMA Letter at 5; Fidelity Letter at 3, 10; IEX Letter at 2.

[552] *See* MEMX Letter at 6, 7, 8; Fidelity Letter at 3, 10; Wellington Letter at 1; ICI Letter at 4, 10; Capital Group Letter at 4; BlackRock Letter at 5; IEX Letter at 3; Better Markets Letter at 3; AHSAT Letter at 1, 3; DOJ Letter at 3, 4; SIFMA Letter at 1, 5, 11; ACS Execution Services Letter at 5.

[553] *See* MFA Letter at 2; Capital Group Letter at 2, 4; ICI Letter at 4; DOJ Letter at 2–3, 4; SIFMA Letter at 5; MEMX Letter at 2, 8; NBIM Letter at 4.

[554] *See* NovaSparks Letter at 1.

[555] *See* BestEx Research Letter at 1, 4; DOJ Letter at 3–4, 5; Committee on Capital Markets Letter at 3; IntelligentCross Letter at 5; Better Markets Letter at 3; RBC Letter at 5–6; State Street Letter at 3; Fidelity Letter at 3, 9; Wellington Letter at 1; BlackRock Letter at 5; IEX Letter at 3; SIG Letter at 1.

[556] *See* Committee on Capital Markets Regulation Letter at 3; BestEx Research Letter at 1; RBC Letter at 5–6; State Street Letter at 3.

[557] *See* Healthy Markets Letter I at 2; Kubitz Letter at 1; Data Boiler Letter I at 46–47; Data Boiler Letter II at 1; Citadel Letter at 5; TD Ameritrade Letter at 2; NYSE Letter II at 22; Nasdaq Letter IV at 2–3, 8; Angel Letter at 18–20; STANY Letter II at 5.

[558] *See* FINRA Letter at 3, 4; letter from Linda Moore, President and CEO, TechNet, to Vanessa Countryman, Secretary, Commission, dated June 18, 2020, (''TechNet Letter II'') at 2.

[559] *See* STANY Letter II at 5; Data Boiler Letter I at 47; TD Ameritrade Letter at 15; Nasdaq Letter

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architecture could result in increased costs for some market participants;[560] and that it could result in increased costs for SROs.[561] Commenters also questioned its feasibility,[562] the complexity introduced by multiple competing consolidators,[563] its impact on regulation,[564] and its benefits to latency.[565] A few commenters also suggested that the decentralized consolidation model would benefit from further consideration by market participants and the Commission and should be the subject of a separate rulemaking.[566]

These comments are addressed below.

2. Comments on the Effectiveness of the Proposal

Several commenters questioned whether the proposed decentralized consolidation model would achieve its goal of disseminating consolidated market data to market participants in a more timely, efficient, and cost-effective manner than the current centralized consolidation model.[567] One commenter stated that while the proposed system may be desirable, ''it is not clear how the development of multiple parties interacting and providing quotations and trade data can be implemented over time to assure accuracy, completeness and avoidance of gaming and fraud.'' [568] Another commenter said that the proposed decentralized consolidation model is impractical and would increase market fragmentation.[569] One commenter stated that the Commission failed to show how the decentralized consolidation model would result in the dissemination of market data that is prompt, accurate, reliable, and fair and said that the proposal violates the Administrative Procedure Act (''APA'') [570] because it did not demonstrate a rational connection between the proposal and its goals.[571]

A few commenters stated that the Proposing Release did not include enough information to evaluate whether the decentralized consolidation model would reduce market data costs, improve transmission latency, and improve resiliency.[572] One commenter stated that the proposal lacked information about ''data quality, availability, reliability and potential for significant additional cost'' and expressed the view that the negative effects of the proposal could exceed any benefits to retail investors.[573] Another commenter said that it was ''unclear whether the prices set by competing consolidators will be reliable, resilient, or well-regulated; and how anomalies and disparities among competing consolidators will be resolved.'' [574]

Some commenters raised questions regarding the competitive aspects of the proposal. One commenter stated that there was no guarantee that competition would improve latency and cost,[575] and another commenter questioned the ability of competing consolidators to provide the needed competition to decrease latency and cost.[576] Further, one commenter stated that, although the proposal would provide for competition, there is no guarantee that competition would occur or that the proposal would result in a competitive outcome that would benefit investors.[577] This commenter stated that competition would result in competing consolidators selling differentiated products that would result in a proliferation of market data tiers and information asymmetries.[578]

However, several commenters said that the proposed decentralized consolidation model would introduce needed competition,[579] which would result in better quality consolidated market data,[580] lower market data costs,[581] and improved latency.[582] One commenter stated that competition in the consolidation and dissemination of market data would increase investor choice and would address both the conflicts of interest that exist in the centralized consolidation model and the latency advantages enjoyed by market participants that are able to purchase proprietary data feeds.[583] One commenter stated that competition will allow for innovation that could reduce dependence on proprietary market data,[584] and another asserted that ''a market with competing data feeds will be more efficient and effective.'' [585] One commenter said that modernization through competitive market forces would bring desired changes to consolidated market data and its framework,[586] and another supported the proposal's addition of competition ''while still preserving a significant role for the exchanges to participate.'' [587]

Several commenters stated that the proposed decentralized consolidation model could improve the usefulness of consolidated market data and make it a viable alternative to proprietary market data feeds.[588] Commenters indicated that the exchange operators of the exclusive SIPs currently lack the incentive to improve the content,

IV at 23, 26, 47–48, 60. *See also, e.g.,* Angel Letter at 22–23.

[560] *See* Cboe Letter at 23–24; FINRA Letter at 3, 4. *See also, e.g.,* Angel Letter at 21.

[561] *See* FINRA Letter at 3, 4; Nasdaq Letter IV at 27, 29, 30.

[562] *See* Nasdaq Letter IV at 23–26; NYSE Letter II at 13, 17–18; IDS Letter I at 3, 4, 7–8; IDS Letter II at 1, 3; STANY Letter II at 6; Data Boiler Letter I at 46; Angel Letter at 18, 20; Equity Markets Association Letter at 3; FINRA Letter at 3; TechNet Letter II at 1–2.

[563] *See* FINRA Letter at 2, 3, 5–6; Angel Letter at 18–19; Healthy Markets Letter I at 4–5; TechNet Letter II at 2; STANY Letter II at 6, 8; Joint CRO Letter at 2; Data Boiler Letter I at 48; Nasdaq Letter III at 8; Citadel Letter at 5; TD Ameritrade Letter at 12–13; WFE Letter at 1.

[564] *See* Nasdaq Letter IV at 2, 3, 4, 12–13, 35; Joint CRO Letter at 2, 3, 4; FINRA Letter at 4, 5, 6; TechNet Letter II at 2; Data Boiler Letter I at 48; Healthy Markets Letter I at 4–5; TD Ameritrade Letter at 13; Citadel Letter at 5; Kubitz Letter at 1; NYSE Letter II at 23.

[565] *See* Cboe Letter at 23; Nasdaq Letter IV at 49; STANY Letter II at 5, 6; Citadel Letter at 5; NYSE Letter II at 11, 22, 23; TD Ameritrade Letter at 12; Proof Trading Letter at 1; Angel Letter at 18, 19; FINRA Letter at 8; IDS Letter I at 15; Data Boiler Letter II at 1.

[566] *See* Citadel Letter at 5; STANY Letter II at 8.

[567] *See* Healthy Markets Letter I at 2; Kubitz Letter at 1; Data Boiler Letter I at 46–47; Data Boiler Letter II at 1; Citadel Letter at 5; TD Ameritrade Letter at 2, 12; NYSE Letter II at 22; Nasdaq Letter IV at 2–3, 8; Angel Letter at 18–20; STANY Letter II at 5.

[568] Kubitz Letter at 1.

[569] *See* Data Boiler Letter II at 1.

[570] 5 U.S.C. 551 *et seq.*

[571] *See* NYSE Letter II at 22.

[572] *See* STANY Letter II at 5; TD Ameritrade Letter at 2.

[573] TD Ameritrade Letter at 2.

[574] TechNet Letter II at 2.

[575] *See* TD Ameritrade Letter at 12.

[576] *See* Data Boiler Letter I at 46–47.

[577] *See* Nasdaq Letter IV at 3.

[578] *See id.*

[579] *See* MEMX Letter at 3, 8; T. Rowe Price Letter at 4; Committee on Capital Markets Regulation Letter at 3; BestEx Research Letter at 1; State Street Letter at 3; ACTIV Financial Letter at 1; Fidelity Letter at 9; SIFMA Letter at 5, 12; Wellington Letter at 1; IntelligentCross Letter at 4–5; ICI Letter at 4, 10; RBC Letter at 6; DOJ Letter at 5; Capital Group Letter at 4; Virtu Letter at 6.

[580] *See* Committee on Capital Markets Regulation Letter at 3; BestEx Research Letter at 1; RBC Letter at 6; State Street Letter at 3.

[581] *See* Fidelity Letter at 3, 9, 10; Committee on Capital Markets Regulation Letter at 3; BestEx Research Letter at 1, 4; ACTIV Financial Letter at 1; SIFMA Letter at 12; State Street Letter at 3; Wellington Letter at 1; IntelligentCross Letter at 5; ICI Letter at 4; RBC Letter at 5–6; DOJ Letter at 3–4, 5; Better Markets Letter at 3; BlackRock Letter at 5; IEX Letter at 3.

[582] *See* SIFMA Letter at 1, 5, 11; ICI Letter at 4, 10; Capital Group Letter at 4; MEMX Letter at 8; Fidelity Letter at 3, 10; BlackRock Letter at 5; IEX Letter at 3; Better Markets Letter at 3; AHSAT Letter at 1; DOJ Letter at 3–4, Wellington Letter at 1 (''We believe the introduction of competitive forces to the distribution of data will result in lower-latency, faster data that is more broadly available and also at reduced costs for participants.''); NovaSparks Letter at 1 (''The competitive nature of the new model will encourage Competing Consolidators to deliver excellent reliability, functionality and performance.'').

[583] *See* SIFMA Letter at 5, 12.

[584] *See* State Street Letter at 3.

[585] Capital Group Letter at 4.

[586] *See* T. Rowe Price Letter at 4.

[587] Virtu Letter at 6.

[588] *See* MFA Letter at 2; Capital Group Letter at 2, 4; ICI Letter at 4; DOJ Letter at 2–3, 4; SIFMA Letter at 5; MEMX Letter at 2, 8; NBIM Letter at 4, 5–6.

delivery, and pricing of consolidated market data because improved consolidated market data could reduce demand for the proprietary data feeds that the exchanges sell.[589] Two commenters stated that the proposal would result in a less costly alternative to proprietary market data feeds.[590] One of these commenters stated that alternatives to proprietary data feeds could increase participation in the financial services industry and bring down costs for market participants.[591]

Two commenters stated that the proposal would narrow the content and latency gaps between proprietary market data feeds and consolidated market data.[592] One commenter said that equalizing the content and distribution of market data provided by exchanges to competing consolidators and self-aggregators and proprietary market data would eliminate the ''two-tiered'' market data structure.[593] Another commenter stated that the proposal's improvements to content and latency could result in greater reliance on consolidated market data.[594] One commenter stated that the proposal would ''put consolidators on more equal footing'' with proprietary market data feeds.[595]

Another commenter indicated that the geographic diversification of competing consolidators could increase the use of consolidated market data.[596] The commenter stated that its own need for direct proprietary market data feeds would be eliminated if a competing consolidator were located within the same data center as the broker-dealers the commenter uses.[597] The commenter also stated that it is unlikely that broker-dealers and ''higher-turnover market participants'' would use consolidated market data as a substitute for lowest-latency, self-aggregated direct proprietary market data feeds because latency minimization is critical for their trading activities.[598]

The Commission believes that the decentralized consolidation model will modernize the national market system so that consolidated market data is disseminated to market participants in an accurate, reliable, prompt, and fair manner.[599] The Commission also believes that the decentralized consolidation model will help to ensure the accuracy and completeness of consolidated market data.

The Commission disagrees with the comments that stated that the decentralized consolidation model would not achieve the goal of disseminating consolidated market data to market participants in a more timely, efficient, and cost-effective manner than the current centralized consolidation model.[600] Further, in response to comments that stated that competition either would not materialize or would not guarantee any benefits to market participants,[601] the Commission believes that the amendments will allow the introduction of competitive forces, and foster a competitive environment, for the dissemination of consolidated market data. Today, there is no competition in the collection, consolidation, and dissemination of SIP data. The exclusive SIPs do not compete with each other because Rule 603(b) currently requires the dissemination of all consolidated information for an individual NMS stock to occur through an exclusive SIP. Therefore, each exclusive SIP represents different tapes. The amendments to Rule 603(b) will provide an opportunity for competition to improve the dissemination of consolidated market data. Market participants have stated frequently that SIP data is slower than certain proprietary market data products distributed by the exchanges[602] and that the SRO operators of the Equity Data Plans—some of whom have an inherent conflict of interest because their proprietary data products compete with the SIP data distributed by the Equity Data Plans—have had little incentive to improve the quality of SIP data.[603] The exclusive SIPs have not kept pace with the needs of certain market participants, while the exchanges have expanded the content and reduced the latency of their proprietary data products in response to market participants' needs.

Some commenters stated that they will consider entering the competing consolidator business.[604] These statements suggest the potential competitive landscape that will develop in the national market system with the decentralized consolidation model. The Commission believes that competitors will be drawn to the significant market for the enhanced data content that will be included in consolidated market data. By fostering a competitive environment for consolidated market data, the Commission is providing the opportunity for competing consolidators to end the exclusive SIP monopoly by competing on the technology and data services they offer. A competitive environment should lead to the use of new, updated technology in a more expedited fashion than occurs today. The Commission believes that competing consolidators will develop different consolidated market data products and services for their subscribers and will compete on the basis of latency, resiliency, services and products offered, and other factors, including price. The Commission agrees with the commenters who stated that competition will lower market data costs, reduce latency, and provide better quality data.[605]

Due to the structure of the decentralized consolidation model, the Commission believes that competing consolidators and self-aggregators will

[589] *See* BestEx Research Letter at 1; State Street Letter at 3.

[590] *See* DOJ Letter at 4; MEMX Letter at 8 (''The new content and infrastructure enhancements would provide an opportunity to introduce new less-expensive NMS data alternatives to proprietary market data products.'').

[591] *See* DOJ Letter at 4.

[592] *See* MFA Letter at 2 (stating that the proposal should narrow the ''significant gap in usefulness between exchange proprietary data feeds and consolidated market data''); Capital Group Letter at 2.

[593] MEMX Letter at 2.

[594] *See* ICI Letter at 4.

[595] Capital Group Letter at 4.

[596] *See* NBIM Letter at 5–6.

[597] *See id.* at 4.

[598] *Id.* at 4, 5. This commenter said that to be ''consistently competitive,'' broker-dealers need to self-aggregate and use the fastest connectivity available. According to this commenter, this would require using direct proprietary market data feeds for algorithmic executions. *Id.* at 3–4.

[599] *See* 15 U.S.C. 78k–1(c)(1)(B).

[600] *See* Healthy Markets Letter I at 2; Kubitz Letter at 1; Data Boiler Letter I at 46–47; Citadel Letter at 5; TD Ameritrade Letter at 2, 12; NYSE Letter II at 22; Nasdaq Letter IV at 2–3, 8; Angel Letter at 18–20; STANY Letter II at 5.

[601] *See* TD Ameritrade Letter at 12; Data Boiler Letter I at 46–47; Nasdaq Letter IV at 3.

[602] *See* BestEx Research Letter at 1; State Street Letter at 2; SIFMA Letter at 5.

[603] *See* SIFMA Letter at 3, 5; BestEx Research Letter at 1, 4 (citing the Proposing Release, 85 FR at 16767). The first commenter stated that the current market data infrastructure provides no incentives for the SRO operators of the SIPs to make such improvements. *See* SIFMA Letter at 3. The commenter also noted the ''inherent conflicts of interest in the existing exclusive SIP model.'' *Id.* at 5.

[604] *See* McKay Letter at 2; MIAX Letter at 1; NovaSparks Letter at 1 (''[A] wide variety of trading firms consolidate this data and we believe several vendors will soon become Competing Consolidator.''). *See also* Miami International Holdings Announces That It Is Evaluating Registration as a Competing Consolidator, dated Nov. 18, 2020, *available at https://www.miaxoptions.com/press-releases.* The Commission notes that Virtu Financial submitted a comment letter on a proposed rule change in which it expressed interest in establishing a competing consolidator. *See* letter from Douglas A. Cifu, Chief Executive Officer, Virtu Financial, to Vanessa A. Countryman, Secretary, Commission, dated Aug. 28, 2020, *available at https://www.sec.gov/comments/sr-nyse-2020-05/srnyse202005-7707480-222891.pdf.*

[605] *See* Committee on Capital Markets Regulation Letter at 3; Fidelity Letter at 9; BestEx Research Letter at 1; ACTIV Financial Letter at 1; SIFMA Letter at 5, 12; State Street Letter at 3; IntelligentCross Letter at 5; ICI Letter at 4, 10; RBC Letter at 6; DOJ Letter at 5; Wellington Letter at 1; Capital Group Letter at 4.

significantly reduce the geographic, aggregation, and transmission latency differentials that exist between SIP data and proprietary data. With respect to geographic latency, competing consolidators will be able to deliver consolidated market data products directly to subscribers because such data will no longer be required to travel several miles to a separate location for consolidation by the exclusive SIPs. By allowing consolidation to occur at the data center where a data end-user is located instead of occurring only at the CTA/CQ SIP in Mahwah, NJ, and the Nasdaq UTP SIP data center in Carteret, NJ, market participants located outside of these data centers should receive consolidated market data at reduced geographic latencies. With respect to aggregation latency, competition will incentivize competing consolidators to minimize the amount of time it takes to aggregate SRO data into consolidated market data products. Competition will also incentivize competing consolidators to reduce transmission latency because they will not be restricted to the transmission methods mandated by the Equity Data Plans;[606] therefore, they can compete based on the efficiency of their delivery of consolidated market data products. Even if a competing consolidator chooses not to consolidate data at its users' data centers, the Commission believes the users may still benefit from reduced aggregation and transmission latencies because competing consolidators will be incentivized to use the latest aggregation and transmission mechanisms as a means to attract subscribers.

The Commission believes that the competition fostered by the new model will enhance the speed and quality of the collection, consolidation, and dissemination of consolidated market data. For example, competing consolidators could seek to provide faster consolidation times, reduce transmission and connectivity latency, provide greater connectivity bandwidth, and reduce connectivity fees. Several commenters agreed that competition will enhance the national market system.[607]

The Commission recognizes that some market participants that require the lowest possible latency and additional (*e.g.,* order-by-order data) content may continue to use proprietary data feeds for certain trading applications. However, for applications that do not require additional content beyond the scope of new core data, the Commission believes that, once operating in a competitive landscape with the requirement that data be made available ''in the same manner and using the same methods, including all methods of access and the same format,'' [608] latency alone will not be a compelling reason to subscribe to proprietary data.[609] As affirmed by commenters, the Commission believes the model's significant improvements to the latency and content of consolidated market data products will enhance the usefulness of the data provided to users under the national market system.

The rules adopted for the decentralized consolidation model have been designed to avoid ''gaming and fraud'' [610] and to ensure the accuracy and completeness of consolidated market data. Competing consolidators and self-aggregators will be regulated entities, which will help monitoring efforts regarding the accuracy and completeness of consolidated market data. Competing consolidators are required to register with the Commission pursuant to Rule 614 and will be subject to Commission oversight. In addition, self-aggregators, which must be registered entities—*i.e.,* broker-dealers, national securities exchanges, national securities associations, or RIAs—will be subject to Commission oversight.

Under Rule 614, all competing consolidators will be subject to standards with respect to the promptness, accuracy, reliability, and fairness of their consolidated market data products' distribution.[611] Form CC will require competing consolidators to provide operational transparency, and Rule 614(d) will require a competing consolidator to publish monthly performance metrics and other information concerning performance and operations.[612] These requirements should help to ensure that consolidated market data products are provided in a prompt, accurate, and reliable manner by providing transparency to subscribers and potential subscribers into a competing consolidator's performance and operations. Because these provisions require that all competing consolidators disclose the same information, they will allow market participants to evaluate and compare competing consolidators more easily based on cost, service, and performance. These requirements are designed to establish a system whereby a competing consolidator will have to provide consolidated market data products with competitive latency, but also reliably and accurately, and in a cost-effective manner in order to attract and maintain its subscriber base.

The Commission does not believe that the decentralized consolidation model will be impractical or increase market fragmentation. While the decentralized consolidation model introduces multiple competing consolidators disseminating consolidated market data products, today, market participants utilize data products developed by multiple data vendors, exchanges, and the exclusive SIPs. The decentralized consolidation model does not introduce additional fragmentation in the market data landscape.

[606] As described in the Proposing Release, the transmission methods mandated by the Equity Data Plans typically rely on transmission options that are slower than competitive options. *See* Proposing Release, 85 FR at 16767.

[607] *See* Committee on Capital Markets Regulation Letter at 3; Fidelity Letter at 9; BestEx Research Letter at 1; ACTIV Financial Letter at 1; SIFMA Letter at 5, 12; State Street Letter at 3; IntelligentCross Letter at 5; ICI Letter at 4, 10; RBC Letter at 6; DOJ Letter at 5; Wellington Letter at 1; Capital Group Letter at 4.

[608] Rule 603(b) of Regulation NMS. *See infra* Section III.B.9.

[609] The Commission recognizes that there will be a small ''extra hop'' for competing consolidators that could result in a small amount of additional latency as compared to proprietary data because competing consolidators must collect, consolidate, and disseminate consolidated market data products to end users. However, the extra hop will be significantly less than the geographic latency that currently exists with the exclusive SIPs. The extra hop refers to the need to transmit data within a data center, a span of feet, as compared to geographic latency among geographically diverse data centers, a span of miles. More specifically, a competing consolidator that chooses to collect, consolidate, and disseminate market data within the same data center as its end-users will only have to disseminate consolidated market data within the data center, while exclusive SIPs must collect data from geographically dispersed SRO data centers, and consolidate and disseminate consolidated market data to end-users in other data centers. If a competing consolidator does not consolidate data at its users' data centers, its end-users may still benefit from reduced aggregation and transmission latencies due to the competitive aspect of the decentralized consolidated model. Further, the amount of latency that may result from using competing consolidators will depend upon other technical choices and competencies of the competing consolidator (*i.e.,* a competing consolidator may choose to use the most technologically advanced aggregation and transmission technologies and therefore narrow its latency differential with proprietary data; conversely, a decision to use less state-of-the-art technology could widen this latency differential while potentially lowering costs to users). Self-aggregators would not have the extra hop because they will be collecting and consolidating this data for themselves. *See infra* Section III.D.2(d).

[610] Kubitz Letter at 1.

[611] Under Section 11A(b)(3)(B) of the Exchange Act, 15 U.S.C. 78k–1(b)(3)(B), the Commission will be able to grant the registration of a competing consolidator only if the Commission is able to find, among other things, that the competing consolidator is so organized, and has the capacity, to be able to assure the prompt, accurate, and reliable performance of its functions and to operate fairly and efficiently as a SIP.

[612] *See infra* Section III.C.8.

In the Proposing Release, the Commission described the significant latencies that exist in the centralized consolidation model and explained specifically how the decentralized consolidation model will address them.[613] Further, the Commission discussed how the proposed rules will address data quality, availability, and reliability[614] and the disclosure of fees set by competing consolidators. The Commission provided information demonstrating how the proposed rules would achieve the Commission's goal of modernizing the national market system so that consolidated market data is disseminated to market participants in an accurate, reliable, prompt, and fair manner.

3. Comments on the Viability of the Decentralized Consolidation Model

Commenters questioned whether enough competing consolidators would enter the market to make the decentralized consolidation model viable.[615] Some commenters stated that the success of the model depends on the creation of multiple competing consolidators.[616]

Several of these commenters stated that the proposal lacked support to assume that multiple competing consolidators would enter the market.[617] One commenter stated that the proposal assumes there would be a competitive market but lacks support for its assumption that there would be multiple competing consolidators.[618] This commenter said that a competitive market could not arise if only a few competing consolidators were established, resulting in competing consolidators charging a premium for consolidated market data.[619] The commenter said that the proposal did not consider this possibility, nor did it reasonably consider whether any competing consolidators would register, their viability, and the costs to investors and other market participants if the competing consolidators ceased operating.[620]

One commenter said that there may be few competing consolidators because ''SROs or other firms may have cost or other economic advantages (*e.g.,* scale or scope economies) not enjoyed by other potential consolidators . . .'' resulting in competition insufficient to achieve the proposal's goals.[621] Two other commenters, however, stated that the proposal incorrectly presumed the willingness of SROs to become competing consolidators.[622] One of the commenters stated that the proposal lacked analysis supporting why SROs would want to incur the costs of becoming a competing consolidator, why the SROs that operate the existing exclusive SIPs would want to become competing consolidators, and how exchange-affiliated competing consolidators could avoid being deemed a facility of an exchange.[623]

Finally, one commenter questioned the proposal's assumption that current market data vendors would choose to become competing consolidators.[624] The commenter said data vendors that want to continue to receive proprietary data from an SRO would have to register as competing consolidators, or they would have to subscribe to a competing consolidator to purchase this data. The commenter said the price of this data could increase, causing a data vendor's customer base to decrease. The commenter said the proposal lacks analysis of whether the added costs to vendors outweigh the benefits to vendors and said the proposal would cause data vendors to leave the market.[625]

Three commenters stated that large broker-dealers would opt to become self-aggregators instead of becoming competing consolidators or being subscribers of competing consolidators.[626] Because one commenter believed that larger broker-dealers would likely become self-aggregators, the commenter said that the remaining potential customer base for competing consolidators would be less likely to need faster and more comprehensive market data and thus would not benefit from the introduction of competing consolidators.[627] Another

[613] *See* Proposing Release, 85 FR at 16768. *See also supra* note 533 (discussing the latencies that exist in the current centralized consolidated model). *See also infra* Section III.B.5 (discussing comments on the decentralized consolidation model's impact on latency).

[614] *See* Proposing Release, 85 FR at 16782. *See infra* Section III.C.8 (discussing competing consolidator responsibilities under Rule 614).

[615] *See* Nasdaq Letter IV at 23–26; NYSE Letter II at 9, 13–18; IDS Letter I at 3, 4, 7–8, 9; STANY Letter II at 6; Data Boiler Letter I at 46; Angel Letter at 18, 20.

[616] *See* IDS Letter I at 3, 7; NYSE Letter II at 3, 13; Nasdaq Letter IV at 25; Equity Markets Association Letter at 3 (quoting NYSE Letter II at 3).

[617] *See* NYSE Letter II at 9, 13–18; IDS Letter I at 3–4. One commenter said that the Commission should have considered the European Union's efforts to create a consolidated tape with competing consolidators, noting that no such competing consolidators have registered. Angel Letter at 20. This commenter said that the proposal's lack of discussion of other jurisdictions as alternatives was a potential violation of the APA. *See id.* at 21. The Commission does not believe the European Union's experience with developing a consolidated tape is relevant for purposes of this proposal. The market and regulatory structure of the European Union are different than they are in the United States. In December 2019, the European Securities and Markets Authority (''ESMA'') released a report describing the obstacles to developing a consolidated tape in the EU, including the lack of data quality for OTC transactions, the need for a consolidated tape provider to have to negotiate contracts for data from 170 trading venues and approved publication arrangements, and certain regulatory requirements. *See* ESMA, MiFID II/MiFIR Review Report No. 1: On the development in prices for pre- and post-trade data and on the consolidated tape for equity instruments (Dec. 5, 2019), *available at https://www.esma.europa.eu/sites/default/files/library/mifid_ii_mifir_review_report_no_1_on_prices_for_market_data_and_the_equity_ct.pdf. See also* European Commission, The Study on the Creation of an EU Consolidated Tape (Sept. 2020), *available at http://www.marketstructure.co.uk/wp-content/uploads/Full-Report--The-Study-on-the-Creation-of-an-EU-Consolidated-Tape.pdf.* The U.S. equity markets do not face the same issues and have vast experience in creating consolidated market data.

[618] *See* IDS Letter I at 7. *See also* NYSE Letter II at 13. This commenter said that the success of the proposed decentralized consolidation model ''rests entirely on unfounded assumptions regarding the appearance of a market for competing consolidators . . .'' *Id.* at 3.

[619] *See* IDS Letter I at 7. This commenter, a market data aggregation firm, also said that it would be very costly for it to become a competing consolidator because it would have to develop a new infrastructure to collect, consolidate, and disseminate NMS data since its method of data consolidation and dissemination is ''fundamentally different'' than that used by the exclusive SIPs. *See* IDS Letter II at 1, 2–3.

[620] *See* IDS Letter I at 3, 9. The commenter also said that the Commission failed to meet its burden to examine economic costs and inefficiencies of the proposal because it did not consider the possibility of a delayed implementation, or that it may never be implemented or that it may cease to be viable. *See also* IDS Letter II at 3. The commenter stated that the proposal did not discuss contingencies in the event of such occurrences. *See* IDS Letter I at 8. *See also* Nasdaq Letter IV at 24 (stating that the Commission did not imagine an environment in which only a few competing consolidators survive the initial period of entry).

[621] Nasdaq Letter IV at 25. *See also* Angel Letter at 20 (stating the only competing consolidators will be the two existing exclusive SIPs because only they can afford to comply with Regulation SCI).

[622] *See* NYSE Letter II at 17–18; IDS Letter I at 3–4.

[623] *See* NYSE Letter II at 17–18. *See also* IDS Letter I at 3–4, 16 (stating that because the proposal did not establish criteria to determine when a competing consolidator would be deemed a facility of an exchange, there was no reasoned basis to assume that half of the competing consolidators would be exchanges); *infra* Section III.C.7(a)(iv) (discussing competing consolidators affiliated with exchanges).

[624] *See* NYSE Letter II at 18. 17 CFR 242.614(a)(1) (Rule 614(a)(1)) provides that only entities that receive information with respect to quotations for and transactions in NMS stocks directly from a national securities exchange or national securities association pursuant to an effective NMS plan, and generate consolidated market data for dissemination, will be required to register as competing consolidators. *See infra* Section III.C.7(a)(iii) (discussing this change).

[625] *See* NYSE Letter II at 18.

[626] *See id.* at 17; Nasdaq Letter IV at 2, 24; STANY Letter II at 7 (''[S]elf-aggregators may diminish what could potentially be a thin field.'').

[627] *See* NYSE Letter II at 17. *See also* Nasdaq Letter IV at 2.

commenter stated that less than 1% of exclusive SIP customers are proprietary DOB feed customers, and because proprietary data feeds would continue to be faster than competing consolidators, the potential increase in subscribers for competing consolidators over the total number of professional SIP data subscribers would amount to a fraction of the 1%.[628] The commenter stated that the Commission's assumption that there would be 12 competing consolidators did not consider that many users of NMS information would become self-aggregators and not subscribers of competing consolidators.[629]

The Commission believes that the decentralized consolidation model is a viable data dissemination model and that a sufficient number of competing consolidators will register to provide data consolidation and dissemination services to market participants due to significant anticipated demand from market participants for consolidated market data products that will be provided competitively, with lower latency, enhanced content, and competitive pricing.[630] Competing consolidators will be the only entities permitted to receive the data content underlying consolidated market data at the prices set by the Equity Data Plans, which will be filed with the Commission pursuant to Rule 608 and reviewed for compliance with statutory and regulatory standards,[631] and permitted to sell consolidated market data products to customers, and the prices set by competing consolidators will be subject to competitive forces under the decentralized consolidation model. As consolidated market data products, including connectivity to competing consolidators, would be subject to competitive pricing, they would likely be offered at lower prices than the current equivalent proprietary data products.[632] The Commission believes that competitive pricing, combined with market participants' need for consolidated market data, will drive demand for competing consolidators.

The decentralized consolidation model will foster a competitive environment, which should provide benefits to market participants even if there is a small number of competing consolidators.[633] Competing consolidators will be able to register and begin operations at any time.[634] This competitive dynamic should enhance the operation of the national market system by incentivizing competing consolidators to continually seek to provide optimal consolidated market data products for end users.

In addition, the Commission believes that because market participants require consolidated market data to participate in the market and to comply with regulatory requirements, such as Rule 611 and Rule 603(c), competing consolidators will enter the market to service this demand. The Commission believes that market participants will continue to need consolidated market data under the decentralized consolidation model because a significant number of non-professional subscribers and other market participants use SIP data today and likely will not become self-aggregators, thereby promoting the viability of this model. The Equity Data Plans report significant numbers of subscribers for SIP data. For example, the CTA Plan reports 5.4 million non-professional subscribers, 290,000 professional subscribers, 368 real-time internal use only vendors, 234 real-time external vendors, and 327 non-display vendors in the second quarter of 2020.[635] The Nasdaq UTP Plan reports 5.7 million non-professional subscribers, 280,000 professional subscribers, 316 real-time only vendors, 252 real-time external vendors and 319 non-display vendors for second quarter of 2020.[636] Many of these current exclusive SIP subscribers are likely to need the data services of a competing consolidator, which indicates the potential demand for consolidated market data products. Further, some market participants that currently rely on proprietary market data feeds may decide to utilize a competing consolidator because the Commission believes that competing consolidators will offer faster and more comprehensive alternatives to current exclusive SIP and proprietary feeds at competitive pricing.

Three commenters suggested that large broker-dealers that self-aggregate would either not become competing consolidators or would not become subscribers of competing consolidators.[637] Some market participants today purchase exchange proprietary data products and aggregate such data for their own uses. There is no regulatory requirement to purchase proprietary data, but a market has developed for these enhanced products. The Commission believes that competing consolidators, operating in a decentralized consolidation model, will improve the latencies that exist in the current centralized consolidation model. The competitive environment fostered by the decentralized consolidation model should result in greater innovation and the timely adoption of updated technologies into the aggregation and transmission of consolidated market data.[638] Further, the Commission believes that the additional content that will be available in consolidated market data products may also serve some market participants that purchase proprietary data. As a result, the Commission believes that some market participants may choose to use consolidated market data products disseminated by competing consolidators rather than aggregate it themselves; for example, with the improved latencies of a competing consolidator, it could be more convenient or cheaper for certain market participants to subscribe to a competing consolidator than to self-aggregate.[639]

Further, the Commission believes that it is possible that a broker-dealer or RIA that self-aggregates could decide to become a competing consolidator. For example, a firm may decide that the benefits of entering the competing consolidator business, such as

[628] *See* Nasdaq Letter III at 7.

[629] *See* Nasdaq Letter IV at 24. One commenter also said that customers that decide to self-aggregate instead of subscribe to a competing consolidator would reduce the number of potential subscribers for competing consolidators. Accordingly, the potential revenues of competing consolidators would be reduced as well. IDS Letter I at 14.

[630] *See infra* Section V.C.2(a)(ii)c. The Commission estimates that approximately eight entities, including SRO affiliates and broker-dealers that currently aggregate for themselves, will become competing consolidators. *See infra* Section IV.C.1(b). Some commenters responded that they are considering registering as competing consolidators. *See supra* note 604. The Commission believes that even if a smaller number of competing consolidators enters the market, there will be some degree of competition, which will yield benefits. *See infra* Section V.C.2(a)(ii).

[631] *See infra* Section III.E.2(c).

[632] *See infra* Section III.B.6.

[633] *See supra* note 630.

[634] *See infra* Section III.C.7. *See also infra* Section III.H.

[635] *See* CTA Plan, CTA Tape A & B Subscriber/Household Metrics: CTA Q2 2020, *available at https://www.ctaplan.com/publicdocs/ctaplan/CTAPLAN_Population_Metrics_2Q2020.pdf* (last accessed Nov. 27, 2020) (describing the different categories of subscribers).

[636] *See* UTP Plan, UTP Q2 2020 U.S. Equities Securities Information Processor (UTP SIP) Key Quarterly Operating Metrics of TAP: Tape C Subscriber/Household Metrics, *available at http://www.utpplan.com/DOC/UTP_2020_Q2_Stats_with_Processor_Stats.pdf* (last accessed Nov. 27, 2020) (describing the different categories of subscribers).

[637] *See supra* note 626.

[638] *See supra* note 533.

[639] Additionally, self-aggregators are permitted to generate consolidated market data solely for internal use. A firm that wants to generate and disseminate consolidated market data to its customers will have to purchase the consolidated market data from a competing consolidator rather than self-aggregate to avoid the internal use limitation or would have to purchase proprietary data feeds. *See* Rule 600(b)(83); *see also infra* Section III.D.2.

generating a new revenue stream or providing services to its customers by disseminating consolidated market data products to them, exceed the costs of becoming a competing consolidator.[640]

One commenter stated that unresolved issues regarding the regulatory framework for competing consolidators would deter competing consolidators from registering, including whether and when the Commission would approve an effective national market system plan.[641] The commenter said the proposal ''does not adequately consider or analyze the structural requirements or potential revenue and cost streams for competing consolidators or the implications of this model on costs to market participants . . .'' [642] The commenter said the proposal raises questions regarding the fees competing consolidators can charge and the value they add to subscribers.[643] Similarly, another commenter stated that ''[t]he stability and viability of any potential competing consolidator's revenues are entirely dependent on outside conditions, including the yet-to-be determined fees set by NMS plans . . . . '' [644]

While the Commission acknowledges that the future fees for data content underlying consolidated market data have not been developed or proposed by the effective national market system plan(s),[645] the Commission believes that this should not be an impediment to potential competing consolidators evaluating whether to register. The fees for the data content underlying consolidated market data will be established before competing consolidators can begin to register [646] and will be the same for all data users, so competing consolidators can evaluate how they will compete on the services they provide to subscribers, such as their aggregation and transmission services for consolidated market data products. Further, the Commission believes that there will be downward pressure on the fees for the data content underlying consolidated market data as compared to fees for proprietary data.[647] Potential competing consolidators can evaluate the potential subscriber pool [648] of market participants that do not self-aggregate, including current SIP users, and current exclusive SIP metrics to evaluate potential technology needs.[649]

Finally, one commenter stated that the Commission did not address the possibility that a competing consolidator could begin operations, the exclusive SIPs would be dismantled, and the competing consolidator could go out of business and cease operations by publishing a notice of its cessation of operations on Form CC.[650] This commenter also stated that the Commission did not ''meaningfully rebut'' the reasons why competing consolidators would not appear in sufficient numbers, qualifications, and duration to produce the proposed decentralized consolidation model [651] and that the Commission assumes, without relying on underlying data, that competing consolidators would be able to operate successfully.[652] The commenter said this lack of analysis was a violation of the APA.[653] Similarly, another commenter questioned what would happen if a number of competing consolidators ceased operations, which would result in the system not being viable.[654] This commenter compared competing consolidators that could terminate operations by filing a Form CC to the exclusive SIPs, which are obligated to perform their duties.[655] The commenter also stated that the proposal failed to consider the costs to investors and other market participants if a competing consolidator ceased to operate.[656]

The Commission believes that it is highly unlikely that all competing consolidators would cease operations because market participants require consolidated market data to trade, both for competitive purposes and to comply with regulatory requirements such as best execution, the Vendor Display Rule, and the Order Protection Rule. Market participants that do not self-aggregate will not be able to trade without the consolidated market data products produced by competing consolidators. This demand for consolidated market data will ensure that competing consolidators, as the providers of consolidated market data products, are operating in the national market system at all times. If one competing consolidator ceases to operate, the Commission believes that other competing consolidators will be available to provide consolidated market data products to the customers of the competing consolidator that has ceased operations or that new entrants would quickly arise to fill any gaps in supply. Finally, consistent with the requirements under the APA, the Commission discussed in the Proposing Release why it believes that competing consolidators would begin operations in the decentralized consolidation model and why they would be viable.[657]

4. Comments on Conflicts of Interest

Three commenters said the proposed decentralized consolidation model would mitigate the conflicts of interest that exist in the current centralized consolidation model, in which the exchanges operate the exclusive SIPs while also selling proprietary market data products that compete with SIP data.[658] Two of the commenters highlighted high market data costs and latency as two effects of the conflicts, suggesting that eliminating such conflicts would help make competing consolidators' data dissemination a ''viable alternative'' to proprietary feeds.[659] Another commenter stated that the proposal would ''replace an outdated and conflicted monopoly system to deliver core data with one that is competitive and better able to adapt to future changes and investors' needs.'' [660] The Commission agrees that

[640] *See* letter from Douglas A. Cifu, Chief Executive Officer, Virtu Financial, to Vanessa A. Countryman, Secretary, Commission, dated Aug. 28, 2020, at 4, *available at https://www.sec.gov/comments/sr-nyse-2020-05/srnyse202005-7707480-222891.pdf* (expressing interest in establishing a competing consolidator); *infra* Section V.C.2(d)(i).

[641] The commenter said that no potential competing consolidator would register and incur the attendant costs of becoming a competing consolidator before the Commission approves the effective national market system plan. The commenter said, ''[n]o rational entity would expend the effort to create a competing consolidator if it cannot estimate the relevant costs and benefits.'' IDS Letter I at 8. The commenter also said that without knowing the number of competitors and customers and the fees it can charge, a potential competing consolidator cannot estimate whether its revenue would exceed its costs. *See* IDS Letter I at 14.

[642] *Id.* at 3.

[643] *See id.*

[644] NYSE Letter II at 14. *See also id.* at 15 (stating that potential competing consolidators would be deterred from registering because they would not know the cost of market data or what they could charge for consolidated market data).

[645] *See infra* Section III.E.2(c).

[646] *See infra* Section III.H.

[647] *See infra* Section III.E.2(c).

[648] *See supra* note 635 and accompanying text.

[649] *See, e.g.,* CTA Plan, Key Operating Metrics of Tape A&B U.S. Equities Securities Information Processor (CTA SIP), *available at https://www.ctaplan.com/publicdocs/ctaplan/CTAPLAN_Processor_Metrics_3Q2020.pdf* (last accessed Nov. 27, 2020) (providing peak messages per second, 100 milliseconds, and 10 milliseconds and peak transactions and capacity transactions per day and latency information for Tapes A and B); UTP Q3 2020—July Tape C Quote Metrics, *available at http://www.utpplan.com/DOC/UTP_website_Statistics_Q3-2020-July.pdf* (last accessed Nov. 27, 2020) (for Tape C).

[650] *See* NYSE Letter II at 13, n. 42.

[651] *Id.*

[652] *See id.*

[653] *See id.* at 14.

[654] *See* IDS Letter I at 9.

[655] *See id.*

[656] *See id.* at 3.

[657] *See* Proposing Release, 85 FR at 16776.

[658] *See* SIFMA Letter at 5; Fidelity Letter at 3, 10; IEX Letter at 1, 2.

[659] *See* SIFMA Letter at 5; Fidelity Letter at 3.

[660] IEX Letter at 2.

the decentralized consolidation model will help mitigate the conflicts of interest inherent in the existing exclusive SIP model by allowing independent entities in the form of competing consolidators and self-aggregators, rather than SRO-affiliated exclusive SIPs, to collect, consolidate, and disseminate consolidated market data.

5. Comments on Latency

Several commenters stated that the proposed decentralized consolidation model could reduce latency in the dissemination of consolidated market data.[661] One commenter stated that the decentralized consolidation model would allow more timely delivery of consolidated market data.[662] Another commenter said the proposal's content and latency reforms ''go a long way.'' [663]

One commenter stated that the proposal's changes to latency would ''modernize market data infrastructure.'' [664] This commenter said that competition among competing consolidators would reduce geographic and aggregation latency.[665] Other commenters also noted the proposed decentralized consolidation model's potential beneficial effects on geographic latency.[666] One commenter stated that the proposal would reduce geographic latency because exchange data would no longer be aggregated by the exclusive SIPs in two locations, and competing consolidator subscribers could receive consolidated data within the data center of the competing consolidator.[667] Two commenters said that the proposed decentralized consolidation model could reduce the geographic, aggregation, and transmission latency differentials between proprietary market data feeds and SIP data.[668] Other commenters also noted the proposed decentralized consolidation model's potential to reduce both the latency and the content differentials between proprietary market data feeds and SIP data.[669]

However, several commenters questioned whether the decentralized consolidation model could meaningfully impact the latency of consolidated market data.[670] One commenter said that there was no guarantee that competition would result in improved latency.[671] Another said that exchanges could increase the latency gap between proprietary data and consolidated market data with frequent upgrades.[672] One commenter stated that the proposal failed to explain how the decentralized consolidation model would reduce latency and asked the Commission to explain why the proposed model is preferable to the distributed SIP alternative, which would address geographic latency.[673] Another commenter said that the proposed decentralized consolidation model is inconsistent with the Commission's obligations under the APA because it is not based on current market conditions and relies instead on ''outdated discussions and panelist comments'' from the Market Data Roundtable.[674] The commenter said that changes to market data infrastructure and governance have since reduced the latency differentials.[675]

The Commission believes that fostering a competitive environment for the collection, consolidation, and dissemination of consolidated market data will result in such data being delivered to market participants in a decentralized manner with improved geographic, aggregation, and transmission latencies. With respect to geographic latency, unlike the current exclusive centralized consolidation model, the decentralized consolidation model will allow the direct delivery of each SRO's market data to competing consolidators and self-aggregators, and competing consolidators may be located in the same data center as their subscribers. This stands in stark contrast to today's model where (a) one consolidator is located in one centralized data center while (b) a significant number (in some cases a majority) of subscribers are located in different data centers, and (c) each SRO's market data is required to travel to the one centralized location to be aggregated, prior to (d) traveling to yet another data center for receipt and use by subscribers.[676] In the decentralized consolidation model, SRO data will no longer be required to travel to a separate central location for consolidation by an exclusive SIP. Consolidation could occur at the data center where a data end-user is located instead of occurring only at the CTA/CQ SIP and the Nasdaq UTP SIP data centers. As one commenter stated, the physical location of a processor is critical.[677]

Furthermore, competition will incentivize competing consolidators to minimize latency and improve aggregation and transmission performance and services for consolidated market data products through the use of low-latency aggregation and transmission technologies.[678] Competing consolidators and self-aggregators will not be restricted to the transmission methods mandated by the Equity Data Plans, and competing consolidators will compete with each other based on the efficiency of their aggregation of raw SRO data to generate consolidated market data. In contrast to today's non-competitive exclusive SIPs, the Commission believes that competing consolidators will be incentivized to

[661] *See* AHSAT Letter at 1, 3; BlackRock Letter at 5; DOJ Letter at 2–3, 4; Fidelity Letter at 3, 10; MEMX Letter at 6, 7, 8; SIFMA Letter at 1, 5, 11; Wellington Letter at 1; ICI Letter at 4, 10; ACS Execution Services Letter at 5; Better Markets Letter at 3; Capital Group Letter at 4; IEX Letter at 3.

[662] *See* DOJ Letter at 4.

[663] AHSAT Letter at 1.

[664] SIFMA Letter at 1.

[665] *See id.* at 11. *See also* NovaSparks Letter at 1 (stating that competition will encourage competing consolidators to deliver excellent performance).

[666] *See* MEMX Letter at 6, 7, 8; ICI Letter at 10; BlackRock Letter at 5.

[667] *See* ICI Letter at 10.

[668] *See* MEMX Letter at 6, 8; BlackRock Letter at 5. *See also* NBIM Letter at 6 (stating that it uses direct feeds to reflect the ''physical reality'' of the broker-dealers whose performance it needs to evaluate and that the proposal would provide an opportunity for competitive processors located in the same data centers as most institutional broker-dealers to emerge).

[669] *See* ACS Execution Services Letter at 5 (stating that the model would reduce content and latency differentials between SIP and proprietary market data); DOJ at 2–3, 4 (supporting the proposal's efforts to address the granularity and latency differentials between SIP and proprietary market data).

[670] *See* Cboe Letter at 23; Citadel Letter at 5; STANY Letter II at 5, 6; NYSE Letter II at 11, 22, 23; Nasdaq Letter IV at 49; Angel Letter at 18, 19; TD Ameritrade Letter at 12; FINRA Letter at 8; IDS Letter I at 15; Data Boiler Letter II at 2; Proof Trading Letter at 1.

[671] *See* TD Ameritrade Letter at 12.

[672] *See* Data Boiler Letter II at 2.

[673] *See* Nasdaq Letter IV at 49.

[674] NYSE Letter II at 9, 10, 23. Similarly, one commenter stated that the Commission solely relied on comments from the Market Data Roundtable to support its belief that the decentralized consolidation model would reduce transmission latency differentials between SIP and proprietary market data. *See* Nasdaq Letter IV at 45.

[675] The commenter said that the Commission has ignored ''the impact of significant changes to the SIP infrastructure already implemented by the SROs and to the governance of the national market systems that the Commission recently imposed, while overlooking the impressive performance of the existing system in a time of extreme market volatility.'' NYSE Letter II at 10.

[676] Today, each exclusive SIP must collect data from geographically dispersed SRO data centers, consolidate the data, and then disseminate the consolidated data from the exclusive SIP's location to end-users, which are often in other locations, in a hub-and-spoke form of centralized consolidation that creates additional latency. *See* Proposing Release, 85 FR at 16765.

[677] *See* NBIM Letter at 4.

[678] *See infra* Section V.C.2(c) (discussing the effect of the decentralized consolidation model on innovation in data delivery and reducing latency differentials). Although the exclusive SIPs have reduced their aggregation latencies and made other improvements, as the Commission stated above, there is currently no competition for consolidated market data, and the technology for the distribution of SIP data has continued to meaningfully lag behind technologies utilized across the private competitive data landscape. *See supra* Section III.B.2.

make continued improvements.[679] For example, competing consolidators will be incentivized to minimize the amount of time it takes to aggregate consolidated market data products;[680] reduce their transmission latency[681] (*e.g.,* by offering wireless connectivity through microwave or laser technology, currently offered by exchanges[682]); reduce connectivity latency (*e.g.,* by offering field-programmable gate array (''FPGA'') services[683]); lower connectivity fees; enhance customer service; and enhance their technology and services to remain competitive. Competing consolidators providing consolidated market data products to clients for electronic trading will likely compete along all of these lines, similar to the manner in which the providers of proprietary data products have competed. Further, self-aggregators will be able to better utilize technologies to perform their aggregation and transmission functions.

One commenter asserted that the proposed decentralized consolidation model assumed that competing consolidators would specialize in lower latency data but said that this assumption was accurate only if the SROs from which they receive data can offer low-latency connectivity.[684] The commenter noted that the proposal could result in the discontinuation of low-latency connectivity options by SROs and said that the Commission did not assess the impact of the proposal on this connectivity market.[685] The Commission believes that this comment fails to recognize the ways in which the proposal addressed the connectivity market. In specifying ''by the same means, and on the same terms,'' at a minimum, the Commission has prohibited an SRO from providing superior connectivity for proprietary data products than it provides for NMS data. The Commission further addresses these concerns below.[686]

Some commenters stated that competing consolidators would not eliminate geographic latency.[687] One commenter stated that geographic latency would still exist despite implementation of the proposed decentralized consolidation model.[688] The commenter stated that incremental reductions to transmission latency would be the most the decentralized consolidation model could achieve but that the Commission failed to analyze whether such reductions would be worth the cost of the proposal.[689] Another commenter stated that competing consolidators would still be subject to geographic and operational latency, which would result in competing consolidators located within the same data center disseminating differing prices.[690]

Other commenters stated that the proposed decentralized consolidation model would reduce the latencies associated with the dissemination of SIP data.[691] The Commission agrees and believes that the model will significantly reduce geographic latency because, as described above, it will allow consolidation of market data to occur at the data center where a data end-user is located and end the consolidation of data at a single location where end-users may not be located. While full elimination of geographic latency for NMS data is impossible in a marketplace where different markets are located in different geographic locations, the reduction of latency caused by a centralized consolidation requirement is desirable and will result in significant latency benefits. If a competing consolidator chooses not to provide a consolidation service in all of the data centers of its users, the Commission believes the users will still benefit from reduced aggregation and transmission latencies resulting from competition among competing consolidators.

Finally, one commenter said that the current latency of the exclusive SIPs is sufficient for agency trading and doubted that any latency improvements would benefit long-term investors.[692] However, several commenters representing long-term investors expressed the view that the current latency of the SIPs was not sufficient to meet their needs.[693] While the current latency of the exclusive SIPs may be sufficient for some retail investors and other visual consumers of market data, the Commission believes that the reduction in latency should enhance trading by the brokers who service retail investors by allowing them to evaluate the markets quickly, adjust their quotes, trade more efficiently and competitively, and facilitate best execution. Furthermore, the addition of new data content in consolidated market data and the competitive environment fostered by the decentralized consolidation model may allow agency brokers to purchase consolidated market data products, which may be offered at a lower cost than current proprietary data, rather than proprietary data feeds, which could result in cost savings for investors.

While some commenters stated the proposed decentralized consolidation model would have little, if any, impact on latency,[694] other commenters said that the decentralized consolidation model would perpetuate latency differentials.[695] One commenter stated that competing consolidators would initiate a ''costly arms race in speed,''[696] resulting in major market participants complaining about having to pay a premium for the fastest consolidator.[697] One commenter said nothing in the proposal would address the Commission's concerns expressed in the Proposing Release[698] about a ''two-

[679] *See* text accompanying notes 602–603. The Commission notes that the Nasdaq UTP SIP revised its technology in the fourth quarter of 2016 to lower quote latency at the 99th percentile from 5,393 microseconds to 28 microseconds. In the same quarter, the CQS SIP's 99th percentile of latency was 1,570 microseconds and it did not reduce that latency to below 100 microseconds until the third quarter of 2020. *See* Nasdaq UTP Q3 2020—September Tape C Quote Metrics, *available at http://utpplan.com/DOC/UTP_website_Statistics_Q3-2020-September.pdf* (last accessed Nov. 27, 2020); Key Operating Metrics of Tape A&B U.S. Equities Securities Information Processor (CTA SIP), *available at https://www.ctaplan.com/publicdocs/ctaplan/CTAPLAN_Processor_Metrics_3Q2020.pdf* (last accessed Nov. 27, 2020).

[680] *See* SIFMA Letter at 11; BlackRock Letter at 5.

[681] *See* ICI Letter at 10; BlackRock Letter at 5.

[682] *See, e.g.,* ICE Global Network: New Jersey Metro, *available at https://www.theice.com/market-data/connectivity-and-feeds/wireless/new-jersey-metro* (last accessed Nov. 27. 2020); Nasdaq, Wireless Connectivity—Metro Millimeter Wave Frequently Asked Questions, *available at https://www.nasdaq.com/docs/2020/01/15/Metro_Millimeter_Wave_FAQ.pdf* (last accessed Nov. 27, 2020).

[683] *See* NovaSparks Letter at 1. *See also* Nasdaq Equity Trader Alert #2015–194, ''Nasdaq Reintroducing FPGA Order Entry Ports, Announcing Port and Pricing Updates for 2016,'' *available at https://www.nasdaqtrader.com/TraderNews.aspx?id=ETA2015-194* (last accessed Nov. 27, 2020); Flanagan, Terry, Co-Location: How Close Can You Get?, MarketsMedia (Dec. 27, 2012), *available at https://www.marketsmedia.com/co-location-how-close-can-you-get/* (explaining the use of FPGA to reduce co-location latencies).

[684] *See* IDS Letter I at 15.

[685] *See id.*

[686] *See infra* Section III.B.9.

[687] *See* Citadel Letter at 5; STANY Letter II at 6; NYSE Letter II at 11, 23.

[688] *See* NYSE Letter II at 23.

[689] *See id.* at 11.

[690] *See* Angel Letter at 18.

[691] *See* AHSAT Letter at 1; BlackRock Letter at 5; DOJ Letter at 2–3, 4; Fidelity Letter at 10; MEMX Letter at 3, 6, 7, 8; SIFMA Letter at 1, 11; Wellington Letter at 1; ICI Letter at 10; ACS Execution Services Letter at 5; Better Markets Letter at 3.

[692] *See* Proof Trading Letter at 1.

[693] *See, e.g.,* Capital Group Letter at 2, 4; Fidelity Letter at 2; State Street Letter at 2.

[694] *See supra* note 670.

[695] *See* Nasdaq Letter IV at 8, 23–24; NYSE Letter II at 22, 23; STANY Letter II at 6; Angel Letter at 19; FINRA Letter at 8–9.

[696] Angel Letter at 19.

[697] *See id.*

[698] *See* Proposing Release, 85 FR at 16767–8.

tiered market data environment'' [699] and argued that competing consolidators would create a multi-tiered market where market participants would be charged more for better products and faster services.[700] Further, this commenter stated that competing consolidator subscribers, such as retail investors, would be at a latency disadvantage to self-aggregators that can generate an NBBO faster.[701] This commenter also said that competing consolidators could even start a ''new fragmentation war'' for latency-sensitive subscribers that need to be co-located near their competing consolidator.[702]

The Commission believes that competing consolidators, based on subscriber demand, will develop different consolidated market data products for their subscribers and will compete on the basis of latency, resiliency, products and services offered, and other factors, including price. Subscribers also will be able to evaluate competing consolidators on the basis of system availability, network delay statistics, and data quality and system issues that will be publicly available in the Form CC and the performance statistics and operational information required to be disclosed by competing consolidators on a monthly basis by Rule 614. Different subscribers and trading applications may prioritize these factors differently. The Commission recognizes that there will be different needs for different participants and applications. However, the Commission does not believe that the realm of such differentiation and innovation should be exclusively limited to proprietary data products. As noted above, some commenters believed that the decentralized consolidation model would perpetuate latency differentials.[703] Although there may be differences in the latencies among competing consolidators, the Commission believes the decentralized consolidation model will result in a net benefit in overall improved latencies for users of consolidated market data relative to the current model, and competitive market forces should reduce the likelihood of an unlevel playing field.

Two commenters stated that self-aggregators would have a latency advantage over competing consolidators, which would continue a two-tiered market data environment despite the presence of competitive forces.[704] One of the commenters said that self-aggregators would continue to obtain and use market data faster than subscribers of competing consolidators.[705] The commenter also said that the proposal lacked an analysis of the latency advantages of self-aggregators over competing consolidators.[706] Another commenter said the decentralized consolidation model would ''institutionalize latency inequities'' through the use of self-aggregators and competing consolidators.[707] The commenter stated that the latency advantage of self-aggregators over competing consolidators was not actually minor, nor did it believe that competing consolidators could minimize the latency differences.[708] This commenter suggested that the Commission should either require the SROs to delay provision of market data to self-aggregators or allow only competing consolidators to provide consolidated market data.[709] One other commenter stated that broker-dealers that offer algorithmic trading would not be able to utilize a competing consolidator due to the inherent latency of third party aggregation.[710]

As discussed more fully below,[711] the Commission acknowledges that, unlike self-aggregators, competing consolidators would need to transmit consolidated market data to their customers,[712] but does not believe that this would lead to the development of a two-tiered market. Latency sensitive customers of competing consolidators are likely to be co-located in the same data centers as their competing consolidators, so the transmission time between the servers of the competing consolidator and its customer will be exceedingly small. The Commission expects that market participants that elect to aggregate consolidated market data, whether competing consolidators or self-aggregators, will innovate and compete aggressively on the efficiency and cost-effectiveness of their aggregation technologies to attract and retain subscribers (in the case of competing consolidators) or to facilitate their trading strategies (in the case of self-aggregators). The Commission believes that the development and implementation of the technology to collect, consolidate, and generate consolidated market data will create opportunities for latency efficiencies that are of substantially greater magnitude than the transmission time between the server of a competing consolidator and its customer. Competing consolidators, for example, may benefit from economies of scale that allow them to offer a very low-latency product more cost effectively that an individual self-aggregator. In some cases, a competing consolidator may have a latency or cost advantage, and in others a self-aggregator may have such advantages.[713] Competition may also impact the efficiency of choices.[714] Therefore, the Commission does not believe that self-aggregators would necessarily have a systematic latency advantage over customers of competing consolidators.

6. Comments on the Potential Impact on Costs for Consolidated Market Data

Several commenters said that the proposed decentralized consolidation model would result in a reduction in the cost of consolidated market data.[715] One

[699] Nasdaq Letter IV at 23–24. This commenter also said that the ''two-tiered'' environment adds no cost to the majority of traders and believed that SIP data is sufficient for human traders who would not benefit from expensive infrastructure and that professional traders tend to opt for custom solutions rather than buying the same products anyway. Nasdaq Letter III at 5.

[700] *See* Nasdaq Letter IV at 8.

[701] *See id.* at 8, 42.

[702] *Id.* at 26.

[703] *See* Nasdaq Letter IV at 8, 23–24; NYSE Letter II at 22, 23; STANY Letter II at 6; Angel Letter at 19; FINRA Letter at 8–9.

[704] *See* NYSE Letter II at 22, 23; STANY Letter II at 6.

[705] *See* NYSE Letter II at 23. *See also* Healthy Markets Letter I at 2–3.

[706] *See* NYSE Letter II at 23.

[707] FINRA Letter at 8.

[708] *See id.* at 8. The commenter also said that competing consolidators that aggregate data for themselves would have a latency advantage over their subscribers. *Id.*

[709] *See id.* at 8–9. *See also* Healthy Markets Letter I at 3 (recommending that an exchange that wished to send data to its customer be required to do so ''through an affiliate that would receive the same data, at the same time, on the same terms, and at the same cost as any competing SIP distributor'').

[710] *See* NBIM Letter at 4. This commenter, however, also stated that from an asset manager's perspective, the proposal would reduce its needs for direct feeds if there is a competitive consolidated tape offering. *Id.*

[711] *See infra* Section III.D.2(d).

[712] In the Proposing Release, the Commission noted that self-aggregators could have a minor latency advantage over market participants that use a competing consolidator for their consolidated market data. *See* Proposing Release, 85 FR at 16791.

[713] Self-aggregators could have a cost advantage over market participants that receive consolidated market data from a competing consolidator because self-aggregators will not be required to compensate a competing consolidator for its services. A self-aggregator will of course incur expenses to generate consolidated market data including the costs of having the systems capability to collect, consolidate, and generate consolidated market data. It may use a vendor to establish connectivity to an SRO or to perform aggregation or other functions necessary for generating consolidated market data. As a result, any potential cost advantage of a self-aggregator over market participants that purchase consolidated market data from competing consolidators may not be significant.

[714] *See infra* Section V.C.4(b).

[715] *See* BestEx Research Letter at 4; DOJ Letter at 4, 5; Committee on Capital Markets Letter at 6; IntelligentCross Letter at 5; Better Markets Letter at

commenter stated that having multiple competing consolidators will reduce the prices of consolidated market data and proprietary market data feeds.[716] Several commenters stated that competition could bring down fees or the cost of consolidated market data.[717] One commenter said that competing forces should help market participants to access market data in a cost-effective manner,[718] and another commenter said that competition would maintain fair prices.[719] A commenter stated that the proposal would constrain the cost of consolidated market data through competition among consolidators and the requirement that the fees charged to competing consolidators by the SROs be subject to approval.[720] Another commenter said the introduction of competing consolidators could impact aggregation and dissemination costs but stated that the proposal did not explain how competing consolidators would address exchange market data fees.[721]

However, other commenters expressed uncertainty about whether the proposed decentralized consolidation model would lower the cost of consolidated market data[722] or believed that the proposed model would increase costs.[723] One commenter stated that the proposal lacked proof that competing consolidators would reduce market data costs, explaining that the proposal lacked sufficient guidance and analysis of how market data fees would be determined, how to define reasonable fees, and how the proposed model would control costs to participants.[724] Another commenter said that competing consolidators would not result in enough competition to lower the cost of consolidated market data,[725] and a commenter stated that there was no guarantee that competition would improve costs.[726]

Commenters also stated that the proposed decentralized consolidation model would increase the cost of consolidated market data.[727] One commenter stated that nothing in the proposal supported the conclusion that competing consolidators would price consolidated market data economically efficiently.[728] This commenter argued that market data costs would be higher because differentiation would result in higher prices as differentiated competing consolidators would have fewer customers over which to spread their fixed costs.[729] This commenter also said that the proposed increased content of consolidated market data could increase costs and burden retail investors who have no need for the more comprehensive data.[730] The commenter also said that costs will be dependent on the effective national market system plan(s) and fee proposals.[731] Another commenter said that retail investors could incur ''exponentially more'' costs as a result of the proposal.[732]

One commenter stated that product differentiation among competing consolidators could lead to an increase in prices as the fastest competing consolidators would charge more due to inelastic demand.[733] This commenter also believed that only the existing SIPs could afford Regulation SCI compliance; therefore, as the only competing consolidators, they would charge oligopolistic prices for consolidated market data.[734] This commenter also said that the real prices for consolidated market data are determined by what the Commission will permit the exchanges to charge, not competition.[735]

Several commenters stated that the proposed decentralized consolidation model would result in higher consolidated market data costs[736] as well as other costs[737] for market participants. One commenter said that competing consolidators would ''impose meaningful costs on investors'' and said that the proposal did not explain how competing consolidators would charge fees to investors (such as whether they could charge additional fees for content or only for data delivery).[738] This commenter also said that the proposal is deficient because ambiguities surrounding fees to be charged by competing consolidators to investors, as well as by SROs to competing consolidators, impede meaningful public comment and the ability of the Commission to perform a cost-benefit analysis as required under the APA.[739] One commenter said that exchanges facing competitive pressure from shareholders will be forced to charge high prices to competing consolidators, which will then pass down these prices to their subscribers.[740] Another commenter said that competing consolidators are ''an intermediary between suppliers and users adding a layer of cost to the overall system.''[741]

Two commenters stated that market participants would face increases in other costs as a result of the proposal.[742] One of the commenters said that exchange trading costs for retail and other investors will increase due to reductions in SROs' market data revenue as a result of the proposal.[743] The other commenter said that costs would increase as a result of requiring broker-dealers (or other market participants) to subscribe and pay fees to multiple competing consolidators.[744]

The Commission recognizes that the fees for the data content underlying consolidated market data are unknown at this time and that such fees are a fixed cost for all competing consolidators to assess when developing their business plans. However, in response to the comments that expressed uncertainty about the direction of consolidated market data costs as a result of the proposal and those comments that stated that consolidated market data costs would increase for market participants, the

3; RBC Letter at 5–6; State Street Letter at 3; Fidelity Letter at 3, 9; Wellington Letter at 1; BlackRock Letter at 5; IEX Letter at 3.

[716] *See* BestEx Research Letter at 4.

[717] *See* DOJ Letter at 3–4 (''The Department agrees with the SEC's belief that 'by introducing competition and market forces into the collection, consolidation, and dissemination process, the decentralized consolidation model would help ensure that consolidated market data is delivered to market participants in a more timely, efficient and cost effective manner than the current centralized consolidation model.' '''); Committee on Capital Markets Regulation Letter at 6; IntelligentCross Letter at 5; Fidelity Letter at 9; Wellington Letter at 1; ICI Letter at 4.

[718] *See* Better Markets Letter at 3.

[719] *See* RBC Letter at 5–6.

[720] *See* IEX Letter at 3.

[721] *See* Citadel Letter at 5.

[722] *See* STANY Letter II at 5; Data Boiler Letter I at 46–47; TD Ameritrade Letter at 12; NYSE Letter II at 9.

[723] *See* Cboe Letter at 23–24; FINRA Letter at 1, 2, 3, 4; Angel Letter at 21, 24; Kubitz Letter at 1; Nasdaq Letter IV at 23, 26, 47–48, 60; TD Ameritrade Letter at 15.

[724] *See* STANY Letter II at 5. Similarly, another commenter said the proposal lacked a ''reasoned analysis of expected costs and fees for market data under the decentralized consolidation model.'' NYSE Letter II at 9. *See also id.* at 19–20.

[725] *See* Data Boiler Letter I at 46–47.

[726] *See* TD Ameritrade Letter at 12.

[727] *See* Nasdaq Letter IV at 23, 26, 47–48, 60; TD Ameritrade Letter at 15.

[728] *See* Nasdaq Letter IV at 23.

[729] *See id.* at 26.

[730] *See id.* at 60, n. 162.

[731] *See id.* at 47–48.

[732] TD Ameritrade Letter at 15.

[733] *See* Angel Letter at 23.

[734] *See id.* at 20.

[735] *See id.* at 21.

[736] *See* Cboe Letter at 23–24; Kubitz Letter at 1; Angel Letter at 21, 24; Nasdaq Letter IV at 27, 30, 60, n. 162; Data Boiler Letter II at 1.

[737] *See* FINRA Letter at 4; Nasdaq Letter IV at 5, 27, 30.

[738] Cboe Letter at 23–24.

[739] *See* Cboe Letter at 4.

[740] *See* Angel Letter at 24.

[741] Data Boiler Letter II at 1.

[742] *See* FINRA Letter at 4; Nasdaq Letter IV at 5, 27, 30.

[743] *See* Nasdaq Letter IV at 5, 27, 30. *See also* Clearpool Letter at 3 (suggesting safeguards to keep exchanges from increasing consolidated market data prices to recoup any revenue lost from the proposed requirement to sell core data to competing consolidators).

[744] *See* FINRA Letter at 4.

Commission believes that competition will constrain the prices at which competing consolidators can sell consolidated market data products. Further, the Commission believes that there will be downward pressure on the fees for the data content underlying consolidated market data as compared to fees for proprietary data.[745]

Specifically, the new data content underlying consolidated market data (*i.e.,* depth of book data, auction information, and odd-lot information) are currently elements of proprietary data products that are assessed under the statutory standards that apply to proprietary data, including Sections 6(b)(4), 15A(b)(5), and 11A(c)(1)(C)–(D) of the Exchange Act[746] and Rule 603(a) under Regulation NMS.[747] These proprietary data fees are filed with the Commission pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder[748] and are effective upon filing with the Commission.

Fees for the data content underlying consolidated market data will be assessed against the statutory standard that applies to fees proposed by the effective national market system plan(s), including Sections 11A(c)(1)(C)–(D) of the Exchange Act and Rule 603(a) under Regulation NMS. The proposed fees must be fair and reasonable and not unfairly discriminatory.[749] The fees must be filed with the Commission pursuant to Rule 608 and will be published for public comment and thereafter, if consistent with the Exchange Act, must be approved by the Commission before becoming effective.[750]

In addition, a New Consolidated Data Plan has been filed that contains a proposed new governance structure and procedures that, if approved, will address some of the conflicts of interest inherent in the existing governance structure and will bring a more inclusive representation of market participants into the process for developing fees for the data content underlying consolidated market data.[751] The Commission believes that the governance model required to be included in the proposed New Consolidated Data Plan will support the building of broad consensus in developing the future fees for the data content underlying consolidated market data. Notwithstanding the new governance model, the new fees for data content underlying consolidated market data will have to satisfy statutory standards: They must be fair and reasonable and not unfairly discriminatory.[752]

Further, competition should constrain other aspects of consolidated market data costs, including the fees charged by competing consolidators for their products and services. Competing consolidators will compete in their aggregation and transmission services, which should also be reflected in their prices for such services. All competing consolidators will be required, under Rule 614(d), to disclose publicly metrics and other information concerning their performance and operations, which will allow market participants to evaluate effectively competing consolidators, fostering competition among competing consolidators. Further, competing consolidators are required to disclose their prices for consolidated market data products.[753] In response to the comments warning that product differentiation would permit competing consolidators to increase their fees for consolidated market data products, the Commission believes that competing consolidators will face competition from each other and from potential new entrants, especially if a differentiated product serves as a material economic opportunity. This threat of competition will discipline prices and efficiency in the consolidated market data space. For example, if products tailored to the different needs of market participants become popular, competition should drive the creation and sale of similar products at prices attractive to subscribers.

In response to the comment that stated that exchange trading costs, and consequently retail investor trading costs, would increase due to a reduction in exchange revenue as a result of the proposal,[754] the Commission notes that the exchanges may file proposed rule changes to reflect any necessary adjustments to their fees as a result of the proposal. These proposed rule changes must meet the applicable statutory standards for fees. However, a reduction in proprietary data revenue, if it were to occur, would not, by itself, necessarily make it optimal for exchanges to adjust their trading fees.[755]

In response to the comment that stated that market participant costs will increase as a result of the proposal because all market participants would need to retain a back-up competing consolidator,[756] the Commission is not requiring market participants to have back-up competing consolidators. Market participants may choose to subscribe to competing consolidators that are ''SCI competing consolidators''—those subject to the requirements of Regulation SCI that help ensure that the core technology systems of SCI entities remain reliable and resilient, including the requirements to have geographically diverse back-up and recovery capabilities, and conduct an SCI review each year, as discussed below. Some market participants may choose to subscribe to multiple competing consolidators. In either case, this choice will be for market participants to elect after evaluating the needs of their business and their customers. The Commission cannot estimate at this point specific cost increases, if any, for market participants that subscribe to competing consolidators.[757] But market participants may face an overall reduction in costs due to the competitive environment for consolidated market data fostered by the decentralized consolidation model.

7. Comments on Complexity of the Decentralized Consolidation Model

Several commenters stated that the proposed decentralized consolidation model would generally add complexity to the consolidated market data environment.[758] One commenter said that competing consolidators would increase technological complexity, which would also increase risk and aggregate costs, while reducing resilience.[759] Another commenter said that the complexity and costs created by competing consolidators could exceed

[745] *See infra* Section III.E.2(c) (discussing the statutory requirements applicable to consolidated market data and the standards the Commission has historically applied to assessing compliance with the statutory requirements).

[746] 15 U.S.C. 78f(b)(4), 15 U.S.C. 78*o*–3(b)(5), and 15 U.S.C. 78k–1(c)(1)(C)–(D).

[747] 17 CFR 242.603(a).

[748] 17 CFR 240.19b–4.

[749] *See infra* Section III.E.2(c).

[750] *See* Effective-Upon-Filing Adopting Release *supra* note 17.

[751] *See* Governance Order, *infra* note 1128; New Consolidated Data Plan Notice, *supra* note 40.

[752] *See* Sections 11A(c)(1)(C)–(D) of the Exchange Act and Rule 603(a) of Regulation NMS, 17 CFR 242.603(a).

[753] *See* Form CC, Exhibit F.

[754] *See supra* note 743.

[755] *See* note 2392 and accompanying text.

[756] *See* FINRA Letter at 4.

[757] Those broker-dealers that do not currently have back-up capabilities may decide not to have back-up capabilities under the decentralized consolidation model. To the extent that such broker-dealers decide to subscribe to redundant back-up competing consolidator feeds, they may incur higher costs. Further, as discussed below, the effective national market system plan(s) will have to develop MISU policies for consolidated market data subscribers. *See infra* Section III.E.

[758] *See* TechNet Letter II at 1–2; STANY Letter II at 8.

[759] *See* TechNet Letter II at 1–2. This commenter said that every new competing consolidator brings ''exponentially increasing risks'' and that the competing consolidator model lacked strong industry support. *Id.* at 2.

their benefits to investors.[760] One commenter said that the proposed decentralized consolidation model and the proposed changes to consolidated market data ''could introduce significant additional costs, confusion and complexity into an already complex system for equity market data, and raises a number of questions and issues.'' [761]

The markets currently have a decentralized model of data dissemination with regard to the exchange proprietary data feeds. This decentralized model operates alongside the current centralized consolidation model, and market participants must navigate the different data offerings, connectivity options, and fees. Therefore, the Commission does not believe that a decentralized consolidation model would necessarily increase complexity. Rather, the Commission believes that the decentralized consolidation model may lessen some of the complexities that exist today by eliminating the need to purchase both SIP data and proprietary data for some market participants. Additionally, because the Commission expects that there will be multiple competing consolidators providing consolidated market data products to market participants, rather than one exclusive SIP—the single point of failure that exists in the current model—the Commission believes that the decentralized consolidation model will enhance, rather than harm, the resiliency of the national market system.[762] If one competing consolidator ceases operations, its impact on the markets should be minimized due to the presence of other competing consolidators that can perform the same functions [763] and the ability of new entrants to serve as competing consolidators.

8. Comments on Surveillance and Regulation in the Decentralized Consolidation Model

Several commenters expressed concern about the proposed decentralized consolidation model's impact on regulation.[764] Some commenters stated that the proposed model would present regulatory risks.[765] Additionally, commenters asked questions related to the proposed model's regulatory impact.[766]

One commenter stated that the proposal overlooked the effect of the proposed decentralized consolidation model on market surveillance and enforcement.[767] The commenter also said that the proposal would limit exchange market data revenue because revenues would be based upon ''some unspecified measure of cost,'' which would impact exchanges' abilities to perform their self-regulatory functions,[768] while also increasing the cost of regulatory compliance.[769]

Another commenter, representatives from two exchanges, stated that the proposal leaves unclear whether SROs will be required to purchase all of the consolidated market data feeds of competing consolidators and self-aggregators for surveillance purposes, or if SROs can use a limited number of such feeds instead.[770]

The Commission does not believe that the decentralized consolidation model raises unique regulatory risks, undermines effective SRO surveillance, or imposes burdens on broker-dealers. The U.S. equity markets and the regulatory programs that have been developed to oversee their operation already have experience handling multiple sets of data due to the existence of the exclusive SIPs' feeds and proprietary data feeds. Market participants currently can utilize many data options for different purposes, and the SROs are able to develop surveillance programs to oversee their members. Further, in the current model with both SIP data and proprietary data, the SROs develop their surveillance systems based on the data sets they believe best allow them to perform their regulatory obligations.[771] Broker-dealers using different data sets than those used by their SROs already have to respond to SRO surveillance requests based on the different data used by the SROs. This process will not change in the decentralized consolidation model. Surveillance and regulatory programs that utilize SIP data may have to be updated to utilize a new data source, either from a competing consolidator or based on self-aggregation by the SRO.[772] SROs will not be required to purchase every consolidated feed from all competing consolidators to conduct enforcement or surveillance, just as they are not required today to purchase all consolidated (synthetic NBBO) data products provided by each of the different market data vendors aggregating proprietary feeds.

Furthermore, all competing consolidators will register with the Commission and become regulated entities (if not already SROs) subject to Rule 614 of Regulation NMS and Commission oversight. As required by Rule 614, competing consolidators will provide information about their operations through a public Form CC, as well as monthly reports on their performance and other metrics relevant to potential subscribers, such as latency, system up-time, and system issues.[773] Like many of the disclosures made by the exclusive SIPs,[774] the information

[760] *See* STANY Letter II at 8.

[761] FINRA Letter at 3.

[762] *See infra* Section III.C.2. The competing consolidator model is designed to result in multiple viable sources of consolidated market data, not a single source of such data. Therefore, there will not be a single point of failure. However, the second prong of the definition of ''critical SCI systems'' in Regulation SCI, 17 CFR 242.1000 through 242.1007—a catch-all for systems that ''[p]rovide functionality to the securities markets for which the availability of alternatives is significantly limited or nonexistent and without which there would be a material impact on fair and orderly markets''—would apply in the event that availability of alternatives were significantly limited or nonexistent in the future. *See infra* Section III.F for a discussion of the application of Regulation SCI to competing consolidators.

[763] *See infra* Section V.C.2(c)(iv) (discussing the benefits of the decentralized consolidation model to market resiliency).

[764] *See* Nasdaq Letter IV at 2, 3, 4, 12–13, 35; TechNet Letter II at 2; Kubitz Letter at 1; Joint CRO Letter at 2, 3, 4; FINRA Letter at 3, 4–5, 6; Citadel Letter at 5; TD Ameritrade Letter at 13.

[765] *See* Nasdaq Letter IV at 35; TechNet Letter II at 2; Kubitz Letter at 1.

[766] *See* Citadel Letter at 5; FINRA Letter at 4, 5, 6; TD Ameritrade Letter at 13.

[767] *See* Nasdaq Letter IV at 2.

[768] *See id.* at 37; *see also* NYSE Letter II at 22.

[769] *See* Nasdaq Letter IV at 35; *see also* NYSE Letter II at 22.

[770] *See* Joint CRO Letter at 3.

[771] Section 6(b)(1) of the Exchange Act provides that an exchange must be so organized and have the capacity to be able to enforce compliance by its members, and persons associated with its members, with the Exchange Act, the rules and regulations thereunder, and the rules of the exchange. *See also* Section 15A(b)(2) of the Exchange Act. *See, e.g.,* Securities Exchange Act Release Nos. 74690 (Apr. 9, 2015), 80 FR 20282 (Apr. 15, 2015) (proposed rule change from Nasdaq explaining that Nasdaq uses a real-time surveillance system that uses a ''mirrored'' version of Nasdaq's ''NMS feed,'' which consumes the Nasdaq Protected Quote Service as well as certain proprietary market data feeds and SIP data); 74967 (May 15, 2015), 80 FR 29127 (May 20, 2015) (proposed rule change from Nasdaq PHLX (''Phlx'') stating that Phlx's surveillance similarly relies on a mirrored version of Phlx's NMS feed, which consumes the Phlx Protected Quote Service and certain proprietary market data feeds and SIP data). *See also* Nasdaq Rule 4759(a) and Nasdaq PSX Rule 3304(a) for a list of the proprietary quotation feeds and SIP feeds used by the respective exchanges for the handling, routing, and execution of orders, as well as for regulatory compliance functions related to those functions.

[772] The Commission has modified the definition of self-aggregator so that SROs would be permitted to be self-aggregators.

[773] *See* Rule 614(d); *see* also infra *Section III.C.8.*

[774] The information to be published by competing consolidators is based upon information that is currently produced by the CTA/CQ SIP and the Nasdaq UTP SIP, either for public or internal distribution. The exclusive SIPs currently publish to their respective websites monthly processor metrics that provide the following information: System availability, message rate and capacity

Continued

required pursuant to Rule 614(d) will be publicly available.[775] Competitive forces also will incentivize competing consolidators to operate reliably and with low latency, and in conjunction with Commission oversight, the application of Regulation SCI and the required disclosures and transparency provided by Rule 614, should help to ensure high performance and system integrity.

In response to the comment that stated the proposal would limit exchange market data revenue, hurting exchanges' abilities to perform their self-regulatory functions[776] and increasing the cost of regulatory compliance,[777] the Commission notes that SROs will develop fees for the data content underlying consolidated market data via the effective national market system plan(s), and the SROs will receive their revenue allocation for their data, as they do today.[778] One commenter suggested having an ''authority or agency'' evaluate whether the proposed decentralized consolidation model could be gamed, arbitraged, or fraudulently used in a way to interfere with retail investors' access to market data and execution of trades.[779] The Commission believes that the adopted rules, as well as the oversight of SROs, competing consolidators, and self-aggregators should help to ensure that retail investors' access to consolidated market data would not be impacted by the decentralized consolidation model. Specifically, Rule 603(b) requires the SROs to provide their information to competing consolidators, which would be responsible for disseminating consolidated market data products to their subscribers, which would likely include broker-dealers that have retail customers. Among other requirements, Rule 603(c) would continue to apply; therefore, broker-dealers and SIPs[780] must continue to provide a consolidated display of information in the context in which a trading decision can be implemented.

Further, Rule 614(d)(3) requires competing consolidators to make available consolidated market data products to subscribers on terms that are not unreasonably discriminatory.[781] Competing consolidators will also be subject to the requirements of Rule 614(d), which, among other things, mandate the filing of a public Form CC to provide operational transparency, as well as the public monthly disclosure of metrics and other information concerning performance and operations. These requirements should allow subscribers of a competing consolidator to verify that consolidated market data products are provided in a prompt, accurate, and reliable manner and thus motivate competing consolidators to continue to provide consolidated market data products accordingly.

Commenters also raised questions related to the proposed decentralized consolidation model's regulatory impact.[782] One commenter asked whether there would be any regulatory immunity differences between competing consolidator offerings from SROs and non-SROs.[783] SRO immunity considerations would depend on the particular facts and circumstances.[784]

9. Access to Data: Rule 603(b)

(a) Proposal

Rule 603(b) of Regulation NMS currently requires a centralized consolidation model. The Commission proposed to amend Rule 603(b) to require each SRO to provide its NMS information, including all data necessary to generate consolidated market data, to all competing consolidators and self-aggregators in the same manner and using the same methods, including all methods of access and data formats, as such SRO makes available any information to any other person. Under the proposed approach, competing consolidators and self-aggregators would collect each SRO's market data that is necessary to generate consolidated market data.[785] As proposed, the same access options available to proprietary feeds, including, but not limited to, transmission medium (*i.e.,* fiber optics or wireless), multicast communication, co-location options, physical port, logical port, bandwidth, and FPGA services, would be required to be made available for proposed consolidated market data feeds. Further, any enhancements to proprietary feed methods of access would similarly be made to consolidated market feeds.[786]

In the Proposing Release, the Commission stated that the exchanges could utilize their existing proprietary data product offerings that contain consolidated market data elements or the exchanges could develop new consolidated market data offerings for purposes of making information available under Rule 603(b). Competing consolidators and self-aggregators could choose to purchase products that include only the proposed consolidated market data elements or products that contain elements of both proposed consolidated market data and other proprietary data.[787]

The Commission also proposed to remove the requirement in Rule 603(b) that ''all consolidated information for an individual NMS stock [be disseminated] through a single plan processor''[788] because it would be inconsistent with the proposed decentralized consolidation model. In a decentralized consolidation model, multiple competing consolidators would

statistics, and the following latency statistics from the point of receipt by the SIP to dissemination from the SIP: Average latency and 10th, 90th and 99th percentile latency. *See* CTA Metrics, *available at https://www.ctaplan.com/metrics* (last accessed Nov. 27, 2020); UTP Metrics, *available at http://www.utpplan.com/metrics* (last accessed Nov. 27, 2020). Additionally, the exclusive SIPs post on their websites any system alerts and the Nasdaq UTP Plan posts vendor alerts as well. *See* CTA Alerts, *available at https://www.ctaplan.com/alerts* (last accessed Nov. 27, 2020); UTP–SIP System Alerts, *available at http://www.utpplan.com/system_alerts* (last accessed Nov. 27, 2020); UTP Vendor Alerts, *available at http://www.utpplan.com/vendor_alerts* (last accessed Nov. 27, 2020). Further, the exclusive SIPs publish on their websites charts detailing realized latency from the inception of a Participant matching engine event through the point of dissemination from the exclusive SIP. *See* CTA Latency Charts, *available at https://www.ctaplan.com/latency-charts* (last accessed Nov. 27, 2020); UTP Realized Latency Charting, *available at http://www.utpplan.com/latency_charts* (last accessed Nov. 27, 2020).

[775] Because this information is useful to current users of the exclusive SIPs and participants of the Equity Data Plans, the Commission believes that it should be made publicly available by competing consolidators.

[776] *See* Nasdaq Letter IV at 37; *see also* NYSE Letter II at 22.

[777] *See* Nasdaq Letter IV at 35; *see also* NYSE Letter II at 22.

[778] *See infra* Section III.E.2. The Commission discusses the potential economic effects of the proposal on exchange proprietary market data revenue in Section V.C.4(a). *See infra* Section V.C.4(a); *see also infra* text accompanying notes 2468–2469.

[779] Kubitz Letter at 1.

[780] Under Rule 600(b)(16) of Regulation NMS, a competing consolidator is defined as a SIP. *See infra* Section III.C.1(b).

[781] *See infra* Section III.C.8.

[782] *See* Citadel Letter at 5; FINRA Letter at 4–5, 6.

[783] *See* Citadel Letter at 5.

[784] *See also infra* Section III.C.7(a)(iv); Brief of the Securities and Exchange Commission, *Amicus Curiae,* No. 15–3057, *City of Providence* v. *Bats Global Markets, Inc.* (2d Cir.), at 21, 22. Courts have found that SROs are entitled to absolute immunity from private claims under certain circumstances. In particular, ''when acting in its capacity as a SRO, [the SRO] is entitled to immunity from suit when it engages in conduct consistent with the quasi-governmental powers delegated to it pursuant to the Exchange Act and the regulations and rules promulgated thereunder.'' *See DL Capital Group, LLC* v. *NASDAQ Stock Market, Inc.,* 409 F. 3d 93, 97 (2d Cir. 2005) (quoting *D'Alessio* v. *New York Stock Exchange, Inc.,* 258 F. 3d 93, 106 (2d Cir. 2001)). If an SRO fails to comply with the provisions of the Exchange Act, the rules or regulations thereunder, or its own rules, the Commission is authorized to take action. *See* 15 U.S.C. 78s(g).

[785] *See* Proposing Release, 85 FR at 16769.

[786] *See id.*

[787] *See id.*

[788] 17 CFR 242.603(b).

disseminate consolidated market data in individual NMS stocks rather than single plan processors.[789]

In the proposal, the Commission stated that the proposed decentralized consolidation model and the proposed consolidated market data definition would not preclude the exchanges from continuing to sell proprietary data and that the fees for proprietary data, which are outside of the proposed definition of consolidated market data, would be subject to the rule filing process pursuant to Section 19(b) of the Exchange Act and Rule 19b–4.[790] The Commission stated that if an exchange provided its proprietary data products to a competing consolidator or self-aggregator and a competing consolidator or self-aggregator developed a product, or otherwise used data, that exceeded the scope of proposed consolidated market data (*e.g.,* full depth of book data), the competing consolidator or self-aggregator would be charged separately for the proprietary data use pursuant to the individual exchange fee schedules.[791] Self-aggregators and competing consolidators that limited their use of exchange data to proposed consolidated market data elements would be charged only for proposed consolidated market data pursuant to the effective national market system plan(s) fee schedules, in accordance with Rule 608 of Regulation NMS.[792]

(b) Final Rule and Response to Comments

The Commission is adopting the amendments to Rule 603(b) as proposed. The Commission believes that these changes to Rule 603(b) are appropriate to establish the decentralized consolidation model. Under Rule 603(b), the SROs are required to make available all quotation and transaction information that is necessary to generate consolidated market data in the same manner and using the same methods, including all methods of access and the same format, as such SRO makes available any information with respect to quotations for and transactions in NMS stocks to any person. Competing consolidators and self-aggregators will be able to collect from the SROs that NMS information that is necessary to generate consolidated market data as defined in Rule 600(b)(19),[793] which includes core data,[794] regulatory data, administrative data, and self-regulatory organization-specific program data.

Under Rule 603(b), the SROs are allowed to provide their core data to competing consolidators and self-aggregators via the existing proprietary data feeds, a combination of proprietary data feeds, or a newly developed consolidated market data feed.[795] However, if an SRO developed a dedicated consolidated market data feed, the SRO will have to take steps to ensure that any proprietary data feed is not made available on a more timely basis (*i.e.,* by any time increment that could be measured by the SRO) than a consolidated market data feed.[796] Rule 603(a) also applies to the provision of data content underlying consolidated market data by the SROs to competing consolidators. The Commission believes that under Rule 603(a), if an SRO developed a consolidated market data feed, it would likely have to throttle any order-by-order proprietary data feed so that it is not made available on a more timely basis than such dedicated consolidated market data feed. Any dedicated consolidated market data feed developed by an exchange would likely involve processing by an exchange to segment its consolidated market data elements, which adds latency to data dissemination, while an order-by-order proprietary data feed would involve no less processing by the exchange. Further, the SROs are allowed to offer different access options (*e.g.,* with different latencies, throughput capacities, and data-feed protocols) to market data customers, as long as any access options available to proprietary data customers are made available to competing consolidators and self-aggregators for their selection for the collection of the data necessary to generate consolidated market data.

In addition, if an SRO provided its proprietary data products to competing consolidators or self-aggregators for purposes of Rule 603(b) and a competing consolidator or self-aggregator developed a product, or otherwise used data content that is beyond the scope of consolidated market data (*e.g.,* full depth of book data), the proprietary data content will be subject to the individual exchange fees for proprietary data,[797] while the data content underlying consolidated market data will be subject to the fees established pursuant to the effective national market system plan(s).[798]

The Commission received several comments on its proposed amendments to Rule 603(b). Some commenters stated that the changes to Rule 603(b) were key to the success of the proposal.[799] One commenter stated that the proposed changes to Rule 603(b) ''should help to ensure that proprietary feeds, competing consolidators and self-aggregators operate on a more level playing field with regards to the speed that market participants can obtain market data and access.'' [800] The commenter continued that the proposal would create a true alternative to subscribing to and paying for each individual exchange's proprietary feed.[801] Another commenter stated that the requirement to make data available to competing consolidators in the same manner as the exchanges make it available to any other person would address latency issues that exist in core data.[802]

One commenter suggested that the exchanges provide content that is similar to what they provide on their direct feeds, stating that all data can be useful for ''execution algorithms' quantitative trading decisions.'' [803] Another commenter suggested that the exchanges should provide a single data feed—their proprietary DOB feed—to satisfy the requirements of the proposed rules, simplify data distribution, and ease Rule 603(a) burdens.[804] The Commission has set forth minimum data content underlying consolidated market data that must be made available by the SROs under Rule 603(b). The Commission has identified these elements as necessary for a wide array of trading in the national market system.

[789] Proposing Release, 85 FR at 16771.

[790] 15 U.S.C. 78s(b) and 17 CFR 240.19b–4. *See id.* at 16769.

[791] *See id.*

[792] 17 CFR 242.608.

[793] *See also infra* Section III.C.8(a).

[794] For example, competing consolidators and self-aggregators will collect quotation information that is necessary to calculate the NBBO as described in Rule 600(b)(50).

[795] Competing consolidators and self-aggregators would be permitted to choose among the data feed options offered by the SROs to satisfy their obligations under Rule 603(b) to collect the SRO information that is necessary to generate consolidated market data. *See also* Section III.E.2(g) for a discussion of the licensing, billing and audit process. The effective national market systems plans through their licensing, billing and audit processes can determine the extent to which data content utilized by competing consolidators and self-aggregators constituted elements of consolidated market data.

[796] *See infra* Section III.B.9(f).

[797] Fees for proprietary data are filed with the Commission pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder.

[798] Fees for the data content underlying consolidated market data will be filed with the Commission pursuant to Rule 608 of Regulation NMS, 17 CFR 242.608.

[799] *See* McKay Letter; SIFMA Letter. *See also* Clearpool Letter at 7 (supporting the proposed language of Rule 603(b)).

[800] SIFMA Letter at 11. *See also* McKay Letter at 4 (stating that the proposed language of Rule 603(b) would prevent an exchange from creating a proprietary data feed that would not be sufficient to create consolidated market data but which has a latency or other access advantage associated with it).

[801] *See* SIFMA Letter at 11.

[802] *See* Fidelity Letter at 10.

[803] BestEx Research Letter at 5.

[804] *See* MEMX Letter at 9.

Because the Commission recognizes that some market participants may need more information than what is defined as consolidated market data, SROs can provide additional information to these customers via proprietary feeds. Further, as discussed above, the SROs can satisfy their obligations under Rule 603(b) by utilizing their proprietary data feeds, a combination of proprietary data feeds, or a newly developed core data feed that contains all of the data content underlying consolidated market data.[805] Rule 603(b) does not specify a required method of delivery of the data content underlying consolidated market data but requires that such data be provided in the same manner and using the same methods of access and the same format,[806] as the SROs use to make any NMS information available in NMS stocks to any person.

One commenter, however, stated, without further explanation, that the ''same manner and methods'' language was ''merely a standard price list offered by the exchange.'' [807] The commenter further stated that the ''same format'' language would hurt average investors and give high frequency trading firms an advantage and asserted that ''[o]ne can only attempt to match faster connectivity by altering data format and compression methods.'' [808] To the extent that the commenter is suggesting that investors who obtain consolidated market data products from a competing consolidator may be at a disadvantage to self-aggregators because of the latency advantage of self-aggregators, the Commission believes, as discussed in Section IV.D.2(d), that the self-aggregators will not necessarily have a systematic latency advantage over competing consolidators. If the commenter is suggesting that SROs provide data in a different format to compensate for faster connectivity, Rule 603(b) requires the SROs to make the data content underlying consolidated market data available to competing consolidators and self-aggregators in the same manner and methods, including all methods of access and the same format, as proprietary data. Further, Rule 603(a) prohibits an SRO from making NMS information available to any person on a more timely basis (*i.e.,* by any time increment that could be measured by the SRO) than it makes such data available to competing consolidators and self-aggregators.[809]

Another commenter stated that the proposed language in Rule 603(b) did not consider that an exchange's connectivity options may not have the capacity to be provided to all competing consolidators and self-aggregators in the same manner and using the same methods.[810] The commenter stated that the proposal did not address the possible impact on wireless connectivity or how customers would be affected if the SROs ceased to offer wireless connectivity. The commenter did not expand upon how the decentralized consolidation model would burden capacity beyond what occurs today in the provision of proprietary data using the same connectivity options. The exchanges assess capacity needs for their proprietary data products and will be able to assess such needs for the connectivity options for the data content underlying consolidated market data. Each individual SRO will be required to provide the data underlying consolidated market data to competing consolidators and self-aggregators in the same manner and using the same methods as is provided for proprietary data. The exchanges can utilize their proprietary data feeds to make the data content underlying consolidated market data available to competing consolidators and self-aggregators and will be able to offer any access options available to proprietary data feeds to competing consolidators and self-aggregators for their selection.

(c) Comments on Access Options

In the Proposing Release, the Commission stated that the exchanges could provide different access options (*e.g.,* with different latencies, throughput capacities, and data feed protocols) to market data customers, but any access options available to proprietary data customers must also be available to competing consolidators and self-aggregators. As proposed, Rule 603(b) would require exchanges to provide all forms of access used for proprietary data to all competing consolidators and self-aggregators for the collection of the data necessary to generate proposed consolidated market data.[811] Further, an exchange must offer the same form of access, such as fiber optics, wireless, or other forms, in the same manner and using the same methods, including all methods of access and the same format, as the exchange offers for its proprietary data. For instance, if an exchange has more than one form of transmission for its proprietary data, then the exchange must offer the competing consolidators and self-aggregators those types of transmission for consolidated market data. As discussed, the rule will not require an exchange to offer new forms of access, but if an exchange did offer any new forms of access for proprietary data, it will have to offer them for consolidated market data as well.

One commenter stated that all forms of data submission must assure full and equal, transparent, and equally timed access to data.[812] Another commenter stated that the most important component for the success of the competing consolidator model is ''to ensure that all market participants have the opportunity for equal access within the facilities of an exchange for purposes of receiving market data from the exchange, transmitting that market data out of the exchange and receiving and distributing market data from another exchange (*e.g.,* to receive and deliver an away exchange's market data.'' [813] This commenter further stated that exchanges should not favor certain market participants over others and that equal access must cover both egress and ingress within exchange data centers.[814] Further, the commenter stated that the economic incentive to become a competing consolidator may not be sufficient without such equal access.[815] Another commenter cautioned that allowing an exchange to develop a new market data product that contains only the data elements that are specified in the proposed definition of consolidated market data could be problematic because (1) competing consolidators likely will have feed handlers for publicly available feeds, which would impose additional burdens; and (2) there would be no incentive for exchanges to keep the latency of these special feeds similar to that of public feeds.[816]

The Commission believes that the SROs should be required to provide the information necessary to generate consolidated market data in the same manner and using the same methods, including all methods of access and the same format as they provide to any person. Different forms of access affect

[805] *See supra* note 795 and accompanying text.

[806] *See* Proposing Release, 85 FR at 16770.

[807] Data Boiler Letter II at 1.

[808] *Id.* at 1.

[809] *See infra* Section III.B.9(f).

[810] *See* IDS Letter I at 11.

[811] *See* Proposing Release, 85 FR at 16770.

[812] *See* Kubitz Letter.

[813] McKay Letter at 3. *See also* Temple University Letter at 2 (stating that ''intermediaries'' including exchanges and SIPs should not ''unfairly discriminate or privilege certain market participants to the detriment of others in terms of data access, execution and other market data operations'' and that such intermediaries should act ''independently and neutrally towards market participants to ensure the competitive integrity of the marketplace'').

[814] *See* McKay Letter at 3.

[815] *Id.*

[816] *See* NovaSparks Letter at 1–2.

the delivery of data. If an exchange provided a superior form of access to its proprietary data products, then transmission of consolidated market data would be negatively impacted and the benefits of the decentralized consolidation model, such as lower latencies, would not be realized. The national market system would be affected by this disparity as it is today—with certain proprietary data products providing superior access as compared to consolidated market data products. As stated in the Proposing Release, different market participants have different access needs. The Commission is not mandating a specific access option or limiting options for market participants, but all access options, including co-location, must be available to all market participants whether they are purchasing the data content underlying consolidated market data or proprietary data.

The access requirement under Rule 603(b) requires the exchanges to provide their NMS information, including all data necessary to generate consolidated market data, at one data dissemination location co-located near each exchange's matching engine. The requirement in Rule 603(b) that access be provided in the same manner as any other information is provided to any person encompasses co-location options that are provided by exchanges to market participants that purchase proprietary data. Proprietary data users are typically co-located near an exchange's matching engine. Rule 603(b) will allow competing consolidators and self-aggregators to receive data at the same speeds, and with the same access options, as the exchange offers its market data.[817] Different co-location options within a data center could raise concerns about whether that exchange is providing the same manner of access to its data as required under Rule 603(b). Further, the exchanges would not be permitted to provide their NMS information necessary to generate consolidated market data in a faster manner to any affiliate exchange, a subsidiary, or other affiliate that operates as a competing consolidator or a subsidiary or affiliate that competes in the provision of proprietary data.

(d) Comments on Latency Neutralization

In the Proposing Release, the Commission stated that proposed Rule 603(b) would require that all access options be provided in a latency-neutralized manner such that all participants within an exchange's data center—such as proprietary data subscribers, competing consolidators, and self-aggregators—would receive information at the same time, regardless of their location or status within the data center. The Commission continued that exchanges could, for example, adopt equal cable length protocols (*i.e.,* where cable lengths from network equipment to customer cabinets are harmonized for equal access) to ensure that all of the exchange's data center connections provide market data simultaneously. Finally, the Commission stated that the SROs must use the same latency-neutralization processes for competing consolidators and self-aggregators as they offer subscribers of proprietary data.

One commenter stated that to provide a level playing field ''latency-neutralized'' access must apply to locally produced data (*i.e.,* data produced within an exchange's data center where a market participant is co-located) and that the exchange must not interfere in the competition to provide inbound market data from exchanges located in other market centers.[818] This commenter provided a detailed discussion of five steps of data access and delivery that it believed should be subject to latency neutralization requirements under Rule 603(b) if an exchange or its affiliate exercises direct control or indirect control.[819] Specifically, the commenter stated that latency neutralization should apply to (1) the initial distribution from an exchange's market data distribution engine to the cabinets of a competing consolidator, self-aggregator, or other direct recipient of market data; (2) the distribution from a competing consolidator's cabinet out of an exchange's data center to equipment (*e.g.,* wireless or fiber equipment) for distribution to subscribers (described as the ''egress leg''); (3) the receipt of market data from an away exchange for delivery to co-located customers in the exchange's data center (described as the ''ingress leg''); (4) the delivery of data from a competing consolidator's cabinet of market data received from away markets to the competing consolidator's subscribers that are located in the same data center (described as the ''delivery to subscriber leg''); and (5) the transmission of data from an exchange data center to be received at other exchange data centers and/or for distribution to non-co-located market participants (described as the ''transit leg''). This commenter stated that these considerations are important to determining when and where competition begins in providing consolidated market data and that it believes that competition should begin when market data leaves those areas over which an exchange or its affiliates exercise direct or indirect control.[820]

Rule 603(b) requires that the exchanges provide their NMS information, including all data necessary to generate consolidated market data, in the same manner and using the same methods as such exchange provides any information to any person. As discussed above, this language encompasses the provision of data by an exchange at one data dissemination location co-located near each exchange's matching engine to allow competing consolidators and self-aggregators to receive data at that location at the same speeds, and with the same access options, as the exchange offers its market data. The SROs are required to use the same latency-neutralization processes for competing consolidators and self-aggregators as they offer to subscribers of proprietary data such that all participants within the exchange's data center, regardless of their location or status within the data center, would receive the data at the same time.[821] In the Proposing Release, the Commission described latency neutralization protocols that exchanges could adopt, such as equal cable length protocols where cable lengths from network equipment to customer cabinets are harmonized for equal access. Any differential treatment of competing consolidators in the transmission of consolidated market data within a data center controlled by an exchange must be filed with the Commission as a proposed rule change pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder and satisfy statutory requirements, such as not

[817] *See also infra* Section III.B.9(f).

[818] *See* McKay Letter at 6.

[819] *See id.* at 7. The commenter suggested that ''indirect control'' means the use of the exchange or its affiliate's influence, weight or pressure to create an advantage or disadvantage in exchange connectivity to select market participants. Further, the commenter described several different forms of direct or indirect control, including ''requiring market participants to connect to a meet me room, specifying the types of cross connects that may be used, restricting the use of certain frequencies to certain market participants, through the use of one or more affiliates or select third parties to create advantages, or pursuant to formal and informal arrangements with the data center operator.'' *Id.* at 8–9.

[820] *See id.* at 10.

[821] *See* Proposing Release, 85 FR at 16771. For example, exchanges could adopt equal cable length protocols (*i.e.,* where cross-connect cable lengths from network equipment to customer cabinets are harmonized for equal access) and ports of the same bandwidth (*i.e.,* 1G, 10G, and 40G) to ensure that all of the exchange's data center connections provide market data simultaneously to market participants located within a data center.

being designed to permit unfair discrimination [822] nor impose a burden on competition.[823]

(e) Comments on SRO Costs

One commenter, FINRA, stated that the ADF would be required to connect and provide data to all competing consolidators and self-aggregators.[824] FINRA said that it potentially could incur significant costs to establish and maintain this required connectivity, despite minimal fee revenue from data disseminated from the ADF given the low volume of regularly reported trades and lack of quoting participants.[825] FINRA stated in its comment letter that the ADF has a low volume of over-the-counter (''OTC'') trades and no quotes. Therefore, the connectivity options would not need to support much data capacity, which should limit the amount of costs incurred by FINRA to establish such connectivity. However, FINRA could seek to recoup any costs associated with establishing and maintaining connectivity to competing consolidators and self-aggregators by proposing connectivity fees pursuant to Section 19(b) of the Exchange Act.[826] Information about OTC quotations and trades in NMS stocks are an important component of SIP data today and will continue to be important in consolidated market data. This OTC information must be collected, consolidated, and disseminated in the decentralized consolidation model.

(f) Interpretation of Rule 603(a)

Currently, Rule 603(a) requires that SROs distribute NMS information on terms that are fair and reasonable and not unreasonably discriminatory.[827] The Commission stated in the Regulation NMS Adopting Release that Rule 603(a) would prohibit an SRO from making its core data available to vendors on a more timely basis than it makes such data available to the exclusive SIPs.[828] In particular, the Commission said that ''independently distributed data could not be made available on a more timely basis than core data is made available to a Network processor. Stated another way, adopted Rule 603(a) prohibits an SRO or broker-dealer from transmitting data to a vendor or user any sooner than it transmits data to a Network processor.'' [829] Today, latency differentials of any measurable amount are meaningful for certain market participants and their trading strategies. The Commission believes that Rule 603(a) prohibits an SRO from making NMS information available to any person on a more timely basis (*i.e.,* by any time increment that could be measured by the SRO [830]) than it makes such data available to the existing exclusive SIPs and as amended, competing consolidators and self-aggregators. When it adopted Regulation NMS, the Commission did not provide a de minimis exception to the timeliness of data availability in Rule 603(a). If an SRO can measure the timeliness of data transmission in a specific increment, such increment generally should be utilized for determining whether such data has been transmitted on a more timely basis to persons other than an existing exclusive SIP, competing consolidators, or self-aggregators.

10. Calculation of the National Best Bid and National Best Offer Under Rule 600(b)(50)

(a) Proposal

The Commission proposed to amend the definition of national best bid and national best offer to reflect that competing consolidators and self-aggregators, rather than the exclusive SIPs, would be calculating the NBBO in the proposed decentralized consolidation model. In addition, to accommodate this proposed decentralized consolidation model, the Commission proposed to bifurcate the NBBO definition between NMS stocks and other NMS securities (*i.e.,* listed options) to reflect that the proposed decentralized consolidation would apply only with regard to NMS stocks, and therefore the plan processor for options would continue to be responsible for calculating and disseminating the NBBO in listed options. The proposed changes to the definition of NBBO would not impact the manner in which the NBBO is calculated for NMS stocks.[831]

(b) Comments on Complexity and Confusion Resulting From Multiple NBBOs

The Commission received multiple comments with respect to the proposed definition of NBBO, with commenters expressing concerns about multiple NBBOs and the impact on market participants and investors. Commenters stated that confusion could result from multiple NBBOs being available to market participants.[832] One commenter stated that retail investors do not have experience with multiple NBBOs.[833] The commenter further noted that multiple NBBOs would make broker-dealers' Rule 605 reports difficult to compare because broker-dealers could be using different NBBOs.[834] The commenter questioned whether a broker-dealer would be responsible for execution quality and compliance with the Vendor Display Rule if the competing consolidator that the broker-dealer is using miscalculates the NBBO.[835]

[822] Section 6(b)(5) of the Exchange Act, 15 U.S.C. 78f(b)(5).

[823] Section 6(b)(8) of the Exchange Act, 15 U.S.C. 78f(b)(8).

[824] *See* FINRA Letter at 4.

[825] *See id.*

[826] Connectivity to the data underlying consolidated market data would be a new data service because such service does not currently exist. The SROs will have to file with the Commission any proposed new fees for connectivity to their individual data that underlies consolidated market data pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder, and any proposed connectivity fee must satisfy the statutory standards, including being fair and reasonable, being not unreasonably discriminatory, and reflecting an equitable allocation of reasonable fees. *See* Sections 6(b)(4) and 15A(b)(5) of the Exchange Act. *See also infra* note 1158 and accompanying text and Section III.E.2(c).

[827] *See* Rule 603(a)(2) of Regulation NMS, 17 CFR 242.603(a)(2).

[828] *See* Regulation NMS Adopting Release, *supra* note 7, at 37569. Specifically, the Commission stated, ''Rule 603(a)(2) requires that any SRO, broker, or dealer that distributes market information must do so on terms that are not unreasonably discriminatory. These requirements prohibit, for example, a market from making its 'core data' (*i.e.,* data that it is required to provide to a Network processor) available to vendors on a more timely basis than it makes available the core data to a Network processor.'' *Id.*

[829] *Id.* at 37567.

[830] For example, latency is currently measured for SIP data in microsecond increments. *See* CTA Key Operating Metrics of Tape A&B U.S. Equities Securities Information Processor (CTA SIP), *available at https://www.ctaplan.com/publicdocs/ctaplan/CTAPLAN_Processor_Metrics_3Q2020.pdf* (last accessed Nov. 27, 2020).

[831] The NBBO will reflect the new round lot sizes. *See supra* Section II.D.2.

[832] *See* TD Ameritrade Letter at 12 (''In the present-day structure, SIPs provide a 'gold copy' standard of the NBBO which can be used for comparison when meeting the regulatory requirements of best execution and the Vendor Display Rule . . . The industry may have as many NBBO quotes as there are [competing consolidators] and self-aggregators.''); Healthy Markets Letter I at 4 (''We have significant concerns that by creating multiple, alternative SIPs, that market participants may cherry-pick the data feed that costs them the least or makes them look the best.''); Nasdaq Letter IV at 12; Fidelity Letter at 10–11.

[833] *See* TD Ameritrade Letter at 12–13 (''Furthermore, even if proprietary feeds disseminate a different quote than the NBBO, such quote has never been permitted for purposes of use in the Vendor Display Rule, meaning the retail investor has not previously experienced a multiple NBBO environment.''). *See also* Fidelity Letter at 10–11 (''Under the Proposal, retail customers placing orders in the same security at two different brokerage firms may receive two different prices depending upon which competing consolidator each firm uses.''). This scenario could happen today. The Commission does not believe the decentralized consolidation model will introduce confusion for retail investors. Retail investors will continue to be able to see the NBBO provided by their broker-dealer, whether it is calculated by their broker-dealer or a competing consolidator.

[834] *See* TD Ameritrade Letter at 13.

[835] *See id.* The commenter further questioned whether regulators would grant relief when

Other commenters noted that a lack of a single NBBO as calculated by the existing SIPs could impact the market in a variety of ways, such as a lack of a single benchmark to determine trade quality; curtailing the Commission's surveillance efforts; potentially creating a multi-tiered system where some traders can access faster NBBOs;[836] and adding significant complexity, confusion, and uncertainty to best execution analysis.[837] One commenter said that it is unlikely the NBBOs produced by competing consolidators and their associated timestamps would ever be synchronized and that the NBBOs calculated by competing consolidators and self-aggregators will never align. The commenter said that the different versions of market data would impact broker-dealer compliance with market conduct rules.[838]

Another commenter noted that multiple NBBOs would make comparison of broker-dealer performance difficult, as broker-dealers may decide which NBBO to use depending on which NBBO costs the least or makes their execution quality look better.[839] The commenter acknowledged that while there is no clear NBBO today, the exclusive SIPs do calculate and disseminate a NBBO.[840] Commenters questioned how execution quality would be judged if each competing consolidator provided a different NBBO.[841] Another commenter believed that multiple NBBOs will impact liquidity.[842] One commenter said that latency arbitrage would be required to ''keep markets in line,'' estimating an increase of almost $3 billion in latency arbitrage profits as a result of the multiple NBBOs introduced by the proposal.[843] This commenter said that multiple NBBOs would also reduce investor confidence that trades will be executed at the best price[844] and believed that multiple NBBOs would negatively impact market quality, complicate best execution compliance by broker-dealers, and overall hurt investor confidence in the markets.[845] Another commenter requested clarity that a single competing consolidator could produce multiple NBBOs at different locations at any given point of time, since some competing consolidators may co-locate at more than one exchange data centers.[846]

In the decentralized consolidation model, competing consolidators will replace the exclusive SIPs in generating the NBBO as defined in Rule 600. Therefore, there will be NBBOs generated by each competing consolidator, as well as self-aggregators, based upon the data content received from the SROs pursuant to Rule 603(b). While commenters expressed concerns about the loss of an NBBO generated by a single plan processor—the exclusive SIPs—the Commission believes that market participants will adjust to not having an NBBO generated by a single plan processor. ''Multiple NBBOs'' already exist today.[847] Some market participants obtain the NBBO from the exclusive SIPs, and some market participants generate their own NBBO by aggregating multiple proprietary data feeds. Some market participants that generate their own NBBO use third party aggregation software or services to do so. The NBBO seen by market participants depends on the systems used to generate the NBBO and the systems used by the market participants to receive and view it. Market participants are therefore already accustomed to a market environment in which there are ''multiple NBBOs'' generated by different parties, at different speeds, in different locations. They are accustomed to performing best execution analysis and providing execution quality statistics in the current environment. Therefore, the Commission does not believe that the generation of NBBOs by multiple competing consolidators will add complexity or confusion to the markets.

Moreover, neither the amended definition of NBBO, nor the decentralized consolidation model more generally, mandates the consumption of multiple NBBOs from multiple competing consolidators. So, while different competing consolidators may calculate and disseminate unique NBBOs or single competing consolidators may calculate different NBBOs at separate data center locations under the decentralized consolidation model, the Commission does not believe that this should cause confusion for market participants, who already consider market data from multiple sources. Finally, the amended definition of NBBO does not change the methodology by which the NBBO for a particular NMS stock is calculated, which will help to ensure consistency in the NBBO calculation. The Commission is therefore adopting the amendments to the definition of NBBO as proposed.

(c) Comments on Impact of Multiple NBBOs on Best Execution Obligations

With respect to best execution, commenters stated that the Commission did not sufficiently discuss the best execution implications of multiple NBBOs.[848] Commenters stated that eliminating the single NBBO, and requiring broker-dealers to choose among multiple NBBOs, would complicate and increase the cost of compliance with best execution

reviewing execution quality on an order by order basis, when different competing consolidators are calculating NBBOs differently.

[836] *See* Nasdaq Letter IV at 7 (''Shedding the single NBBO—which has long been investors' 'North Star' for price discovery—in favor of multiple NBBOs would further complicate market structure, confuse investors as to whether they are actually seeing the best price, and hinder market surveillance and enforcement efforts.'').

[837] *See* FINRA Letter at 6.

[838] *See id.* at 3–4.

[839] *See* Healthy Markets Letter I at 4.

[840] *See id.*

[841] *See* Schwab Letter at 6; NYSE Letter II at 24; WFE Letter at 1.

[842] *See* Data Boiler Letter I at 3. The commenter did not describe how it thought multiple NBBOs would impact liquidity. As discussed, the current market operates with multiple NBBOs. The Commission believes that the NBBOs that will be calculated in the decentralized consolidation model better reflect current market conditions due to the improvements in latencies and therefore, will be more prompt, accurate, and reliable. The enhanced and faster consolidated market data resulting from the proposal should allow market participants access to more up-to-date market data (including NBBO data) than provided by the SIP, permitting them to more readily find liquidity than before.

[843] Nasdaq Letter III at 8. Many firms that aggregate proprietary feeds today likely have different aggregation times and are likely already exposed to latency arbitrage. It is unclear why the use of latency arbitrage would increase as a result of the proposal, especially since the existence of multiple NBBOs would not represent a change from current market practices.

[844] *See* Nasdaq Letter IV at 11.

[845] *See id.* at 3.

[846] *See* McKay Letter at 10–11 (''. . . many market participants are colocated at one or more of the major exchange datacenters in New Jersey and receive their market data at such colocated points of presence. If a competing consolidator seeks to provide market participants with the fastest and most efficient consolidated market data possible, the result would be a slightly different NBBO at each exchange datacenter.'').

[847] *See also infra* Section V.B.2(f).

[848] *See, e.g.,* Nasdaq Letter IV at 3, 12–13; Clearpool Letter at 8 (''[W]hile the proposal states that the existence of multiple NBBOs does not impact a broker's best execution obligations, we believe that ''fragmenting'' the NBBO could lead to several problems around such obligations, which would need to be addressed and clarified by the Commission prior to implementation.''); Healthy Markets Letter I at 4–5 (''Could a market participant seek to deliberately subscribe to an inferior data feed? . . . We urge the Commission to establish objective standards, including policies, procedures, and documentation requirements for brokers regarding their selection and usage of competing data feeds.''); FINRA Letter at 5 (''[T]he Commission may also want to consider providing guidance on whether a broker-dealer would, or should, be evaluated—by the Commission, FINRA, or others—on its decision of which competing consolidator(s) to receive consolidated market data from, what factors a broker-dealer should consider in evaluating its choice of a competing consolidator(s) (both initially and on an ongoing basis), and how a broker-dealer's choice of a competing consolidator(s) might affect the broker-dealer's best execution obligations.'').

obligations.[849] However, another commenter stated that it ''does not believe the existence of multiple NBBOs will create problems for market participants or the market as a whole at a level that would warrant not moving forward with the decentralized, competitive model. . . .'' [850] Additionally, one commenter stated that expanding core data generally would facilitate best execution.[851]

As described above, ''multiple NBBOs'' already exist today. The amended definition of NBBO will not significantly alter this state of affairs; rather, it adjusts the definition of NBBO to accommodate the decentralized consolidation model to reflect that NBBOs will be calculated and disseminated by competing consolidators and calculated by self-aggregators. As is the case today, broker-dealers must act reasonably to obtain pricing information in carrying out their duty to seek to obtain the most favorable terms reasonably available under the circumstances for the execution of customer orders.[852]

(d) Comments on Impact of Multiple NBBOs on Surveillance and Enforcement

While some commenters expressed concern about the proposed decentralized consolidation model's impact on regulation,[853] several commenters more specifically opined that the multiple NBBOs resulting from the proposed model would undermine exchange surveillance and enforcement,[854] and raised questions about how market participants should consider multiple NBBOs in trade-through prevention and locked and crossed markets.[855] One commenter said that the proposal did not fully consider the impact of multiple NBBOs on surveillance and compliance with investor protection rules [856] and that multiple NBBOs would affect surveillances that detect broker-dealer market access controls deficiencies and fraud and manipulation.[857] The commenter also stated that the proposed model would make it almost impossible to monitor for locked and crossed markets and to conduct trade-through surveillance due to the multiple competing consolidator feeds.[858] In addition, the commenter stated that regulators and market participants will have different views of the market depending on the NBBO they use, which would allow bad actors to take advantage of the resulting regulatory loopholes and inefficiencies.[859] The commenter stated that multiple NBBOs could create false positives, more investigations and data requests, as well as false negatives.[860]

Additionally, one commenter stated that the multiple NBBOs that will be produced by competing consolidators and self-aggregators under the proposed decentralized consolidation model will increase costs for exchanges to enforce their rules [861] and increase the risk of market manipulation.[862] This commenter also said that regulations could be inconsistently applied due to variations in consolidated market data from different competing consolidators,[863] and that the proposal would result in more frequent enforcement investigations, expansive data requests, and delays in concluding investigations.[864] Another commenter stated that the proposed decentralized consolidation model would hurt Rule 605 compliance because the baseline NBBO used by each market center for comparisons would vary.[865]

These issues are not new or unique to the decentralized consolidation model. As discussed earlier,[866] SRO surveillance and regulatory programs currently need to consider different sources of market data, including different ''NBBOs'' calculated by different market participants as well as the NBBO calculated by exclusive SIPs pursuant to Rule 600(b)(50). While there may be an increased number of data sources in a decentralized consolidation model, the issues described by these commenters are currently dealt with by SRO market surveillance and enforcement staff today. Broker-dealers have considered multiple data sources in complying with trade-through and locked and crossed markets in the context of Regulation NMS. The Commission believes that the amended definition of NBBO should not cause increased exchange enforcement costs or an increase in alerts or false positives because the surveillance and regulatory process will continue as it does today.

Currently, SROs already must decide among data sources to use for their surveillance and regulatory systems. SROs must also handle the different data sources used by market participants for regulatory compliance. Market participants may use SIP data, proprietary data, or a combination. Market participants also may calculate their own NBBOs. The data used by market participants today may differ from the data used by the SROs for their surveillance and regulatory systems. Broker-dealers are not required to use a particular source of market data for regulatory compliance. Because broker-dealers may rely on different sources of data—data sources that may not be used by SRO regulatory staff to generate alerts—SRO investigators typically request data from broker-dealers to evaluate whether an alert has discovered an actual violation of the Federal securities laws and exchange rules. This dynamic will not change in a decentralized consolidation model. SROs may decide to use a consolidated market data product generated by a competing consolidator, or they may decide to self-aggregate data to generate consolidated market data for purposes of their surveillance and regulatory systems. SROs will not be required to purchase every consolidated feed to conduct enforcement or surveillance, just as they are not required to purchase all direct proprietary feeds used by market participants. Therefore, SROs should not incur higher enforcement costs because the regulatory process will continue to operate as it does currently.[867]

Furthermore, even if SRO surveillance and regulatory programs used the same data source as a broker-dealer, SROs

[849] *See* Nasdaq Letter IV at 3, 42, 49; Joint CRO Letter at 2; STANY Letter II at 6; TD Ameritrade Letter at 12–13.

[850] Clearpool Letter at 8; *see also* Capital Group Letter at 4 (''We also support the proposed commercial competing consolidators. Different users have different needs with regards to data complexity (*e.g.,* what data elements are included or excluded), latency and price. We do not see this as the creation of 'multiple truths' or 'multiple markets.' Because the data will also be available for post trade analysis, market participants will be able to analyze outcomes using the difference between the originating venue timestamps and the consolidator timestamps to determine if best execution obligations were fulfilled and if the speed they chose to pay for meets their needs.'').

[851] *See* Better Markets Letter at 2.

[852] *See supra* Section I.E.

[853] *See supra* Section III.B.8.

[854] *See* Joint CRO Letter at 2, 3; Nasdaq Letter IV at 12; NYSE Letter II at 24; *see also* TechNet Letter II at 2 (stating that multiple NBBOs would undermine effective regulation and investor confidence).

[855] *See* Joint CRO Letter at 2, 3, 4; Nasdaq Letter IV at 3, 12, 36, 49.

[856] *See* Joint CRO Letter at 2, 4.

[857] *See id.* at 3.

[858] *See id.* at 4. The commenter stated that reprogramming its systems to comply with and surveil for compliance with the locked and crossed and order protection rules would be an ''extensive undertaking.'' *Id. See also* Nasdaq Letter IV at 12, 36, 49.

[859] *See* Joint CRO Letter at 3.

[860] *See id.* at 2, 3.

[861] *See* Nasdaq Letter IV at 12, 37. *See also* Joint CRO Letter at 4.

[862] *See* Nasdaq Letter IV at 12.

[863] *See id.* The commenter also stated that the proposal would lead to confusion and inconsistent application if adopted. *See id.* at 12–13.

[864] *See id.* at 37.

[865] *See* NYSE Letter II at 24.

[866] *See supra* Section III.B.8.

[867] *See infra* Section V.C.2(d); notes 1757–1760 and accompanying text.

would still have to request information from such broker-dealer due to potential data differences—such as geographic latencies, access options, or processing options—to evaluate whether there is a potential violation. Therefore, the Commission believes that the existence of multiple NBBOs should not present any problems that the SROs have not previously handled.

C. Competing Consolidators

The Commission believes that the introduction of competing consolidators as the entities responsible for the collection, consolidation, and dissemination of consolidated market data products will update and modernize the national market system and provide market participants and investors with benefits. As noted above, the Commission received many comments that supported the goals of the decentralized consolidation model and the potential positive impacts this model would have on the provision of consolidated market data.[868] However, some comments raised concerns about the introduction of competing consolidators and their impact on the national market system, which are discussed below.

1. Definition of ''Competing Consolidator'' Under Rule 600(b)(16)

(a) Proposal

The Commission proposed to amend Regulation NMS to introduce competing consolidators as the entities responsible for the collection, consolidation, and dissemination of consolidated market data. Under proposed Rule 600(b)(16) of Regulation NMS, a competing consolidator would be defined as ''a securities information processor required to be registered pursuant to Rule 614 or a national securities exchange or national securities association that receives information with respect to quotations for and transactions in NMS stocks and generates consolidated market data for dissemination to any person.''

(b) Final Rule and Response to Comments

The Commission received one comment supporting the proposed definition of competing consolidator.[869] The Commission, however, is revising the definition to reflect that competing consolidators are not required to generate a complete consolidated market data product.[870] Rule 600(b)(16) defines a competing consolidator as ''a securities information processor required to be registered pursuant to Rule 614 or a national securities exchange or national securities association that receives information with respect to quotations for and transactions in NMS stocks and generates a consolidated market data product for dissemination to any person.''

Regarding the consolidated market data that must be generated by competing consolidators, the Commission asked in the Proposing Release whether competing consolidators should be required to develop a consolidated market data product that contained all of the elements provided under the proposed definition of consolidated market data.[871] As proposed, competing consolidators would have had the flexibility to offer different products but were also required to offer a full consolidated market data product. One commenter stated that competing consolidators should not be required to include depth-of-book in the products they sell, as including such data would increase latency and complexity.[872] The commenter stated that not mandating the provision of depth-of-book data would encourage competition further and reduce data costs for all consumers.[873] Another commenter stated that the requirement that competing consolidators develop a consolidated market data product that contained all of the elements of consolidated market data, regardless of demand, along with other proposed competing consolidator requirements, including registration and Regulation SCI, imposed costs on competing consolidators that would serve as a barrier to entry to potential competing consolidators.[874] Another commenter suggested that only a single competing consolidator should be obligated to provide a consolidated market data product, not all competing consolidators.[875] One commenter suggested that competing consolidators should have the flexibility to compete with proprietary data offerings and decide what products to offer to their subscribers.[876]

The Commission agrees with the comments that objected to requiring that all competing consolidators sell a product containing all of the specified elements of consolidated market data[877] because forcing higher fixed costs and a mandatory product offering across all competing consolidators potentially would make it more difficult for competing consolidators to enter the market and to tailor their services and product offerings while recouping expenses. The Commission believes that allowing competing consolidators to generate their own set of product offerings, tailored to the needs of their subscriber base or otherwise differentiated, will lower the fixed costs of those competing consolidators that elect to specialize in targeted products that do not contain all of the elements of consolidated market data. Specifically, these competing consolidators can offer such products without acquiring the underlying data and developing the technological capability necessary to calculate and consolidate all elements of consolidated market data. This reduction in fixed costs will enable these competing consolidators to offer products that do not contain all elements of consolidated market data and do so in a more cost-effective manner, which should enhance their ability to meet the specific data needs of various market participants. In addition, increased participation by more streamlined competing consolidators that operate with fewer constraints and potentially fewer fixed costs, or costs tailored to their own unique product offerings, would promote competition in the market.

The Commission recognizes that competing consolidators are the only entities that will generate and disseminate consolidated market data products in the national market system, and acknowledges the possibility that competing consolidators may not offer consolidated market data products that do not contain all of the elements of consolidated market data. However, consistent with the views expressed by a variety of market participants regarding the importance of the

[868] *See supra* Section III.B.1; BlackRock Letter, Fidelity Letter, State Street Letter, Wellington Letter, ICI Letter, Virtu Letter, AHSAT Letter, FIA PTG Letter, IntelligentCross Letter, Committee on Capital Markets Regulation Letter, BestEx Research Letter, Wharton Letter, MEMX Letter, Clearpool Letter; T. Rowe Price Letter; Capital Group Letter; DOJ Letter; ACS Execution Services Letter; IEX Letter; Steinmetz Letter (commenting on the entire proposal); SIFMA Letter; ACTIV Financial Letter; MFA Letter; Better Markets Letter.

[869] Data Boiler Letter I at 46.

[870] *See supra* Section II.B.2. *See also infra* Section III.C.8(a)(ii) for a discussion of the revisions to the responsibilities of competing consolidators resulting from this change.

[871] *See* Proposing Release, 85 FR at 16782.

[872] *See* BestEx Research Letter at 2, 5. The commenter said the result would be consumers that prefer depth over latency would be able to find the right products, as would those that prefer latency over depth.

[873] *See id.* at 5.

[874] *See* NYSE Letter II at 14–15.

[875] Data Boiler Letter I at 52.

[876] BlackRock Letter at 2–3.

[877] *See* BestEx Research Letter at 2, 5; NYSE Letter II at 14–15; BlackRock Letter at 2–3; Data Boiler Letter I at 52.

individual elements of consolidated market data, the Commission believes that there will be widespread demand for a product that contains all elements of consolidated market data, and particularly for the additional information included in core data.[878] Specifically, because this additional data will provide useful information that will assist in order routing and placement decisions and achieving improved executions for customer orders,[879] many broker-dealers that execute customer orders will acquire a product containing all elements of consolidated market data to compete effectively for customer business.[880] Consolidated market data includes information that the Commission believes is necessary to disseminate under the rules of the national market system and useful for a broad-cross section of market participants. Accordingly, the Commission believes that there should be demand for products containing all elements of consolidated market data even though, as adopted, Rule 614 will not require competing consolidators to offer them.

With respect to the receipt of data by competing consolidators, Rule 603(b), as adopted, requires each SRO to provide its NMS information, including all data necessary to generate consolidated market data, to competing consolidators. In accordance with Rule 603(b), competing consolidators will receive each SRO's market data that is necessary to generate consolidated market data. One commenter stated that competing consolidators, their subscribers, and self-aggregators should be permitted to receive data elements or products based on need.[881] As discussed above, competing consolidators will be permitted to develop different types of consolidated market data products based on the demands of their customers.[882] Accordingly, competing consolidators will not be required to receive all of the data content underlying consolidated market data. Rather, competing consolidators can receive the data they need to generate the consolidated market data products they decide to offer, but the Commission notes that competing consolidators that are SIPs required to be registered pursuant to Rule 614 must comply with the Vendor Display Rule when offering consolidated market data products and therefore must receive, at a minimum, the data necessary to satisfy the Vendor Display Rule.[883]

Competing consolidators will also have the ability to select for themselves, from among the options offered by the SROs, how to access the data underlying consolidated market data (*e.g.,* with different latencies, throughput capacities, and data-feed protocols) and consider costs and complexities related to each option. The Commission believes that these provisions will provide competing consolidators with flexibility to develop their consolidated market data products business in a way that best suits their capabilities and their subscribers' needs.

2. Comments on Resiliency

The Commission received several comments with respect to the impact of competing consolidators on the resiliency of the markets.[884] Some commenters stated that competing consolidators could add resiliency to the markets.[885] One commenter said that competing consolidators would strengthen resiliency because there would no longer be a single point of failure that could cause ''stock market paralysis.'' [886] Similarly, another commenter said that competition could reduce the risk of a single point of failure,[887] and another commenter said that the decentralized consolidation model would eliminate the SIP as a single point of failure.[888] Two commenters said that having a ''sufficient number of competing consolidators will be important to ensure resiliency and backup in the collection, consolidation, and distribution of consolidated market data.'' [889]

Commenters also argued that introducing competing consolidators could weaken the national market system by increasing a risk of failure,[890] or that competing consolidators would not address concerns about a single point of failure.[891] One commenter stated that introducing competing consolidators would, in fact, introduce multiple opportunities of failure.[892] This commenter said that a competing consolidator with ''a significant

[878] *See supra* note 112 and accompanying text (noting that multiple Roundtable panelists and commenters supported the inclusion of odd-lot information, depth of book data, and auction information); *supra* notes 152–153 and accompanying text (describing comments expressing support for the expansion of consolidated market data and core data); 242–244 (describing comments expressing support for the inclusion of smaller-sized orders in higher-priced stocks); 386–388 (describing comments expressing support for the inclusion of depth of book data); 462–464 (describing comments expressing support for the inclusion of auction information).

[879] *See* Proposing Release, 85 FR at 16754 (describing how depth of book data can assist Smart Order Routers and electronic trading systems with the optimal placement of orders across markets); 16759 (explaining how information regarding the size and side of order imbalances can indicate the direction a stock's price might move, inform decisions on where to price an auction order and what order type to use, and improve execution quality). *See also supra* Sections II.C.2(b)–II.D.2 (explaining how aggressively priced odd-lots will be included in core data through the definitions of odd-lot information and round lot); II.F.2; II.G.2.

[880] *See supra* Section II.C.2(a).

[881] *See* SIFMA Letter at 11.

[882] *See supra* Section II.B.2 discussing the definition of consolidated market data product.

[883] The Vendor Display Rule requires a SIP that provides a display of quotation and transaction information with respect to an NMS stock, in the context of which a trading or order-routing decision can be implemented, to also provide a consolidated display for that stock. Rule 603(c) of Regulation NMS, 17 CFR 242.603(c). *See also supra* note 97; FINRA, Regulatory Notice 15–46, 1, 3 n. 12 (2015) (''The exercise of reasonable diligence to ascertain the best market under prevailing market conditions can be affected by the market data, including specific data feeds, used by a firm. For example, a firm that regularly accesses proprietary data feeds, in addition to the consolidated SIP feed, for its proprietary trading, would be expected to also be using these data feeds to determine the best market under prevailing market conditions when handling customer orders to meet its best execution obligations.'').

[884] *See* Committee on Capital Markets Regulation Letter at 3; BestEx Research Letter at 1; BlackRock Letter at 5; ACS Execution Services Letter at 5; Clearpool Letter at 7–8; Cboe Letter at 25; TechNet Letter II at 2; NYSE Letter II at 24; Data Boiler Letter I at 48; Data Boiler Letter II at 1; NBIM Letter at 6; NovaSparks Letter at 1. The Commission also received one comment that urged the Commission to focus on cybersecurity in upgrading the infrastructure for market data. Temple University Letter at 2. The Commission is amending Rule 1000 of Regulation SCI to make competing consolidators exceeding a threshold ''SCI entities.'' *See infra* Section III.F.

[885] *See* Committee on Capital Markets Regulation Letter at 3; BestEx Research Letter at 1; BlackRock Letter at 5; ACS Execution Services Letter at 5; Clearpool Letter at 7–8; MEMX Letter at 3, 8; ACTIV Financial Letter at 1 (stating that competition could ''provide investors with a . . . higher reliability framework for determining accurate pricing of NMS securities''); NovaSparks Letter at 1 (''The competitive nature of the new model will encourage Competing Consolidators to deliver excellent reliability, functionality and performance.'').

[886] Committee on Capital Markets Regulation Letter at 3.

[887] *See* BestEx Research Letter at 1. This commenter also said that competing consolidators would reduce reliance on a single SIP vendor. *Id.* at 5.

[888] *See* BlackRock Letter at 5.

[889] ACS Execution Services Letter at 5; Clearpool Letter at 7–8. However, with respect to business continuity planning and disaster recovery, one commenter said that having a single competitor to the SIP would be sufficient to address concerns about a single point of failure. *See* Data Boiler Letter I at 48.

[890] *See* Cboe Letter at 25; TechNet Letter II at 2. One commenter noted an inverse relationship between data connection speed and reliability. The commenter stated that exchanges and competing consolidators would need to create a protocol for conditional use of slower, reliable consolidated market data feeds to ensure reliability of such feeds. *See* NBIM Letter at 6. Competing consolidators will be required to comply with operational capability and resiliency obligations to help ensure that the provision of proposed consolidated market data remains reliable. *See infra* Section III.F.

[891] *See* NYSE Letter II at 24; Data Boiler Letter I at 48; Data Boiler Letter II at 1.

[892] *See* Cboe Letter at 25.

customer base'' could even cause market-wide trading halts if it had system problems and urged caution in making any changes that could ''imperil the resiliency of the U.S. equities market.''[893] Another commenter said that competing consolidators would continue the risk of a single point of failure because customers of a single competing consolidator that failed would lose access to its consolidated market data, and unlike when an exclusive SIP fails and impacts all market participants, only customers of the competing consolidator would be disadvantaged.[894] To mitigate the risk of failure, the commenter said that subscribers would have to subscribe to at least two competing consolidators and incur the costs of doing so.[895] This commenter stated that the Commission did not provide evidence to support its conclusion that the proposed decentralized consolidation model would improve the stability of the market data system for data consumers.[896] Another commenter said that there may be high-risk competing consolidators that enter the market (such as cheaper or slower competing consolidators) and their subscribers may not be able to avoid harm quickly enough if technological issues occur.[897] Another commenter said that competing consolidators would add technical complexity, which would reduce resilience.[898]

The Commission does not believe that competing consolidators will expose the national market system to an increased risk of failure[899] or propagate the risk of a single point of failure.[900] The Commission believes that the decentralized consolidation model will improve the resiliency of national market system by eliminating single points of failure that exist in the current system. Today, SIP data for Tapes A and B is only provided by the exclusive SIP for the CTA/CQ Plan and SIP data for Tape C is only provided by the exclusive SIP for the Nasdaq UTP Plan. These are single points of failure. In the decentralized consolidation model, there will be multiple entities—competing consolidators—collecting, consolidating, and disseminating consolidated market data products, which will enhance the resiliency of the national market system. Competing consolidators also will be subject to requirements that are designed to support their resiliency. For example, competing consolidators will be required to disclose publicly, on a monthly basis, their system availability.[901] This will encourage competing consolidators to invest in their systems to make sure that they have high rates of system ''up-time.'' The monthly disclosures will help support systems resiliency by imposing competitive pressures on competing consolidators to ensure that their systems are resilient, as market participants can use the monthly disclosures to assess and compare the performance of a competing consolidator. Competing consolidators that cannot generate and disseminate consolidated market data products reliably likely will not attract or retain subscribers. Furthermore, competing consolidators will be subject to requirements that are designed to support their operational resiliency, including, as appropriate, Regulation SCI. The Commission is also adopting changes to Regulation SCI to help to ensure the integrity and resiliency of competing consolidators.[902] The Commission believes that it is important to impose requirements to help ensure that the technology systems of competing consolidators are reliable and resilient, consistent with the policy goals of Regulation SCI. These requirements are designed to address concerns that competing consolidators will become multiple points of failure in the decentralized consolidation model.

One commenter urged the Commission to issue standards for when a market participant would have to subscribe to multiple competing consolidators to mitigate the risk that its primary competing consolidator fails.[903] As noted above,[904] the Commission is not requiring market participants to have back-up competing consolidators, whether such market participants subscribe to SCI competing consolidators or competing consolidators that are not SCI entities, though some may choose to do so in light of their own business needs. The Commission believes that having multiple competing consolidators collect, consolidate, and disseminate consolidated market data products would eliminate a single point of failure that would weaken the entire national market system because if one competing consolidator's operations experiences a failure, its impact on the markets will be minimized due to the presence of other competing consolidators that can perform the same functions.

3. Comments on Data Quality

Several commenters supported the introduction of competing consolidators because of the potential enhancements to the quality of consolidated market data.[905] Three commenters believed that competition would improve the quality of consolidated market data.[906]

However, three commenters questioned the proposal's impact on data quality, stating that the effects were uncertain and that competition could harm data quality and accuracy, including through attracting untested vendors who provide cheaper but potentially less reliable service.[907] One of these commenters stated that competing consolidators could produce varying NBBOs and cheap data products that would limit market information to non-self-aggregating market participants.[908] The commenter stated that the Commission will likely have to create additional regulations to set minimum standards ensuring the quality, availability, and accessibility of consolidated market data produced by competing consolidators.

The Commission believes that the definitions in Rule 600, as well as the registration and disclosure requirements of Rule 614, will help to ensure the data quality of consolidated market data. All competing consolidators will register with the Commission and become regulated entities (if not already SROs) and will be required to generate consolidated market data products in a manner that is consistent with the definitions set forth in Rule 600.

Further, the Commission believes that competition in the decentralized consolidation model will also support high quality consolidated market data. Competing consolidators will be required to produce public monthly reports on their performance and other metrics, which should incentivize

[893] *Id.*

[894] *See* NYSE Letter II at 24. Another commenter stated, ''. . . if either of the SIPs experiences a systems issue affecting the quality or availability of market data, all market participants are affected equally by the issue. However, under the competing consolidator model, if one competing consolidator is impaired, it could severely disadvantage that competing consolidator's subscribers and their investor clients.'' FINRA Letter at 4.

[895] *See* NYSE Letter II at 24.

[896] *See id.*

[897] *See* Nasdaq Letter IV at 8, 35.

[898] *See* TechNet Letter II at 2.

[899] *See* Cboe Letter at 25; TechNet Letter II at 2.

[900] *See* NYSE Letter II at 24; Data Boiler Letter I at 48.

[901] *See* 17 CFR 242.614(d)(6) (Rule 614(d)(6)).

[902] *See infra* Section III.F.

[903] *See* FINRA Letter at 4.

[904] *See supra* text accompanying notes 756–757.

[905] *See* Committee on Capital Markets Regulation Letter at 3; RBC Letter at 5–6; State Street Letter at 3.

[906] *See* Committee on Capital Markets Regulation Letter at 3; RBC Letter at 5–6; Susquehanna Letter at 1.

[907] *See* TD Ameritrade Letter at 13; Nasdaq Letter IV at 4, 7, 35; STANY Letter II at 6.

[908] *See* Nasdaq Letter IV at 26.

competing consolidators to perform at a high level in order to attract and maintain a subscriber base. A competing consolidator that does not produce accurate, high quality consolidated market data products would risk losing customers to other competing consolidators.[909]

4. Comments on Competing Consolidator Products

Commenters offered suggestions on the types of products to be sold by competing consolidators.[910] Two commenters suggested products that should be offered by competing consolidators.[911] One of the commenters said that competing consolidators should provide consolidated market data at no charge to a registered academic aggregator to act as an intermediary for the academic community.[912] The other commenter stated that competing consolidators should be required to sell a regulatory data-only feed at a fair and reasonable price (relative to the cost of that data as part of consolidated market data), and/or exchanges should be allowed to sell a regulatory data proprietary market data feed.[913] One commenter requested clarification as to the ability of a competing consolidator to offer separate co-location offerings as part of its competitive services.[914]

The Commission is not requiring competing consolidators to offer reduced cost or free services, but competing consolidators could develop such products if they so desired. In addition to consolidated market data products, competing consolidators will be able to offer other products, such as academic products or regulatory data products. Further, the Operating Committee of the effective national market system plan(s) for NMS stocks could develop reduced fees for the data content underlying consolidated market data for the academic community or for regulatory data, or the exchanges could develop and propose, pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder, similar products.

5. Comments on Selection of a Competing Consolidator

Several commenters raised questions concerning the selection of competing consolidators by broker-dealers.[915] The Commission believes that a broker-dealer will be responsible for selecting its competing consolidator(s) and will be required to perform its own due diligence to ensure that the competing consolidator(s) it chooses will be able to assist the broker-dealer in meeting its regulatory obligations and its obligations to its customers, including best execution.[916]

One commenter sought clarification of a broker-dealer's responsibility for problems caused by its choice of competing consolidator.[917] This commenter asked if a broker-dealer could be held liable for its competing consolidator's systems issues if such issues negatively impact its customers. The commenter also suggested that the Commission provide guidance for broker-dealers that compliance with rules dependent on the availability of accurate market data be assessed based on the data provided by a broker-dealer's competing consolidator or received directly by a self-aggregator.[918]

Broker-dealers have obligations to their customers (*e.g.,* a duty of best execution) as well as regulatory obligations (*e.g.,* Rule 603(c), Rule 611, Regulation SHO). Broker-dealers need high quality data to satisfy their obligations. The choice of a competing consolidator will be relevant to a broker-dealer's receipt of market data and therefore, a broker-dealer should assess, both upon its initial selection and on an ongoing basis, the quality of data received from a competing consolidator. The Commission believes that the selection of a competing consolidator can impact a broker-dealer's services to its customers as well as the broker-dealer's ability to comply with its regulatory obligations, such as providing best execution for its customers.[919] Broker-dealers will need to conduct their own analysis and perform their own due diligence in choosing and periodically assessing competing consolidators that meet their regulatory needs and the needs of their customers.

6. Comments on a Standardized Consolidation Process

Two commenters recommended standardizing aspects of the operation of competing consolidators, including the consolidation process and the content and distribution mechanism, arguing that standardization could make it easier for subscribers to switch to other competing consolidators and provide consistency across data sets.[920]

The Commission is not standardizing the competing consolidator consolidation and dissemination processes. The Commission believes competing consolidators are in the best position to develop technical standards for themselves. Furthermore, the Commission believes that competing consolidators should have the flexibility to design the consolidation and delivery services that their subscribers need.[921]

7. Registration and Responsibilities of Competing Consolidators: Rule 614

The Commission proposed Rule 614 to require SIPs that wish to act as competing consolidators to register with the Commission and publicly disclose certain information about their organization, operations, and products. Under proposed Rule 614, competing consolidators would be subject to certain obligations and would be required to regularly publish certain performance statistics on a monthly basis on their respective websites.

(a) Competing Consolidator Registration: Rule 614(a)

(i) Rule 614(a)(1)(i): Proposal

Proposed Rule 614(a)(1)(i) would prohibit any person, other than an SRO, from (A) receiving directly from a national securities exchange or national securities association information with respect to quotations for and transactions in NMS stocks; and (B) generating the proposed consolidated market data for dissemination to any person (*i.e.,* acting as a competing consolidator by disseminating data to external parties) unless that person files

[909] Competing consolidators would also be subject to Commission oversight under Rule 614. *See infra* Section III.C.7.

[910] *See* Wharton Letter at 4; MFA Letter at 3, 9; McKay Letter at 11.

[911] *See* Wharton Letter at 4; MFA Letter at 3, 9.

[912] *See* Wharton Letter at 4.

[913] *See* MFA Letter at 3, 9.

[914] *See* McKay Letter at 11.

[915] *See* Healthy Markets Letter I at 4–5 (urging the Commission to establish objective standards for brokers regarding their selection and usage of competing consolidator feeds); FINRA Letter at 6 (stating that a broker-dealer's best execution obligations would prevent it from selecting a more advantageous source of market data for its proprietary activities than it uses for its clients); Fidelity Letter at 10 (suggesting that regulators examine why a broker-dealer would choose one competing consolidator over another).

[916] *See supra* Section I.E.

[917] *See* FINRA Letter at 4–5.

[918] *See id.* at 5–6.

[919] *See supra* Section I.E.

[920] *See* BlackRock Letter at 5; MEMX Letter at 8. *See also* RBC Letter at 6 (suggesting that the Commission provide guidance on the minimum specifications for methods and processes of delivery for competing consolidators to avoid having multiple methods and processes, which could result in a tiered system of market data and reduced competition); MIAX Letter at 2 (suggesting that the Commission require all competing consolidators to utilize the same transport protocols (*i.e.,* multicast) when transmitting data to market participants).

[921] The Commission will monitor issues related to the implementation of the decentralized consolidation model, including whether standardization of the competing consolidator consolidation or dissemination processes would benefit market participants.

with the Commission an initial Form CC and the initial Form CC has become effective pursuant to proposed Rule 614(a)(1)(v).[922]

(ii) Rule 614(a)(1)(i): Final Rule and Response to Comments

The Commission is revising proposed Rule 614(a)(1)(i) to address a comment relating to market data vendors, as discussed below. Rule 614(a)(1)(i)(A), as adopted, will provide: ''No person other than a national securities exchange or a national securities association . . . may receive directly, *pursuant to an effective national market system plan,* from a national securities exchange or national securities association information with respect to quotations for and transactions in NMS stocks'' (addition in italics). This new language is intended to clarify the entities that will be required to register as a competing consolidator.

The Commission requested comment on the proposed registration process, including whether competing consolidator registration should be subject to Commission approval and/or additional or different regulation.[923] The Commission received several comments regarding proposed Rule 614(a)(1)(i). A few commenters described the proposed registration process as ''onerous,'' ''overly burdensome'' and a ''barrier to entry.'' [924] However, other commenters supported the registration process and urged regulating competing consolidators ''with the same rigor and governance applied to the SIP plans today.'' [925]

While the registration of competing consolidators is a new regulatory process that will be required of entities that may not be regulated today, as discussed below, the registration process is necessary and does not unduly burden potential competing consolidators. While there are costs and burdens associated with the registration process,[926] the Commission believes that such costs and burdens are justified by the benefits of Commission oversight and the disclosure of competing consolidator operations for market participants. As discussed in the Proposing Release, the regulatory regime and responsibilities of competing consolidators are designed to collect relevant information about competing consolidators and to require competing consolidator performance data, data quality issues, and system issues to be made publicly available through a relatively streamlined process that imposes appropriate burdens on entities likely to register as competing consolidators. The Commission designed the competing consolidator registration process to provide the Commission with information necessary for it to perform its regulatory oversight of these important market participants without imposing burdensome regulatory requirements on registrants.[927]

Further, the registration process for competing consolidators was designed to limit the burdens on competing consolidators, commensurate with their role. The competing consolidator regime is less burdensome than the registration process applicable for exclusive processors. As described in the Proposing Release, the registration process for exclusive processors is set forth in Section 11A of the Exchange Act [928] and requires the Commission to grant applications or institute proceeding to determine whether a registration should be denied.[929] The Commission, however, proposed a more streamlined and limited process. As part of this process, the Commission will not approve Form CC and amendments to Form CC. Rather, the Commission is adopting a process in which a potential competing consolidator's registration will become effective unless the Commission issues an order declaring its Form CC ineffective. The Commission believes that this registration process will allow potential competing consolidators to begin operating relatively quickly, while still allowing the Commission to review Form CC for non-compliance with Federal securities laws and the rules and regulations thereunder, and for material deficiencies with respect to accuracy, currency, or completeness.

Section 11A(b)(1) of the Exchange Act [930] provides that a SIP not acting as the ''exclusive processor'' [931] of any information with respect to quotations for or transactions in securities is exempt from the requirement to register with the Commission as a SIP unless the Commission, by rule or order, determines that the registration of such SIP ''is necessary or appropriate in the public interest, for the protection of investors, or for the achievement of the purposes of [Section 11A].'' A SIP that proposes to act as a competing consolidator would not engage on an exclusive basis on behalf of any national securities exchange or registered securities association in collecting, processing, or preparing for distribution or publication any information with respect to quotations for or transactions in securities; therefore, a competing consolidator would not fall under the statutory definition of ''exclusive processor.'' Section 11A(b)(1) of the Exchange Act provides the Commission with authority to require the registration of a SIP not acting as an exclusive processor by rule or order. Under the adopted rules, competing consolidators will play a vital role in the national market system by collecting, consolidating, and disseminating consolidated market data. Because the availability of prompt, accurate, and reliable consolidated market data is essential to investors and other market participants, the Commission believes that it is necessary and appropriate in the public interest and for the protection of investors to require each SIP that wishes to act as a competing consolidator to register with the Commission as a SIP pursuant to Rule 614. The Commission is thus exercising this authority by adopting Rule 614 to establish the process by which SIPs that wish to act as competing consolidators will be required to register with the Commission.

The registration process for exclusive SIPs under Section 11A requires the Commission to publish notice of an exclusive SIP's application for registration and, within 90 days of publication of notice of the application, by order grant the application or institute proceedings to determine whether the registration should be denied.[932] At the conclusion of the proceedings, the Commission must, by order, grant or deny the registration.[933] Section 11A(b)(1) of the Exchange Act also authorizes the Commission, by rule or by order, upon its own motion or by application, to exempt conditionally or unconditionally any SIP or class of SIPs from any provision of Section 11A or the rules or regulations thereunder if the Commission finds that such exemption

[922] If a self-aggregator disseminated consolidated market data to any person, it would be acting as a competing consolidator and would be required to register pursuant to proposed Rule 614 and comply with the requirements applicable to competing consolidators.

[923] *See* Proposing Release, 85 FR at 16778.

[924] NYSE Letter at 14; ACTIV Financial Letter at 2–3; Nasdaq Letter II at 37.

[925] WFE Letter at 1. *See also* MIAX Letter at 5.

[926] *See infra* Section V.C.3.

[927] The Form CC filing process is a notice-based registration process and is similar to other notice-based filing processes required by the Commission. *See* Securities Exchange Act Release No. 40760 (Dec. 8, 1998), 63 FR 70844 (Dec. 22, 1998) (''Regulation ATS Adopting Release'').

[928] 15 U.S.C. 78k–1.

[929] *See* Proposing Release, 85 FR at 16778.

[930] 15 U.S.C. 78k–1(b)(1).

[931] *See* Section 3(b)(22)(B) of the Exchange Act for the definition of exclusive processor.

[932] *See* Section 11A(b)(3).

[933] *See* Section 11A(b)(3)(B).

is consistent with the public interest, the protection of investors, and the purposes of Section 11A, including the maintenance of fair and orderly markets in securities and the removal of impediments to and perfection of the mechanisms of a national market system.

The Commission believes that it is consistent with the public interest, the protection of investors, and the purposes of Section 11A to use its authority under Section 11A(b)(1) to exempt SIPs that wish to act as competing consolidators from the registration process established in Section 11A(b)(3) of the Exchange Act[934] and to allow such competing consolidators to register pursuant to a process that is more streamlined and limited than the process described in Section 11A(b)(3). The process specified in Section 11A(b)(3) of the Exchange Act was developed for exclusive SIPs and reflects the heightened need to review and analyze exclusive processors. In contrast, SIPs that do not act as exclusive SIPs are exempt from registration unless the Commission ''finds that the registration of such securities information processor is necessary or appropriate in the public interest, for the protection of investors, or for the achievement of the purposes of [Section 11A].'' The Commission does not believe that this process for exclusive processors in necessary for competing consolidators. The Commission believes that the registration process in Rule 614 will provide the Commission with the information necessary to oversee competing consolidators and help ensure that relevant information regarding such competing consolidators is available to the Commission and to the public. The streamlined registration process is also designed to reduce regulatory burdens and encourage entities to register as competing consolidators.

In addition, the Commission believes that it is consistent with the public interest, the protection of investors, and the purposes of Section 11A to use its exemptive authority under Section 11A(b)(1) of the Exchange Act to exempt those SIPs that act as competing consolidators from Section 11A(b)(5) of the Exchange Act,[935] which requires a registered SIP to notify the Commission if the SIP prohibits or limits any person with respect to access to its services. Section 11A(b)(5) allows any person aggrieved by a prohibition or limitation of such access to the SIP's services to petition the Commission to review the prohibition or limitation of access. Exclusive SIPs, by definition, engage on an exclusive basis in collecting, processing, or preparing data. In contrast, the competing consolidators will not engage in collecting, processing, or preparing data on an exclusive basis. Therefore, the Commission believes that the protections of Section 11A(b)(5) of the Exchange Act, including the ability of an aggrieved person to petition the Commission for review of a SIP's prohibition or limitation of access to the SIP's services, are not necessary for competing consolidators. The Commission believes that the decentralized consolidation model with multiple competing consolidators will reduce the likelihood that a subscriber will not be able to access consolidated market data. Subscribers will be able to obtain such data from another competing consolidator. Accordingly, the Commission believes that it will be consistent with the protection of investors and the public interest to exempt competing consolidators from Section 11A(b)(5) of the Exchange Act.

(iii) Comments on Data Vendors

Two commenters expressed concern that current market data vendors would have to register as competing consolidators to continue receiving consolidated market data directly from SROs.[936] One of the commenters stated that proposed Rule 614(a)(1)(i) appeared to require market data vendors that generate and disseminate consolidated market data in NMS stocks based on information received directly from SROs to register as competing consolidators.[937] The commenter further stated that the discussion of market data vendors in the Proposing Release created uncertainty regarding whether the Commission intended to require market data vendors to register as competing consolidators to continue engaging in their current businesses.[938] The other commenter said the proposal stated that data vendors that want to continue to receive proprietary data that included data content underlying consolidated market data from an SRO would have to register as competing consolidators, or they would have to subscribe to a competing consolidator to purchase this data. The commenter said the price of this data could increase, causing a data vendor's customer base to decrease.[939]

In the Proposing Release, the Commission stated that vendors would still be able to operate in the decentralized consolidation model. Vendors would be able to receive proprietary market data directly from the SROs as they do today or they would be able to receive consolidated market data from a competing consolidator in a manner that is similar to how they receive SIP data today without being required to register as a competing consolidator. However, if a vendor wished to receive directly from the SROs information with respect to quotations for and transactions in NMS stocks at the prices established by the effective national market system plan(s) and generate consolidated market data for dissemination, such vendor would be required to register as a competing consolidator. Thus, only competing consolidators and self-aggregators would be able to directly receive the NMS information that is necessary to generate consolidated market data from the SROs at the prices established by the effective national market system plan(s).[940]

The Commission agrees that Rule 614(a)(1)(i), as proposed, could create uncertainty with respect to whether market data vendors would be able to continue their current businesses without being required to register as competing consolidators. Accordingly, the Commission is revising proposed Rule 614(a)(1)(i) to provide that no person, other than a national securities exchange or a national securities association, ''[m]ay receive directly, *pursuant to an effective national market system plan,* from a national securities exchange or national securities association information with respect to quotations for and transactions in NMS stocks'' and ''[g]enerate consolidated market data products for dissemination to any person unless the person files with the Commission an initial Form CC and the initial Form CC has become effective pursuant to paragraph (a)(1)(v)'' (italicized to show changes to the proposed language).[941]

[934] 15 U.S.C. 78k–1(b)(3).

[935] Section 11A(b)(5) of the Exchange Act, 15 U.S.C. 78k–1(b)(5), requires a SIP promptly to notify the Commission if the registered SIP prohibits or limits any person in respect of access to services offered, directly or indirectly, by the registered SIP. The notice must be in the form and contain the information required by the Commission. Any prohibition or limitation on access to services with respect to which a registered SIP is required to file notice is subject to review by the Commission on its own motion, or upon application by any person aggrieved by the prohibition or limitation.

[936] *See* IDS Letter I at 3, 4; NYSE Letter II at 18.

[937] *See* IDS Letter I at 3, 4.

[938] *See id.* at 3.

[939] *See* NYSE Letter II at 18.

[940] *See* Proposing Release, 85 FR at 16770, n. 434.

[941] This provision is also updated to reflect the new definition of consolidated market data product. *See supra* Section II.B.

The Commission believes that adopted Rule 614(a)(1) makes clear that only entities that receive information with respect to quotations for and transactions in NMS stocks directly pursuant to an effective national market system plan from a national securities exchange or national securities association, and generate consolidated market data products for dissemination, will be required to register as competing consolidators. A market data vendor that purchases proprietary data feeds from an SRO or SROs, or that purchases data from a competing consolidator, and aggregates and disseminates such data to its customers, will not be required to register as a competing consolidator. However, vendors that do not register as competing consolidators would not be permitted to purchase the NMS information necessary to generate consolidated market data from the SROs at prices established by an effective national market system plan.

The commenter also argued that the proposal fails to assess the cost of the proposed changes on market data vendors.[942] The commenter's primary concern with respect to the proposal's potential costs to market data vendors arose from the assumption that market data vendors would be required to register as competing consolidators. As stated above, a market data vendor is not required to register as competing consolidator unless it wishes to purchase information with respect to quotations for and transactions in NMS stocks directly from a national securities exchange or national securities association pursuant to an effective national market system plan, and generate consolidated market data products for dissemination, *i.e.,* act as competing consolidator. Accordingly, the adopted rules do not necessarily increase costs for market data vendors.

The commenter further stated that the primary impact of the proposal on a market data vendor that does not register as a competing consolidator (and therefore does not purchase data directly from the SROs at prices established by the effective national market system plan(s)) would come from changes in the prices that the SROs charge for their proprietary data feeds, which the commenter describes as ''unregulated.'' [943] The Commission acknowledges this assessment but clarifies that proprietary data fees are regulated, although such fees are not subject to this rulemaking nor are they subject to the same regulatory process that is used for effective national market system plan(s) fees.[944] The exchanges are required to file all proposed fees for their proprietary data products with the Commission pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder and the proposed fees must satisfy the standards under the Exchange Act, including Section 6(b)(4) and Section 15A(b)(5).[945]

(iv) Comments on Competing Consolidators Affiliated With Exchanges

In the Proposing Release, the Commission stated that because Section 3(a)(22)(A) of the Exchange Act excludes SROs from the definition of SIP they would not have to register as a competing consolidator pursuant to proposed Rules 614(a) through (c) and proposed Form CC.[946] The Commission stated that an SRO could either operate a competing consolidator under its SRO as a facility or could operate a competing consolidator in a separate affiliated entity, not as a facility of the SRO.[947]

Several commenters addressed this topic. One commenter, arguing that SRO obligations are not a substitute for the competing consolidator requirements, stated that an SRO or its affiliate that acts as a competing consolidator should be registered as such and should be subject to the same disclosure and other requirements as other competing consolidators.[948]

Two commenters questioned the proposal's assumption that SROs or their affiliates would be willing to become competing consolidators.[949] Three commenters stated that a competing consolidator that was a facility of a national securities exchange would be at a competitive disadvantage to competing consolidators that were not exchange facilities.[950] One commenter noted that a competing consolidator that was not an exchange facility could change its products and their associated fees in response to competitive forces, while a competing consolidator that was a facility of an exchange would be required to file a proposed rule change with the Commission pursuant to Section 19(b) of the Exchange Act to make the same changes.[951] Another commenter stated that the proposal established a two tiered system, with competing consolidators that are not affiliated with an exchange subject to the relatively streamlined Form CC regime and exchange facility competing consolidators subject to the more stringent framework, including the 19b–4 rule filing process.[952] A third commenter suggested that to alleviate this disparity the Commission should subject both SROs and non-SROs that seek to become competing consolidators to the same regulatory standards by subjecting the Form CC, and any amendment thereto, to Commission review and approval.[953]

Two commenters also stated that the Proposal did not explain how a competing consolidator affiliated with an exchange could avoid being a facility of the exchange.[954] One commenter stated that the absence of guidance with respect to when an affiliated competing consolidator would be a facility of an exchange substantially reduces the likelihood that entities affiliated with SROs would create competing consolidators.[955] The commenter further asserted that the failure to address this important issue for potential competing consolidators made it impossible to comment adequately and comprehensively on the proposal.[956] Another commenter stated that the Commission should consider issuing interpretive guidance to provide

[942] *See* IDS Letter I at 5–6.

[943] *Id.* at 5.

[944] *See* Effective-Upon-Filing Adopting Release, *supra* note 17. NMS Plan amendments are subject to Rule 608 of Regulation NMS, 17 CFR 242.608.

[945] Sections 6(b)(4) and 15A(b)(5) of the Exchange Act require that the rules of a national securities exchange or national securities association provide for the equitable allocation of reasonable dues, fees, and other charges among its members and issuers and other persons using its facilities.

[946] *See* Proposing Release, 85 FR at 16779, n. 537.

[947] *See* Proposing Release, 85 FR at 16779, n. 537.

[948] *See* IEX Letter at 8–9.

[949] *See* NYSE Letter II at 17–18; IDS Letter I at 15–21.

[950] *See* NYSE Letter II at 17–18; IDS Letter I at 19–21; MIAX Letter at 5.

[951] *See* NYSE Letter II at 17–18.

[952] *See* IDS Letter I at 21. Another commenter stated that disparate treatment of exchanges as competing consolidators violates the APA, explaining that exchanges acting as competing consolidators would be subject to Sections 6(b) and 19(d) of the Exchange Act, while non-facility competing consolidators would not be subject to these requirements. The commenter stated that non-facility competing consolidators would enjoy a ''significant competitive advantage over exchange competing consolidators by having greater pricing flexibility and not being subject to the denial of access process.'' *See* Nasdaq Letter IV at 44.

[953] *See* MIAX Letter at 5. The commenter also expressed concern that an exchange-operated competing consolidator with an unregulated affiliate that provides access and connectivity services could use the networks of the non-regulated affiliate to offer pricing discounts or other incentives to encourage market participants to purchase the competing consolidator's consolidated market data. The commenter asserted that an affiliate of an exchange that provides access and connectivity to exchange systems is a facility of the exchange because it is a ''system of communication to or from the exchange, by ticker or otherwise, maintained by or with the consent of the exchange.'' *Id.* at 4.

[954] *See* NYSE Letter II at 17; IDS Letter I at 17.

[955] *See* IDS Letter I at 21.

[956] *See id.* at 18.

additional clarity around the definition of a facility of an exchange.[957]

The questions raised by commenters relate to the Commission's application of the terms ''exchange'' and ''facility'' of an exchange, defined in Sections 3(a)(1) and (2) of the Exchange Act, to the activities of competing consolidators affiliated with exchanges. Section 3(a)(1) defines an ''exchange'' to include ''an organization, association, or group of persons, whether incorporated or unincorporated,'' that maintains a ''market place'' for ''bringing together purchasers and sellers of securities.''[958] Section 3(a)(2) defines a ''facility'' of an exchange to include the exchange's premises, tangible or intangible property whether on the premises or not, or any right to the use of such premises or property or any service thereof for the purpose of effecting or reporting a transaction on an exchange.[959] Section 3(a)(2) specifically includes services such as systems of communication to or from the exchange.[960] The Commission has observed that the determination of whether a service is a facility of an exchange requires an analysis of the particular facts and circumstances.[961]

In the Proposing Release, the Commission stated that an exchange could choose whether to operate a competing consolidator (1) as a facility of the exchange, or (2) as a separate affiliate, not as a facility, registered as a competing consolidator.[962] The application of the definition of ''facility'' of an exchange does not turn on which particular entity directly holds a particular asset, including the national securities exchange license.[963] Accordingly, whether a competing consolidator affiliated with a national securities exchange is a facility of that exchange does not depend solely on corporate structure, but rather on a facts-and-circumstances analysis of the functions provided by the affiliated competing consolidator and its relationship with the exchange.[964]

The Commission would expect that the activities of a competing consolidator affiliated with a national securities exchange would be likely to fall within the statutory definitions. The Commission also understands that the facts and circumstances with respect to each exchange and competing consolidator relationship may be different, including that there are different corporate structures under which an exchange could operate a competing consolidator. Therefore, to address the concerns raised by commenters and to foster a level competitive playing field for competing consolidators that are facilities of an exchange, the Commission believes that an exemption from certain regulatory requirements, subject to the conditions set forth below, would be appropriate in the public interest and consistent with the protection of investors.

Section 36(a)(1) of the Exchange Act authorizes the Commission, subject to certain limitations, to conditionally or unconditionally exempt any person, security, or transaction, or any class thereof, from any provision of the Exchange Act or rule thereunder, if necessary or appropriate in the public interest and consistent with the protection of investors.[965] The limited exemption would exempt a national securities exchange with respect to its competing consolidator activities from (i) the rule filing requirements in Section 19(b)(1) of the Exchange Act and Rule 19b–4 thereunder, (ii) the denial of access provisions in Section 19(d) of the Exchange Act, (iii) the requirements in Section 6(b) of the Exchange Act; and (iv) the requirements in Regulation SCI applicable to SCI SROs (unless the competing consolidator is otherwise subject to Regulation SCI as Regulation SCI would be applied to a competing consolidator).

As a condition of the exemptive relief, the competing consolidator must be registered under Rule 614 and be in compliance with all regulatory requirements applicable to competing consolidators under Rule 614, including the requirement to file Form CC. To promote a level playing field, and as required by Rule 603(b), the national securities exchange must not provide any latency, content, connectivity, cost or other competitive advantages with respect to the provision of the content underlying the consolidated market data to the affiliated competing consolidator.[966] As a further condition of the exemption, and to ensure that the national securities exchange does not leverage exchange products and services to establish an unfair competitive advantage, a national securities exchange would not be permitted to link the pricing for or condition availability for services of the affiliated competing consolidator to any products or services of the exchange, including transactions, connectivity and data.[967]

Such limited exemptive relief is appropriate and in the public interest to foster the successful implementation of the decentralized consolidation model. The limited exemptive relief is designed to help foster a competitive environment premised on a level regulatory playing field. In particular, it will facilitate the entry of competing consolidators that are affiliated with national securities exchanges into the market for the consolidation and

[957] *See* McKay Brothers Letter at 2.

[958] Section 3(a)(1) of the Exchange Act defines ''exchange'' as any organization, association, or group of persons, whether incorporated or unincorporated, which constitutes, maintains, or provides a market place or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange as that term is generally understood, and includes the market place and the market facilities maintained by such exchange. 15 U.S.C. 78c(a)(1). *See also* 17 CFR 240.3b–16.

[959] Section 3(a)(2) of the Exchange Act defines the term ''facility'' when used with respect to an exchange includes its premises, tangible or intangible property whether on the premises or not, any right to the use of such premises or property or any service thereof for the purpose of effecting or reporting a transaction on an exchange (including, among other things, any system of communication to or from the exchange, by ticker or otherwise, maintained by or with the consent of the exchange), and any right of the exchange to the use of any property or service. 15 U.S.C. 78c(a)(2).

[960] *See id. See also* Securities Exchange Act Release No. 90209 (October 15, 2020), 85 FR 67044, 67048 (October 21, 2020) (SR–NYSE–2020–05; SR–NYSE–2020–11 et al.) (''NYSE Wireless Order'').

[961] *See* Securities Exchange Act Release No. 76127 (October 9, 2015), 80 FR 62584, 62586 n. 9 (October 16, 2015) (SR–NYSE–2015–36) (Order Approving Proposed Rule Change amending Section 907.00 of the Listed Company Manual).

[962] Proposing Release, 85 FR at n. 537.

[963] *See* NYSE Wireless Order, *supra* note 960, at 67047. *Cf.* Securities Exchange Act Release No. 40760 (Dec. 8, 1998), 63 FR 70844, 70852 (Dec. 22, 1998) (''Regulation ATS Adopting Release'') (stating, in the context of entities providing trading systems that function as ATSs, that ''[t]he Commission will attribute the activities of a trading facility to a system if that facility is offered by the system directly or indirectly (such as where a system arranges for a third party or parties to offer the trading facility). . . . In addition, if an organization arranges for separate entities to provide different pieces of a trading system . . . , the organization responsible for arranging the collective efforts will be deemed to have established a trading facility.'').

[964] A particular function provided by an organization, association, or group of persons, whether incorporated or unincorporated, may fall within the statutory definition of ''exchange'' when business activities performed across the group constitute part of that market place for bringing together purchasers and sellers. *See* NYSE Wireless Order, *supra* note 960, at 67047. An entity's mere affiliation with an exchange, without more, is not solely determinative of whether a function is a facility of an exchange. *See* Securities Exchange Act Release No. 44983 (Oct. 25, 2001), 66 FR 55225 (Nov. 1, 2001) (SR–PCX–00–25).

[965] 15 U.S.C. 78mm(a)(1).

[966] Rule 603(b) requires a national securities exchange to provide its NMS information, including all data necessary to generate consolidated market data, to all competing consolidators and self-aggregators in the same manner and using the same methods, including all methods of access and the same format, as the national securities exchange makes available any information to its affiliated competing consolidator.

[967] This condition is based on the particular risk, given the special position of exchanges in the market and the regulatory requirements applicable to exchanges, posed by allowing exchanges to link services and pricing with those of the competing consolidator.

dissemination of consolidated market data products thereby increasing competition for those services as contemplated by the decentralized consolidation model. This exemptive relief will not place any burdens on, or otherwise disadvantage, non-affiliated competing consolidators.

The limited exemptive relief is also consistent with the protection of investors. Rule 19b–4 requires an SRO to file a proposed rule change with respect to any ''material aspect'' of the operation of its facilities that is then subject to Commission review and approval.[968] Section 6(b), among other things, requires the rules of an exchange to provide for equitable allocation of reasonable fees, not permit unfair discrimination between customers, and not impose any unnecessary or inappropriate burden on commerce. Section 19(d) of the Exchange Act, among other things, limits the denial of access to SRO services. The registration, disclosure and other regulatory requirements for competing consolidators in Rule 614 and Form CC, including the potential that such forms could be declared ineffective and the requirement to make consolidated market data products available to subscribers on terms that are not unreasonably discriminatory, help ensure appropriate transparency and oversight for the protection of investors. In addition, competing consolidators that are affiliated with national securities exchanges that elect the exemption will be subject to the same Regulation SCI requirements applicable to other competing consolidators, which will help ensure systems integrity, reliability, and resiliency to protect the interests of investors.

This exemptive relief will promote a level playing field among the various types of competing consolidators. The exemptive relief and the conditions for that relief serve to subject competing consolidators that are affiliated with a national securities exchange to the same regulatory framework that applies to other competing consolidators to eliminate competitive advantages and foster a competitive environment for all competing consolidators. This exemptive relief thus addresses the concerns raised by commenters that competing consolidators that are affiliated with a national securities exchange will be at a disadvantage to other competing consolidators.[969]

The Commission intends to monitor the activities of all registered competing consolidators, including those that are affiliated with a national securities exchange, through the notification and filing requirements in Rule 614 and Form CC, and other requirements applicable to competing consolidators. In addition, the Commission will monitor the activities of competing consolidators that are facilities of an exchange through its examinations of both the national securities exchange and the competing consolidator.

This exemptive relief is limited to the regulatory requirements described above. The Commission will consider requests for additional exemptive relief from specific regulatory provisions to address any remaining concerns about creating and maintaining an equal playing field. The Commission will consider such requests based on the particular facts and circumstances at hand, and grant such a request if necessary or appropriate in the public interest and consistent with the protection of investors. This limited exemptive relief does not affect any regulatory obligations that apply to any other functions, products or services provided by exchanges or facilities thereof, including the provision, distribution and transport of proprietary market data feeds and other market data, communication systems that convey order information to and from the exchange, or connectivity to those communication systems.

(v) Minimum Standards for Competing Consolidators

Two commenters recommended that the Commission establish uniform baseline standards that all competing consolidators would be required to meet continuously to avoid possible ''conflation,'' which, according to the commenters, may occur when an exchange or other market participant provides only its most-recent quote or trade to the SIPs and skips or removes prior quotes due to system capacity constraints or by purposefully shaping bandwidth to remain below certain capacity thresholds.[970] The commenters stated that the absence of uniform standards could allow a competing consolidator to offer a lower-cost product that would often be conflated and incomplete and that could conceal potential abuses.[971] One commenter identified minimum standards that it believed the Commission should require a competing consolidator to satisfy.[972]

Rule 614(d) requires each competing consolidator to calculate and generate consolidated market data products and make consolidated market data products available to its subscribers. This means that competing consolidators must be able to accept all of the data content that encompasses the consolidated market data products they offer. In addition, competing consolidators will be subject to operational capability, systems integrity, and resiliency obligations,[973] and Rule 614(d)(5) requires each competing consolidator to publish certain system performance metrics on its website each month. As stated above,[974] these disclosures should help to facilitate a broker-dealer's ability to achieve and analyze best execution because they provide information regarding the timeliness, completeness, and accuracy of the market data offered by competing consolidators.[975] These disclosures also provide statistics on capacity, network delay and latency, offering additional insight into the technical capabilities and expected performance of a competing consolidator. This information will assist a broker-dealer in selecting an appropriate competing consolidator, which in turn impacts the broker-dealer's ability to obtain ''the most favorable terms reasonably available under the circumstances'' for its customer orders. The Commission believes that these requirements will help to ensure that competing consolidators have adequate system capacity to meet the needs of different types of subscribers and will ensure an accurate record of quotes and trades for

[968] 17 CFR 240.19b–4. Section 19(b)(1) of the Exchange Act defines a ''proposed rule change'' as ''any proposed rule, or any proposed change in, addition to, or deletion from the rules of'' a self-regulatory organization. 15 U.S.C. 78s(b)(1).

[969] *See* IDS Letter I at 21 and Nasdaq Letter IV at 44 (comments discussed *supra* note 952).

[970] *See* MIAX Letter at 2; Healthy Markets Letter II at 2.

[971] *See id.*

[972] *See* MIAX Letter at 2. The commenter recommended that the Commission do the following: ''set forth reasonable minimum bandwidth requirements for Competing Consolidators to ensure that conflation does not occur due to capacity constraints, including during times of increased market volatility; set forth minimum performance requirements for Competing Consolidators that allow for a reasonable amount of conflation; require all Competing Consolidators to utilize the same transport protocols (*i.e.,* Multicast) when transmitting data to market participants; likewise require that each national securities exchange utilize these same transfer protocols when transmitting core data to a Competing Consolidator; and require each national securities exchange to sequence the message fields in the same manner when transmitting their core data to a Competing Consolidator or via their proprietary data products, with any supplemental information (*i.e.,* data regarding exchange specific programs) sequenced behind core data.'' *See* MIAX Letter at 2.

[973] *See infra* Section III.F.

[974] *See supra* notes 104–105 and accompanying text.

[975] *See supra* note 90 and accompanying text.

subscribers. Accordingly, the Commission does not believe that it is necessary, at this time, to mandate minimum capacity or other minimum standards for competing consolidators.[976]

(vi) Potential Advantage of Incumbent Exclusive SIPs

One commenter asserted that the incumbent exclusive SIPs would have a significant advantage over other entities seeking to become competing consolidators because they could use their existing infrastructure to operate a competing consolidator that could charge lower fees than new entrants because they would not incur the upfront capital expenditures required to build a competing consolidator.[977] The commenter suggested that the Commission consider ways to require the incumbent exclusive SIPs to reimburse each Plan's Participants their proportionate share of their costs paid and used to build and support each exclusive SIP's systems as a means to allowing each exclusive SIP to purchase its existing infrastructure to use to act as a competing consolidator.[978]

Any determinations regarding payments to Participants or the disposition of the assets of the exclusive SIPs would be made by the Participants of the Equity Data Plans.[979] If the operators of the exclusive SIPs (*i.e.,* SIAC and Nasdaq) decide to become competing consolidators and to operate their competing consolidator business using existing infrastructure of the exclusive SIPs, the Commission does not believe that they will have a significant advantage over other potential competing consolidators. The current operators of the exclusive SIPs would need to reach an agreement with the Participants of the Equity Data Plans regarding the disposition of the assets of the exclusive SIPs and would need to modify existing systems to produce consolidated market data products, which as described above, may contain more information than what the exclusive SIPs currently provide as SIP data. In addition, the exclusive SIPs will have to make changes to their systems to accommodate the changes to regulatory data. The exclusive SIPs also might find it necessary to upgrade the performance of the existing systems to compete effectively against market data vendors that currently utilize superior technology and may register to become competing consolidators.

(b) Rule 614(a)(1)(ii): Electronic Filing and Submission

(i) Proposal

Proposed Rule 614(a)(1)(ii) would require any reports required under new Rule 614 to be filed electronically on Form CC, include all of the information as prescribed in Form CC and the instructions to Form CC, and contain an electronic signature. The proposal contemplated the use of an online filing system through which competing consolidators would file a completed Form CC. The system, known as the electronic form filing system (''EFFS''), is used by SROs to file proposed rules and rule changes and by SCI entities to file Forms SCI.[980] Other potential methods of electronic filing of Form CC were also described, including the use of secure file transfer through specialized electronic mailbox or through the Electronic, Data Gathering, Analysis and Retrieval (''EDGAR'') system, or directly through *SEC.gov* via a simple HTML form.

(ii) Final Rule and Response to Comments

The Commission requested comment on the electronic filing requirement and asked whether EFFS or another system would be efficient for purposes of filing Form CC. One commenter supported the use of EFFS.[981] The Commission believes that an electronic filing process is efficient and cost effective. The Commission has used EFFS for many years for proposed SRO rules and rule changes filed pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder, as well as Regulation SCI and the Commission believes that this system will be appropriate for registering competing consolidators. Further, the Commission believes that it will be easier and cost effective for competing consolidators and the Commission to use one system for competing consolidator filings. Competing consolidators that are SCI entities will have to submit filings pursuant to Regulation SCI via EFFS.[982] Therefore, for those competing consolidators it would be easier and cost effective to use one filing system to submit filings with the Commission.[983] The use of EFFS for all competing consolidators' filings will also be cost effective for the Commission.

(c) Rule 614(a)(1)(iii): Commission Review Period

(i) Proposal

Proposed Rule 614(a)(1)(iii) would provide that the Commission may, by order, declare an initial Form CC filed by a competing consolidator ineffective no later than 90 calendar days from filing with the Commission.[984] The Commission believed that 90 calendar days would provide the Commission with adequate time to carry out its oversight functions with respect to its review of an initial Form CC, including its responsibilities to protect investors and maintain fair, orderly, and efficient markets.[985]

(ii) Final Rule and Response to Comments

The Commission did not receive any comments on this proposed rule. The Commission believes that the review period provides adequate time for the Commission to evaluate an initial Form CC. Therefore, the Commission is adopting the rule as proposed.

(d) Rule 614(a)(1)(iv): Withdrawal of Initial Form CC

(i) Proposal

Proposed Rule 614(a)(1)(iv) would require a competing consolidator to withdraw an initial Form CC that has not become effective if any information disclosed in the initial Form CC is or becomes inaccurate or incomplete. The competing consolidator would be able to refile an initial Form CC pursuant to proposed Rule 614(a)(1).

(ii) Final Rule and Response to Comments

The Commission did not receive any comments on this proposed rule. The Commission believes that competing consolidators should withdraw an initial Form CC that becomes inaccurate or incomplete to ensure that the Commission's review is based upon complete and accurate information. Therefore, the Commission is adopting the rule as proposed.

(e) Rule 614(a)(1)(v): Effectiveness; Ineffectiveness Determination

(i) Proposal

Proposed Rule 614(a)(1)(v)(A) would provide that an initial Form CC would

[976] The Commission will monitor the performance of competing consolidators, including whether there is a need to establish minimum standards for competing consolidators.

[977] MIAX Letter at 2–3.

[978] *Id.* at 3.

[979] If the Participants determine that the effective national market system plan(s) needs to be amended for this purpose, such amendment would have to be filed with the Commission pursuant to Rule 608 of Regulation NMS.

[980] *See* Securities Exchange Act Release No. 50486 (Oct. 4, 2004), 69 FR 60287 (Oct. 8, 2004) (adopting EFFS for use in filing Form 19b–4).

[981] *See* Data Boiler Letter I at 50.

[982] *See* 17 CFR 242.1006 (Rule 1006) of Regulation SCI (relating to electronic filing and submission).

[983] *See infra* Section V.C.3(a).

[984] *See also* proposed Rule 17 CFR 242.614(a)(1)(iv)(B) (Rule 614(a)(1)(iv)(B)).

[985] *See* Proposing Release, 85 FR at 16779.

become effective, unless declared ineffective, no later than the expiration of the review period provided in paragraph (a)(1)(iii) and upon publication of the initial Form CC pursuant to proposed Rule 614(b)(2)(i). Proposed Rule 614(a)(1)(v)(B) would provide that the Commission would declare ineffective an initial Form CC if it finds, after notice and opportunity for hearing, that such action is necessary or appropriate in the public interest and is consistent with the protection of investors.

(ii) Final Rule and Response to Comments

The Commission requested comment on whether the proposal to allow an initial Form CC to become effective by operation of the rule without a Commission issuing an order would provide sufficient notice that an initial Form CC has become effective.[986] One commenter stated, without more, that ''an official order would be nice to have.'' [987]

The Commission is adopting Rule 614(a)(1)(v) as proposed. The Commission believes that if it finds, after notice and opportunity for hearing, that one or more disclosures reveal noncompliance with Federal securities laws or the rules or regulations thereunder, an initial Form CC should be declared ineffective. The Commission will make such a declaration if it finds, for example, that one or more disclosures on the initial Form CC were materially deficient with respect to their accuracy, currency, or completeness. If the Commission declares an initial Form CC ineffective, the applicant will be prohibited from operating as a competing consolidator, but will be able to file a new Form CC to address any disclosure deficiencies or other issues that caused the initial Form CC to be declared ineffective.

While one commenter suggested without articulating a reason that the Commission issue an order declaring a Form CC effective, the Commission does not believe that such an order is necessary in this context because all effective Form CCs will be published by the Commission on the Commission's website, which will provide notice to market participants that a competing consolidator has an effective Form CC and is permitted to operate.

(f) Rule 614(a)(2): Form CC Amendments

(i) Proposal

Proposed Rule 614(a)(2) would provide the requirements for amending an effective Form CC. Proposed Rule 614(a)(2)(i) would require a competing consolidator to amend an effective Form CC in accordance with the instructions therein: (i) Prior to the date of implementation of a material change to the pricing, connectivity, or products offered (a ''Material Amendment''); and (ii) no later than 30 calendar days after the end of each calendar year to correct information, whether material or immaterial, that has become inaccurate or incomplete for any reason (''Annual Report'') (each a ''Form CC Amendment'').[988]

(ii) Final Rule 614(a)(2) and Response to Comments

The Commission received several comments regarding proposed Rule 614(a)(2). One commenter questioned how far ahead of implementing a new service or fee a competing consolidator would be required to file a Form CC amendment.[989] The commenter also questioned whether the Commission or its staff could object to a new service or fee.[990]

One commenter stated that the requirement to file a Material Amendment, along with information relating to operational capability, market data products fees, co-location, and related services, would reduce the variety of products offered.[991] The commenter asserted that this information would change frequently as a competing consolidator improved and modified its services to meet the needs of different customers.[992] The commenter further stated that market participants would find other ways to select competing consolidators, making it unnecessary to report this information publicly.[993] One commenter raised no objection to the proposed requirement to prepare an Annual Report because interested persons may be interested in learning about changes in ownership.[994]

The Commission is adopting Rule 614(a)(2) as proposed. The Commission acknowledges the commenter's concern that the requirement to file a Material Amendment, along with information relating to operational capability, market data products fees, co-location, and related services, could reduce the variety of products offered. However, the Commission believes that the required Form CC amendments, including Material Amendments and Annual Reports, and the process by which they are filed, properly balances this concern with the need to provide market participants with necessary information regarding a competing consolidator's organization, operational capability, consolidated market data products, fees, and co-location and related services to determine whether to subscribe, or continue subscribing, to a competing consolidator. As required by Rule 614(a)(2)(i), a competing consolidator must file a Material Amendment, which is defined as a material change to the pricing, connectivity, or products offered, prior to such change's implementation. The Commission will review all Form CC amendments for completeness, clarity, and conformance with the requirements of Rule 614 and Form CC. The instructions to Form CC state that an incomplete or deficient filing may be returned to the competing consolidator and any filing so returned will be deemed not to have been filed with the Commission. However, the Commission will not affirmatively approve amendments to Form CC, including Material Amendments, which should streamline the process. Although some competing consolidators may frequently file amendments to Form CC to respond to subscriber demand, these amendments would not be subject to Commission approval before effectiveness.

The information in Form CC amendments will assist market participants in evaluating which products and services of the competing consolidator will be most useful to them. This information is also designed to ensure that the Commission has specified information regarding entities acting as competing consolidators, to facilitate the Commission's oversight of competing consolidators, and help to ensure the resiliency of a competing consolidator's systems. Given these intended uses, the Commission believes that it is important for a competing consolidator to be required to maintain an accurate, current, and complete Form CC.

The Commission disagrees with the commenter's assertion that it is unnecessary to make the information required in the initial Form CC and in Material Amendments publicly available. The information reported in the initial Form CC and in Material Amendments will help to ensure that all

[986] *See* Proposing Release, 85 FR at 16780.

[987] *See* Data Boiler Letter I at 50.

[988] *See* proposed Rules 614(a)(1)(i) and (a)(2)(i) and (ii).

[989] *See* IDS Letter I at 10.

[990] *See id.*

[991] *See* NovaSparks Letter at 2.

[992] *See id.*

[993] *See id.*

[994] *See* Data Boiler Letter I at 51.

market participants have access to the same information regarding competing consolidators, the products and services they offer, and the fees for those products and services, and that that information remains current. Although the filing of Form CC and Material Amendments will create an administrative requirement for competing consolidators, the Commission does not believe that these filing requirements will unduly limit the products that a competing consolidator is able to offer.

(g) Rule 614(a)(3): Notice of Cessation

(i) Proposal

Proposed Rule 614(a)(3) required a competing consolidator to file notice of its cessation of operations on Form CC at least 30 business days before the date the competing consolidator ceases to operate as a competing consolidator. The notice of cessation will cause the Form CC to become ineffective on the date designated by the competing consolidator.

(ii) Final Rule 614(a)(3) and Response to Comments

The Commission received one comment regarding proposed Rule 614(a)(3), which stated that the 30-day time period in proposed Rule 614(a)(3) was too long and that 15 days would provide sufficient time for a broker-dealer to switch to a different service provider.[995]

The Commission is revising proposed Rule 614(a)(3) to require a competing consolidator to provide 90 calendar days' notice of its cessation of operations.[996] The Commission believes that 90 calendar days' notice will help to ensure that the subscribers of a competing consolidator that ceases operations will have adequate time to identify and transition to a new competing consolidator, including making any necessary systems changes and establishing connectivity to the new market data provider. While one commenter stated that firms would only need 15 days to switch to a new competing consolidator, the Commission believes that firms will likely need more time to switch effectively to another competing consolidator. As discussed above, competing consolidators may generate different consolidated market data products and use different formats. Firms will likely need to make systems changes and perform testing of a new competing consolidator if the competing consolidator they use decides to cease operations. The Commission believes that firms should be provided with sufficient time to make necessary systems changes and conduct performance testing before losing the services of a competing consolidator so that they are able to have continuity of consolidated market data services.

(h) Rule 614(a)(4): Date of Filing

(i) Proposal

The Commission proposed to define ''business day'' for purposes of proposed Rule 614 to comport with provisions contained in Rule 19b–4 and to specify the conditions under which filings required pursuant to proposed Rule 614 are deemed to have been made on a particular business day. Specifically, the Commission proposed to define ''business day'' in the same manner in which it is defined in Rule 19b–4(b)(2).[997]

(ii) Final Rule and Response to Comments

The Commission did not receive any comments on proposed Rule 614(a)(4). The Commission is adopting the rule as proposed. The Commission believes that the provisions providing a date-of-filings standard would facilitate the ability of competing consolidators to comply with the requirements of Rule 614 and facilitate the ability of the Commission to effectively receive, review, and make public the filings required under Rule 614.

(i) Rule 614(b): Public Disclosures

(i) Proposal

Proposed Rule 614(b) would require the publication of all Form CC reports and other information filed by competing consolidators. Proposed Rule 614(b)(1) stated that every Form CC filed pursuant to Rule 614 shall constitute a ''report'' within the meaning of sections 11A, 17(a), 18(a), and 32(a) of the Exchange Act (15 U.S.C. 78k–1, 78q(a), 78r(a), and 78ff(a)), and any other applicable provisions of the Exchange Act. Proposed Rule 614(b)(2) stated that the Commission would publish on its website each (1) effective initial Form CC, as amended; (2) order of ineffective initial Form CC; (3) Form CC amendment no later than 30 calendar days from the date of filing thereof; and (4) notice of cessation.

(ii) Final Rule and Response to Comments

The Commission requested comment on proposed Rule 614(b). One commenter stated without more that it had ''no objection'' to the publication of the Form CC on the Commission's website.[998] The Commission is adopting this provision as proposed but with one addition to the items that will be published by the Commission on its website pursuant to Rule 614(b)(2). Specifically, the Commission will publish on its website a list of the names of each potential competing consolidator that files with the Commission an initial Form CC and the date of filing.[999] This list would be updated upon each filing of an initial Form CC by a potential competing consolidator. The Commission believes that publishing a regularly updated list of potential competing consolidators that have filed to register with the Commission may encourage other potential competing consolidators to register for the ''first wave'' of the transition period.[1000] The Commission believes that making the information detailed in Rule 614(b) available will assist market participants in evaluating a particular competing consolidator as a potential source of consolidated market data, as well as motivate potential competing consolidators to enter the market by signaling interest in the market.

(j) Rule 614(c): Posting of Hyperlink to the Commission's Website

(i) Proposal

Proposed Rule 614(c) would require each competing consolidator to make public via posting on its website a direct URL hyperlink to the Commission's website that contains each (1) effective initial Form CC, as amended; (2) order of ineffective initial Form CC; (3) Form CC amendment no later than 30 calendar days from the date of filing thereof; and (4) notice of cessation (if applicable).

[995] *See* Data Boiler Letter I at 51.

[996] Rule 614(a)(3), as adopted, will provide: *Notice of cessation.* A competing consolidator shall notice its cessation of operations on Form CC at least 90 calendar days prior to the date the competing consolidator will cease to operate as a competing consolidator. The notice of cessation shall cause the Form CC to become ineffective on the date designated by the competing consolidator.

[997] *See* Rule 19b–4(b)(2), 17 CFR 240.19b–4(b)(2). Proposed Rule 614(a)(ii) provided that if the conditions of proposed Rule 614 and proposed Form CC are otherwise satisfied, all filings submitted electronically on or before 5:30 p.m. Eastern Standard Time or Eastern Daylight Saving Time, whichever is currently in effect, on a business day, shall be deemed filed on that business day, and all filings submitted after 5:30 p.m. Eastern Standard Time or Eastern Daylight Saving Time, whichever is currently in effect, shall be deemed filed on the next business day.

[998] *See* Data Boiler Letter I at 52.

[999] *See* Adopted Rule 614(b)(2).

[1000] *See infra* Section III.H.2 for a discussion of the transition period.

(ii) Final Rule and Response to Comments

The Commission received one comment on proposed Rule 614(c) from a commenter who stated that it did not oppose the proposal.[1001] The Commission is adopting this provision as proposed.[1002] The Commission believes that this requirement will make it easier for market participants to review a competing consolidator's Form CC filings. This provision provides an additional means for market participants to locate Form CC filings that are posted on the Commission's website.

8. Responsibilities of a Competing Consolidator

The Commission proposed Rule 614(d) to establish the responsibilities applicable to all competing consolidators, including competing consolidators that are affiliated with SROs and those that are not, under the decentralized consolidation model. Under proposed Rule 614(d), all competing consolidators would be required to perform many of the obligations currently performed by the existing exclusive SIPs. Proposed Rule 614(d) also would require all competing consolidators to disclose performance metrics and other information that would facilitate Commission oversight of competing consolidators and assist market participants in evaluating and choosing competing consolidators.

(a) Rules 614(d)(1) Through (3): Collection, Calculation, and Dissemination of Consolidated Market Data

(i) Proposal

Proposed Rules 614(d)(1) through (3) would require competing consolidators to collect, consolidate, and disseminate consolidated market data. Proposed Rule 614(d)(1) would require each competing consolidator to collect from each national securities exchange and national securities association, either directly or indirectly, the information with respect to quotations for and transactions in NMS stocks as provided in Rule 603(b). Proposed Rule 614(d)(2) would require each competing consolidator to calculate and generate consolidated market data, as defined in proposed Rule 600(b)(19), from the information collected in proposed Rule 614(d)(1). This proposed rule would require competing consolidators to develop a complete consolidated market data product that contained all of the data elements specified in the proposed definition of consolidated market data.[1003] Proposed Rule 614(d)(3) would require competing consolidators to make the proposed consolidated market data available to subscribers on a consolidated basis and on terms that are not unreasonably discriminatory, with the timestamps required by proposed Rules 614(d)(4) and (e)(1)(ii), as discussed below.

(ii) Final Rule and Response to Comments

The Commission received several comments regarding proposed Rules 614(d)(1) through (3).[1004] One commenter strongly supported requiring competing consolidators to be subject to appropriate standards, such as providing fair access to market participants.[1005] Two commenters criticized the proposed rules. One commenter stated that incorporating aggregated odd-lot quotes into the NBBO calculation would cause confusion and suggested instead that the NBBO be based on exchange BBOs ''to minimize any calculation or interference/influences'' by competing consolidators.[1006] With respect to proposed Rule 614(d)(2), one commenter said that because the Commission did not define what it meant by ''generate'' proposed consolidated market data, it was unclear what types of activity would warrant registration by competing consolidators.[1007] The commenter also argued that the Commission did not describe the meaning of ''unreasonably discriminatory'' in proposed Rule 614(d)(3),[1008] the consequences for competing consolidators that make data available on an unreasonably discriminatory basis, the ''costs of the mechanisms and consequences for application and enforcement of the unreasonably discriminatory requirement for both the relevant competing consolidator and its clients,'' and whether agreements between a competing consolidator and its subscribers that limit the competing consolidator's liability would be deemed ''unreasonably discriminatory.'' [1009]

As discussed above,[1010] the Commission is not requiring competing consolidators to sell a full consolidated market data product and is amending proposed Rules 614(d)(1) through (3) to reflect this change. Rule 614(d)(1), as amended, requires each competing consolidator to collect from each national securities exchange and national securities association, either directly, or indirectly, only the information required under Rule 603(b) that is necessary for the competing consolidator to create the particular consolidated market data product(s) it chooses to sell. Rule 614(d)(2), as amended, requires each competing consolidator to calculate and generate a consolidated market data product from the data collected pursuant to Rule 614(d)(1). Rule 614(d)(3), as amended, requires each competing consolidator to make the consolidated market data product(s) available to subscribers on terms that are not unreasonably discriminatory, and timestamped as required by Rule 614(d)(4) and including the national securities exchange and national securities association generated timestamp as required by Rule 614(e)(2).

With respect to the comment that the NBBO should be based on exchange BBOs and that incorporation of aggregated odd-lot quotes would cause confusion,[1011] the Commission believes that requiring the exchanges to calculate their BBOs before sending them to the competing consolidators for calculation into NBBOs would add latency to the collection, consolidation, and dissemination of consolidated market data products. One of the goals of the introduction of competing consolidators is the reduction of latencies. Any exchange processing of the data content underlying consolidated market data will add latency in the collection, calculation, and dissemination of consolidated market data. Further, the exchanges currently aggregate odd-lot quotes into their BBOs, which are used to calculate the NBBO. Therefore, the Commission does not believe that this

[1001] *See* Data Boiler Letter I at 52.

[1002] The Commission notes that Rule 614(c) is being updated to reflect a change to the numbering of Rule 614(b)(2). The requirements of Rule 614(c) are not changing and are adopted as proposed.

[1003] *See* Proposing Release, 85 FR at 16782.

[1004] *See* Clearpool Letter at 7; Data Boiler Letter I at 52; IDS Letter I at 10–11.

[1005] *See* Clearpool Letter at 7.

[1006] Data Boiler Letter I at 52. This commenter also suggested that only a single competing consolidator should be obligated to provide a consolidated market data product, not all competing consolidators. *See supra* Section III.C.1(b).

[1007] IDS Letter I at 11.

[1008] The commenter said that data vendors are currently not held to an ''unreasonably discriminatory'' standard. Because the commenter believed the Commission did not explain how it would apply this standard, the commenter said that commenters cannot assess the standard's burden on potential competing consolidators, including data vendors. *Id.* at 10.

[1009] *Id.* at 10–11.

[1010] *See supra* Section II.B.2; *see also supra* Section III.C.1(b). The Commission is adopting a definition for ''consolidated market data product'' in Rule 600(b)(20).

[1011] *See* Data Boiler Letter I at 52.

provision will cause confusion.[1012] The Commission believes that aggregating odd-lots into the BBO provides market participants with a more complete view of the market for each security.

In response to the comment that only one competing consolidator should be obligated to provide a consolidated market data product,[1013] the Commission is not requiring all competing consolidators to provide all consolidated market data. Competing consolidators may sell a consolidated market data product comprising some or all components of consolidated market data.[1014] The Commission believes that competing consolidators should have the flexibility to tailor their market data products to their subscribers' needs. Not requiring competing consolidators to sell a product that contains all of the data elements of full consolidated market data should enhance competition among competing consolidators by providing more parameters (*e.g.,* products) upon which they can compete.

With respect to the comment that requested clarification of the use of the term ''generate'' in proposed Rule 614(d)(2), competing consolidators will be required to calculate and generate a consolidated market data product from the individual data streams made available by the SROs pursuant to Rule 603(b). For example, competing consolidators that choose to sell a consolidated market data product that includes the NBBO will calculate the NBBO as set forth in Rule 600(b)(50) and disseminate the NBBO in the consolidated market data product. Competing consolidators that sell a consolidated market data product that includes depth-of-book data will generate depth-of-book data by considering the NBBO and then determining the five price levels above (below) the NBBO from the quotation information provided by the SROs. The ''calculate and generate'' description refers to the processes that competing consolidators will use to create a consolidated market data product from the individual SRO quotation and transaction information they receive. Competing consolidators that receive transaction and quotation information from the individual SROs pursuant to Rule 603(b) and calculate and generate a consolidated market data product for dissemination must register pursuant to Rule 614.

''Unreasonably discriminatory'' is a term used in Section 11A(c)(1)(D) of the Exchange Act.[1015] Section 11A(c)(1)(D) of the Exchange Act states that all exchange members, brokers, dealers, SIPs, and, subject to such limitations that the Commission may impose as necessary or appropriate for the protection of investors or maintenance of fair and orderly markets, all other persons may obtain on terms that are not unreasonably discriminatory such information with respect to quotations for and transactions in any security, other than an exempted security, as is published or distributed by any SRO or SIP. The term ''unreasonably discriminatory'' in Rule 614(d)(3) has the same meaning as in Section 11A(c)(1)(D). With respect to the comment asking about the applicability of this term,[1016] while such determinations are facts and circumstances-based and specific to each individual situation, a competing consolidator should have a reasonable basis for providing a consolidated market data product on different terms to different customers.

(b) Rule 614(d)(4): Timestamping of Consolidated Market Data

(i) Proposal

Proposed Rule 614(d)(4) would require each competing consolidator to timestamp the information collected in proposed Rule 614(d)(1): (i) Upon receipt from each national securities exchange and national securities association at the exchange's or association's data center; (ii) upon receipt of such information at its aggregation mechanism; and (iii) upon dissemination of consolidated market data to customers.

(ii) Final Rule and Response to Comments

The Commission received several comments regarding proposed Rule 614(d)(4).[1017] Three commenters supported the timestamp requirement of the proposed Rule.[1018] One commenter said that market participants could use the originating venue timestamp and the consolidator timestamps to gauge whether the latency meets their needs and whether their best-execution obligations were met.[1019] Another commenter suggested a time granularity of +/− 50 milliseconds or in sub-milliseconds.[1020]

One commenter, however, stated that the proposed rule could create confusion.[1021] This commenter said that multiple quotes with the same timestamp could cause sequencing confusion and suggested that the Commission provide more specificity to address this concern.[1022]

The Commission believes that timestamps are of particular importance in a decentralized consolidation model because competing consolidators will be generating consolidated market data products individually. Market participants must be able to understand the market at the time their orders are represented and executed. Further, timestamps help to ensure that competing consolidators are accurately calculating and disseminating consolidated market data products. Therefore, the Commission is adopting these requirements as proposed.

The exclusive SIPs' timestamp information is similar to what is required of competing consolidators under Rules 614(d)(4)(i) and (iii). The timestamp requirement will allow subscribers to ascertain how quickly the competing consolidator can receive data from the exchanges, transmit that data between the exchange's data center and its aggregation center, and aggregate and disseminate its consolidated market data product to subscribers (its realized latency). The Commission also believes that this information will provide transparency that should help subscribers evaluate a potential competing consolidator or determine whether an existing competing consolidator continues to meet their needs.

The Commission does not think that the addition of timestamps on competing consolidators' consolidated market data products will cause sequencing confusion. Rule 614(d)(4) requires each competing consolidator to affix its own timestamps to the information collected in Rule 614(d)(1): (i) Upon receipt from each SRO at the exchange's or association's data center; (ii) upon receipt of such information at its aggregation mechanism; and (iii) upon dissemination of consolidated market data to customers. As noted above, currently, the exclusive SIPs similarly timestamp information. The timestamp requirement should not introduce any new sequencing confusion. Instead, this timestamping requirement should help subscribers

[1012] *See supra* Section III.B.10.

[1013] *See* Data Boiler Letter I at 52.

[1014] *See* Rule 600(b)(20).

[1015] 15 U.S.C. 78k–1(c)(1)(D). *See also Bloomberg Order, supra* note 22.

[1016] *See* IDS Letter I at 10–11.

[1017] *See* Capital Group Letter at 4; IEX Letter at 8; Data Boiler Letter I at 53; TD Ameritrade Letter at 13.

[1018] *See* Capital Group Letter at 4; IEX Letter at 8; Data Boiler Letter I at 53.

[1019] *See* Capital Group Letter at 4.

[1020] *See* Data Boiler Letter I at 53.

[1021] *See* TD Ameritrade Letter at 13.

[1022] *See id.*

understand a competing consolidator's performance in generating consolidated market data products. Competing consolidators will have different systems to collect, calculate, and disseminate the data they receive from the SROs and their timestamps will help market participants measure latencies.

(c) Rules 614(d)(5) and (6): Monthly Website Publication of Performance and Operational Information

(i) Proposal

Proposed Rule 614(d)(5) required each competing consolidator to publish prominently on its website, within 15 calendar days after the end of each month, certain performance metrics. All information posted pursuant to proposed Rule 614(d)(5) must be publicly posted in downloadable files and must remain free and accessible (without any encumbrances or restrictions) by the general public on the website for a period of not less than three years from the initial date of posting.

In particular, proposed Rule 614(d)(5) required the publication of the following performance metrics: (i) Capacity statistics (such as system tested capacity, system output capacity, total transaction capacity, and total transaction peak capacity); (ii) message rate and total statistics (such as peak output rates on the following bases: 1-millisecond, 10-millisecond, 100-millisecond, 500-millisecond, 1-second, and 5-second); (iii) system availability statistics (for example, whether system up-time has been 100% for the month and cumulative amount of outage time); (iv) network delay statistics (for example, today under a TCP–IP network, network delay statistics would include quote and trade zero window size events, quote and trade TCP retransmit events, and quote and trade message total); and (v) latency statistics (with distribution statistics up to the 99.99th percentile) for (1) when a national securities exchange or national securities association sends an inbound message to a competing consolidator network and when the competing consolidator network receives the inbound message; (2) when the competing consolidator network receives the inbound message and when the competing consolidator network sends the corresponding consolidated message to a subscriber; and (3) when a national securities exchange or national securities association sends an inbound message to a competing consolidator network and when the competing consolidator network sends the corresponding consolidated message to a subscriber.

Proposed Rule 614(d)(6) required each competing consolidator to publish prominently on its website, within 15 calendar days after the end of each month, information on: (i) Data quality issues (such as delayed message publication, publication of duplicative messages, and message inaccuracies); (ii) system issues (such as processing, connectivity, and hardware problems); (iii) any clock synchronization protocol utilized; (iv) for the clocks used to generate the timestamps described in Rule 614(d)(4), clock drift averages and peaks and number of instances of clock drift greater than 100 microseconds; and (v) vendor alerts (such as holiday reminders and testing dates). All information posted pursuant to proposed Rule 614(d)(6) must be publicly posted and must remain free and accessible (without any encumbrances or restrictions) by the general public on the website for a period of not less than three years from the initial date of posting.

(ii) Final Rule and Response to Comments

The Commission received several comments regarding proposed Rules 614(d)(5) and (6).[1023] Five commenters supported the proposed Rules.[1024] One commenter objected to the proposed rules.[1025] One commenter requested guidance from the Commission relating to broker-dealers' use of the required information.[1026]

Several commenters supported requiring competing consolidators to disclose the information required by the proposed rules,[1027] and some commenters said this information would be useful in choosing a competing consolidator.[1028] One commenter said that such transparency could help keep costs down,[1029] and another commenter stated that the publication of performance metrics, in combination with competition, would ''advance the objective of promoting useful and widely available market data for a range of market participants.'' [1030] One commenter indicated that the information and frequency with which it would be provided were acceptable but suggested benchmark testing instead of information disclosures.[1031] The commenter said that benchmark tests would better demonstrate a competing consolidator's capabilities without revealing proprietary information.[1032]

One commenter believed that the requirement to disclose performance statistics as well as provide transparency into the performance of competing consolidator systems would deter potential competing consolidators from registration.[1033] Another commenter asked the Commission to issue guidance outlining a broker-dealer's obligations with respect to review of the monthly performance metrics prior to and after selection of a competing consolidator, and reevaluation of its chosen competing consolidator based on such metrics or other information.[1034]

The Commission is adopting Rules 614(d)(5) and (6) as proposed.[1035] The Commission believes that this information will be useful to market participants in evaluating competing consolidators. The Commission believes that the public disclosure of this information—particularly the system availability and network delay statistics and data quality and system issues—will encourage competing consolidators to provide consolidated market data products in a stable and resilient manner and will allow market participants to hold them accountable for their performance metrics.

The Commission does not believe that these disclosures will deter potential competing consolidators from registering because the disclosures should help competing consolidators to market themselves to potential subscribers. This information will be used by market participants to evaluate

[1023] *See* Clearpool Letter at 9; IntelligentCross Letter at 5; IEX Letter at 8; ACS Execution Services Letter at 6; Data Boiler Letter I at 53; STANY Letter II at 6; FINRA Letter at 5.

[1024] *See* Clearpool Letter at 9; IntelligentCross Letter at 5; IEX Letter at 8; ACS Execution Services Letter at 6; Data Boiler Letter I at 53.

[1025] *See* STANY Letter II at 6.

[1026] *See* FINRA Letter at 5.

[1027] *See* Clearpool Letter at 9; IntelligentCross Letter at 5; IEX Letter at 8.

[1028] *See* IntelligentCross Letter at 5; ACS Execution Services Letter at 6.

[1029] *See* ACS Execution Services Letter at 6.

[1030] IEX Letter at 8.

[1031] *See* Data Boiler Letter I at 53. This commenter did not elaborate on benchmark testing.

[1032] *See id.* The performance and operational information to be provided as required by Rules 614(d)(5) and (6) do not require the disclosure of proprietary information. Rules 614(d)(5) and (6) require the reporting of data that demonstrates how competing consolidators are actually operating which should be directly pertinent to subscribers and potential subscribers of competing consolidators. If competing consolidators believe that benchmark testing would be worthwhile, they can decide on their own to establish benchmark criteria and publish the results of testing, in addition to complying with the requirements of Rules 614(d)(5) and (6).

[1033] *See* STANY Letter II at 6–7.

[1034] *See* FINRA Letter at 5.

[1035] The Commission is adopting Rules 614(d)(5) and (6) with minor technical changes to cite more specifically to the information that must be published by a competing consolidator to its website on a monthly basis.

competing consolidator performance. Competing consolidators could also use these disclosures to evaluate their competitors, which could motivate them to make changes to better serve their subscribers or attract new ones.

Finally, the Commission believes that the information disclosed under these provisions—such as performance statistics, system availability, and data quality issues—can help a broker-dealer assess whether a potential competing consolidator can meet the broker-dealer's performance and operational needs and should help to facilitate a broker-dealer's ability to achieve and analyze best execution.[1036] For these reasons, the Commission encourages these disclosures to be provided in a manner facilitating comparison across competing consolidators and their consolidated market data products.

(d) Rules 614(d)(7) and (8): Maintenance and Provision of Information for Regulatory Purposes

(i) Proposal

Proposed Rule 614(d)(7) required each competing consolidator to keep and preserve at least one copy of all documents, including all correspondence, memoranda, papers, books, notices, accounts, and such other records as shall be made or received by it in the course of its business as such and in the conduct of its business.[1037] The proposed rule required competing consolidators to keep these documents for a period of no less than five years, the first two years in an easily accessible place.

Proposed Rule 614(d)(8) required each competing consolidator to, upon request of any representative of the Commission, promptly furnish to the possession of such representative copies of any documents required to be kept and preserved by it.[1038]

(ii) Final Rule and Response to Comments

The Commission received two comments on proposed Rules 614(d)(7) and (8) from the same commenter.[1039] The commenter stated that the document retention and recording time periods of proposed Rule 614(d)(7) were acceptable.[1040] In response to proposed Rule 614(d)(8), the commenter suggested that the Commission require benchmark testing instead of paper documents.[1041]

The Commission is adopting Rules 614(d)(7) and (8) as proposed. These requirements will facilitate the Commission's oversight of competing consolidators and the national market system. These provisions are similar to those used by the Commission in other contexts.[1042] The Commission does not believe that ''benchmark testing'' is applicable to the Commission's record retention requirements because these requirements address the records to retain, how long to retain them, and to whom the records should be furnished, not how competing consolidators should demonstrate the capability of their systems.[1043]

(e) Form CC

(i) Proposal

The Commission proposed Form CC to require competing consolidators to provide information and/or reports in narrative form to the Commission and to make such information public. The proposed form required a competing consolidator to indicate the purpose for which it is filing the form (*i.e.,* initial report, material amendment, annual amendment, or notice of cessation) and to provide information in four categories: (1) General information, along with contact information; (2) business organization; (3) operational capability; and (4) services and fees. The Commission explained that the requested information would assist the Commission in understanding the competing consolidator's overall business structure, technological reliability, and services offered, and would better ensure consistent disclosures across competing consolidators.

(ii) Final Rule and Response to Comments

The Commission received multiple comments from one commenter on proposed Form CC. In response to the Commission's question as to whether the instructions to Form CC were sufficiently clear, one commenter asked when a Form CC needed to be filed ''in order to give [the] regulator sufficient time to review before authorizing it to operate?'' [1044] Under Rule 614(a)(1)(i), no competing consolidator may receive the data content underlying consolidated market data and generate a consolidated market data product for dissemination unless an initial Form CC has been filed with the Commission and become effective. Therefore, Form CC needs to be filed prior to a competing consolidator beginning operations. Further, as described in Rule 614(a)(1)(iii), the Commission may declare an initial Form CC ineffective no later than 90 calendar days from the date of filing with the Commission.

The Commission also asked whether competing consolidators would bundle their products and/or services and if so, whether this should be required to be disclosed on Form CC. One commenter responded that bundling would be likely but did not specify whether it should be disclosed on Form CC.[1045] Two commenters stated that the Commission should not to allow competing consolidators to link their pricing to other areas of business.[1046]

In the Proposing Release, the Commission stated that the information in Section V of Form CC—which includes Exhibit F (a description of all consolidated market data products), Exhibit G (a description and identification of any fees or charges for the use of the competing consolidator with respect to consolidated market data), and Exhibit H (a description of any co-location and related services, and the terms and conditions for co-location, connectivity and related services)—would assist market participants in determining whether to become a subscriber of a competing consolidator by requiring the availability of information regarding the services offered and fees charged for consolidated market data. The Form CC disclosures will require the disclosure of fees and services related to consolidated market data products that

[1036] *See supra* notes 104–105 and accompanying text.

[1037] *See* Section 17(a)(1) of the Exchange Act, 15 U.S.C. 78q(a)(1).

[1038] In this context, ''promptly'' or ''prompt'' means making reasonable efforts to produce records that are requested by the staff during an examination without delay. The Commission believes that in many cases a competing consolidator could, and therefore will be required to, furnish records immediately or within a few hours of a request. The Commission expects that only in unusual circumstances would a competing consolidator be permitted to delay furnishing records for more than 24 hours. *Accord* Regulation Crowdfunding, Securities Act Release No. 9974, Securities Exchange Act Release No. 76324 (Oct. 30, 2015), 80 FR 71387, 71473 n. 1122 (Nov. 15, 2015) (similarly interpreting the term ''promptly'' in the context of Regulation Crowdfunding Rule 404(e)); Security Based Swap Data Repository Registration, Duties, and Core Principles, Securities Exchange Act Release No. 74246 (Feb. 11, 2015), 80 FR 14438, 14500, n. 846 (Mar. 19, 2015) (similarly interpreting the term ''promptly'' in the context of Exchange Act Rule 13n–7(b)(3)); Registration of Municipal Advisors, Securities Exchange Act Release No. 70462 (Sept. 20, 2013), 78 FR 67468, 67578–79 n. 1347 (Nov. 12, 2013) (similarly interpreting the term ''prompt'' in the context of Exchange Act Rule 15Ba1–8(d)).

[1039] *See* Data Boiler Letter I at 54.

[1040] *Id.*

[1041] *Id.*

[1042] *See* Section 17(a)(1) of the Exchange Act, 15 U.S.C. 78q(a)(1).

[1043] *See supra* note 1032.

[1044] *See* Data Boiler Letter I at 55.

[1045] *See id.* at 56.

[1046] *See* Clearpool Letter at 4; ACS Execution Services Letter at 6.

may be bundled by a competing consolidator. The Commission does not believe that competing consolidators should be prohibited from linking their pricing of consolidated market data products to other areas of their business.[1047] The Commission believes that the transparency resulting from the disclosures provided on Form CC will facilitate competition across similar products and/or services and help to protect market participants from unfair and unreasonable pricing.

Further, the Commission asked whether Form CC should require any additional information or whether any proposed items should be removed. One commenter responded that the NBBO should not be interfered with or influenced by competing consolidators ''with ties to foreign government officials'' and that Form CC should have disclosure of any such ties.[1048] Form CC requires specific information about the owners and operators of a competing consolidator. If a ''foreign government official'' were an owner of 10 percent or more of a competing consolidator's stock or directly or indirectly controls the management of policies of the competing consolidator, such person would have to be identified in Exhibit A to Form CC. If a ''foreign government official'' were an officer, director, governor, or other person performing similar functions for a competing consolidator, such person would have to be identified in Exhibit B to Form CC. These exhibits would provide disclosure of such ties. Further, as discussed above, all competing consolidators will be required to calculate the NBBO as set forth in Rule 600(b)(50).[1049] Competing consolidators could not calculate a NBBO in another manner. All competing consolidators will be regulated entities subject to inspection by Commission staff, which should deter the development of inaccurate NBBOs.

This commenter also suggested a requirement that ''all procedures'' in the section on Operational Capability should exclude proprietary techniques of a competing consolidator.[1050] Exhibit E to Form CC requires a narrative description of each consolidated market data service or function, including connectivity and delivery options for subscribers and a description of all procedures utilized for the collection, processing, distribution, publication, and retention of information with respect to quotations for and transactions in securities. The information provided in Form CC relating to operational capability should contain information that will allow market participants to evaluate potential competing consolidators. It does not require the public disclosure of proprietary information.

The Commission is adopting Form CC substantially as proposed, with modifications to provide for the reporting of systems disruptions or intrusions, as required under Rule 614(d)(9).[1051] Form CC, as adopted, will include new Section VI, which will require a competing consolidator to promptly report whether a systems disruption or intrusion (or both) has occurred, and to provide information regarding the time and duration of the event, the date and time when the competing consolidator had a reasonable basis to conclude that a systems disruption/intrusion had occurred, whether and when the event had been resolved, whether and when the investigation had been closed, and the name of the system(s) involved. The revised Form CC also requires the competing consolidator to attach as Exhibit J all other information regarding the systems disruption or intrusion as required by Rule 614(d)(9)(iii) (including a detailed description, an assessment of those systems potentially affected, a description of the progress of corrective action, and when the event has been or is expected to be resolved). As discussed further below, Rule 614(d)(9) requires a competing consolidator that is not required to comply with Regulation SCI to publicly disseminate certain information regarding systems disruptions and notify the Commission of systems disruptions and systems intrusions.[1052] Exhibit J to Form CC would be publicly available, although Form CC provides for a competing consolidator to request confidential treatment for information relating to a systems intrusion.

In addition, Form CC, as adopted, has been modified to accommodate filing by competing consolidators that are affiliated with an exchange.[1053] Section II of Form CC requires a competing consolidator to report whether it is affiliated with an exchange. Section III of Form CC specifies Form 1 exhibits related to the ownership and leadership of an exchange that may be provided by an exchange-affiliated competing consolidator in lieu of filing Exhibits A and B of Form CC. Specifically, Section III states that a competing consolidator that is affiliated with an exchange may provide Exhibit K of Form 1 relating to owners, shareholders, or partners that are not also members of the exchange in lieu of Exhibit A of Form CC, and Exhibit J of Form 1 relating to officers, governors, members of all standing committees, or persons performing similar functions in lieu of Exhibit B of Form CC. If the competing consolidator chooses not to file Exhibits A and B of Form CC or Exhibits J and K of Form 1, it must certify that the information requested under Exhibits A and B of Form CC is available on an internet website and provide the URL. The Commission believes that permitting the filing of Exhibit J and K of Form 1 would lessen the burden of registration for an exchange-affiliated competing consolidator since this information has already been prepared and reported to the Commission with the affiliated exchange's Form 1.

(iii) Comments on Fees Charged by Competing Consolidators

Under Form CC, competing consolidators are required to disclose the fees they charge to their subscribers for the consolidated market data product services. The Commission received several comments on the fees competing consolidators would charge for their consolidated market data products.[1054] One commenter said that it is unclear how competing consolidators will price their data and whether such prices will be ''reliable, resilient or well-regulated.'' [1055] One commenter stated that the Commission should treat competing consolidator fees similar to SRO proposed fee changes and should publish on its website each amendment to a competing

[1047] In this regard, concerns regarding linked pricing or conditioning availability could exist in the context of a competing consolidator affiliated with a registered broker-dealer that offers execution services to broker-dealer clients. For example, if the registered broker-dealer linked the pricing for, or conditioned the availability of the services of an affiliated competing consolidator to, the execution services offered by the registered broker-dealer to a broker-dealer client, and the registered broker-dealer was an execution venue included on the broker-dealer client's report required by Rule 606(a) of Regulation NMS, the material aspects of such an arrangement must be disclosed by the broker-dealer client pursuant to Rule 606(a)(1)(iv) of Regulation NMS. *See also* Securities Exchange Act Release No. 84528, 83 FR 58338, 58376 n. 397 and accompanying text. In addition, in such a scenario, the broker-dealer client of the registered broker-dealer with an affiliated competing consolidator would continue to be obligated to seek the best execution for its customers' orders. *See supra* Section I.E.

[1048] Data Boiler Letter I at 4.

[1049] *See supra* Section III.B.10.

[1050] Data Boiler Letter I at 55.

[1051] *See infra* Section III.F.

[1052] *See infra* Section III.F and text accompanying notes 1302–1312.

[1053] *See supra* Section III.C.7(a)(iv).

[1054] *See* Clearpool Letter at 4; ACS Execution Services Letter at 5, 6; RBC Letter at 6; TechNet Letter II at 1–2.

[1055] TechNet Letter II at 1–2.

consolidator's fees no later than 30 days after the amendment was filed.[1056] Another commenter suggested requiring competing consolidator price transparency for investors.[1057]

Fees set by competing consolidators for the consolidated market data services they offer will be transparent as they must be disclosed on Exhibit G of Form CC. The Commission expects that competing consolidator fees will reflect the services they provide relating to consolidated market data products, such as collecting, consolidating, generating, and disseminating the products that contain the data underlying consolidated market data. The Commission, however, is not implementing an approval process for competing consolidator fees. Competing consolidators are not SROs and therefore not subject to Section 19(b) of the Exchange Act with respect to their services or fees. The Commission believes that competition, along with disclosure, should be sufficient to establish a fee structure based on market forces. On the other hand, the fees for the data content underlying consolidated market data must be proposed by the effective national market system plan(s) and are required to be submitted to the Commission pursuant to Rule 608.[1058] These fees will be published for public comment and will not become effective until the Commission approves them by order.[1059]

D. Self-Aggregators

1. Proposal

The Commission proposed to amend Regulation NMS to permit broker-dealers to ''self-aggregate'' consolidated market data under the decentralized consolidation model. Under proposed Rule 600(b)(83), a self-aggregator was defined as ''a broker or dealer that receives information with respect to quotations for and transactions in NMS stocks, including all data necessary to generate consolidated market data, and generates consolidated market data solely for internal use. A self-aggregator may not make consolidated market data, or any subset of consolidated market data, available to any other person.''

Under proposed Rule 603(b), the SROs would make available to self-aggregators the data necessary to generate proposed consolidated market data in the same manner and using same methods, including all methods of access and the same format, as other persons, including competing consolidators.[1060] A self-aggregator that limits its use of SRO data to the creation of proposed consolidated market data would be charged only for proposed consolidated market data pursuant to the fee schedules set forth by the effective national market system plan(s).[1061] A self-aggregator that uses an exchange's proprietary data (*e.g.,* full depth of book data) would be charged separately for the proprietary data use pursuant to the individual exchange's fee schedule.[1062]

2. Final Rule and Response to Comments

For the reasons discussed below, the Commission is revising the definition of self-aggregator. Adopted Rule 600(b)(83) defines a self-aggregator as a broker or dealer, national securities exchange, national securities association, or investment adviser registered with the Commission that receives information with respect to quotations for and transactions in NMS stocks, including all data necessary to generate consolidated market data, and generates consolidated market data solely for internal use. A self-aggregator may make consolidated market data available to its affiliates that are registered with the Commission for their internal use. Except as provided in the preceding sentence, a self-aggregator may not disseminate or otherwise make available consolidated market data, or components of consolidated market data, as provided in § 242.600(b)(20), to any person.

(a) Scope of the Definition of Self-Aggregator

(i) National Securities Exchanges and National Securities Associations

The Commission requested comment on several questions relating to self-aggregators, including whether entities other than broker-dealers should be allowed to act as self-aggregators.[1063] One commenter argued that exchanges should be permitted to act as self-aggregators of consolidated market data because they use data to aid in matching trades or routing orders to other markets through their affiliated routing brokers.[1064] Another commenter stated that exchanges must receive and process data to comply with Regulation NMS and that allowing exchanges to act as self-aggregators would provide exchanges with flexibility to use NMS data made available by the SROs or exchange proprietary data products.[1065]

The national securities exchanges are SROs registered with and overseen by the Commission. The national securities exchanges currently aggregate market data obtained from the exclusive SIPs and from proprietary data feeds to perform several exchange functions, including order handling and execution, order routing, and regulatory compliance.[1066] Among other things, exchanges must determine protected quotations on other markets for purposes of complying with order protection requirements of Rule 611 and the locked and crossed markets prohibition in Rule 610(d), including identifying where to route intermarket sweep orders.[1067] Exchanges also must know the NBBO for purposes of order types that are priced based on the NBBO, and must determine the NBB for purposes of complying with Rule 201 of Regulation SHO. To help exchanges perform these functions, the Commission believes that national securities exchanges should be permitted to act as self-aggregators. As self-aggregators, national securities

[1056] *See* Clearpool Letter at 4. *See also* ACS Execution Services Letter at 5 (stating that requiring competing consolidator fees to be subject to Commission approval would potentially reduce uncertainty about the cost of consolidated market data).

[1057] *See* RBC Letter at 6.

[1058] *See infra* Section III.E.

[1059] *See* Effective-Upon-Filing Adopting Release, *supra* note 17.

[1060] *See supra* Section III.B.9.

[1061] *See infra* Section III.E. for a discussion of the effective national market system plan(s).

[1062] SRO fees for market data other than the proposed consolidated market data would be subject to the rule filing process pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder.

[1063] *See* Proposing Release, 85 FR at 16791.

[1064] *See* IEX Letter at 9. *See also* NYSE Letter II at 18 (stating that the Commission had not explained why SROs would not be permitted to continue to consolidate data obtained directly from other SROs).

[1065] *See* MEMX Letter at 7.

[1066] *See, e.g.,* Securities Exchange Act Release Nos. 72685 (July 28, 2014), 79 FR 44889 (Aug. 1, 2014) (notice of filing and immediate effectiveness of File No. SR–BATS–2014–082); 72687 (July 28, 2014), 79 FR 44926 (Aug. 1, 2014) (notice of filing and immediate effectiveness of BYX–2014–012); 72684 (July 28, 2014), 79 FR 44956 (Aug. 1, 2014) (notice of filing and immediate effectiveness of File No. SR–NASDAQ–2014–072); and 72708 (July 29, 2014), 79 FR 45572 (Aug. 5, 2014) (notice of filing and immediate effectiveness of File No. SR–NYSEArca–2014–82). *See also* IEX Rule Series 11.400.

[1067] An intermarket sweep order is a limit order for an NMS stock that meets the following requirements: (i) When routed to a trading center, the limit order is identified as an intermarket sweep order; and (ii) Simultaneously with the routing of the limit order identified as an intermarket sweep order, one or more additional limit orders, as necessary, are routed to execute against the full displayed size of any protected bid, in the case of a limit order to sell, or the full displayed size of any protected offer, in the case of a limit order to buy, for the NMS stock with a price that is superior to the limit price of the limit order identified as an intermarket sweep order. These additional routed orders also must be marked as intermarket sweep orders. *See* 17 CFR 242.600(b)(38) (Rule 600(b)(38)) of Regulation NMS.

exchanges will have the flexibility to determine the optimal means for obtaining the market data they require to fulfill their regulatory obligations.

One commenter recommended that exchanges be permitted to act as self-aggregators for purposes of consolidated market data used to aid in matching trades or routing orders to other markets through their affiliated routing brokers.[1068] The Commission believes that national securities exchanges may route orders to away markets, primarily through affiliated brokers that act as a facilities of the exchange and are subject to exchange rules.[1069] Because a broker-dealer used by an exchange for order routing is a facility of the exchange, an exchange's use of consolidated market data to route orders through an affiliated broker-dealer generally would be an ''internal use'' of consolidated market data by the exchange. An exchange that routes orders using an unaffiliated broker-dealer would not provide that unaffiliated broker-dealer with consolidated market data. The Commission understands that the exchange would either send the routing broker a directed order or would allow the broker to make the routing decision. In either case, the exchange would not provide the unaffiliated routing broker with consolidated market data for purposes of routing orders.

Like the national securities exchanges, FINRA is an SRO registered with and overseen by the Commission. FINRA requires market data to perform its regulatory oversight functions, including surveillance of the U.S. equity and options markets. The Commission believes that FINRA should have the same flexibility as the national securities exchanges to determine how it will obtain consolidated market data. Accordingly, the Commission is modifying the proposed definition of self-aggregator to include national securities associations as well as national securities exchanges.

(ii) Investment Advisers and Other Market Participants

Some commenters argued that entities other than broker-dealers should be permitted to be self-aggregators.[1070] One commenter, a proprietary trading firm, stated that because self-aggregated data would only be used internally, it did not appear to be necessary for a self-aggregator to be a broker-dealer.[1071] The commenter further stated that ''the primary ability needed to act as a self-aggregator is technical skill, whereas the qualifications of a broker dealer are primarily financial, regulatory, and legal.'' [1072] The commenter also suggested that permitting additional entities to act as self-aggregators would help to promote competitive forces.[1073] One commenter stated that preventing registered investment advisers and other non-broker-dealer direct consumers of market data from acting as self-aggregators would be as disruptive to the current market data infrastructure as preventing broker-dealers from self-aggregating market data for their own use.[1074] This commenter further stated that many non-broker-dealer market participants currently subscribe directly to proprietary data feeds from exchanges to facilitate their trading activity and reduce latency.[1075]

Market participants that currently self-aggregate consolidated market data using the exchanges' proprietary data feeds will be able to continue to do so under the adopted rules. Broker-dealers were not proposed to be permitted to act as self-aggregators because of their technical ability to consolidate market data but because of the important functions they perform in the national market system. Broker-dealers are the only entities that can be members and direct customers of exchanges. Broker-dealers execute customer orders and are subject to specific requirements under Regulation NMS related to the routing and execution of orders in the national market system, including Rules 611 and 610(d). In addition, broker-dealers are subject to the duty of best execution, which requires a broker-dealer to seek to obtain the most favorable terms available under the circumstances for its customer orders.[1076] Broker-dealers also are subject to FINRA rules requiring them to use reasonable diligence to ascertain the best market for a security and to buy or sell in that market so that the resultant price to the customer is as favorable as possible under prevailing market conditions.[1077] Broker-dealers use consolidated market data to fulfill these regulatory obligations, and allowing broker-dealers to act as self-aggregators could assist them in fulfilling these obligations.

With respect to the commenter's assertion that allowing additional non-registered entities to act as self-aggregators would promote competitive forces, the Commission believes that the presence of competing consolidators will foster a competitive environment for consolidated market data. However, the Commission believes that certain non-broker-dealers should also be permitted to act as self-aggregators, including RIAs and, as discussed above, SROs. Today, some RIAs may aggregate consolidated market data to facilitate their electronic trading systems or strategies. The Commission believes that RIAs, which are subject to Commission oversight and examination, should continue to be allowed to act as self-aggregators to enable them to continue to consolidate data for their trading strategies if they so choose.[1078]

(iii) Self-Aggregators and Market Data Vendors

The Proposing Release stated that ''[a] vendor providing hardware, software, and/or other services for the purposes of self-aggregation would not be a competing consolidator unless it collected and aggregated proposed consolidated market data in a standardized format within its own facility (*e.g.,* not that of a broker-dealer customer) and resold that configuration of proposed consolidated market data to a customer.'' [1079] One commenter stated that the definition of self-aggregator could be flawed.[1080] The commenter asked whether aggregating consolidated market data in a public cloud would be a self-aggregator's own facility, what constituted a standard format, and whether reselling a variated version of consolidated market data would be permitted.[1081] The commenter suggested that competing consolidators might not be able to earn a reasonable return on their investment and that the proposal was unfair to competing

[1068] The commenter noted that routing broker-dealers do not aggregate data themselves but receive it from their affiliated exchanges. *See* IEX Letter at 9.

[1069] A broker-dealer that an exchange uses for outbound order routing generally is regulated as a facility of the exchange. *See* Securities Exchange Act Release No. 63241 (Nov. 3, 2010), 75 FR 69792, 69799 (Nov. 15, 2010) (stating that, in general, the outbound order routing service provided to exchanges by broker-dealers is regulated as a facility of the exchange).

[1070] *See, e.g.,* MFA Letter; AHSAT Letter.

[1071] *See* AHSAT Letter at 3.

[1072] *Id.*

[1073] *See id. See also* IEX Letter at 9 (stating that the ability of broker-dealers to self-aggregate will spur innovation by competing consolidators, which will be motivated to differentiate their services and deliver market data as efficiently as possible).

[1074] *See* MFA Letter at 3–4.

[1075] *See id.* at 4.

[1076] *See* Securities Exchange Act Release No. 51808 (June 5, 2005), 70 FR 37496, 37537–38. *See also* Securities Exchange Act Release No. 37619A (Sept. 6, 1996), 61 FR 48290 (Sept. 12, 1996); *supra* Section I.E.

[1077] *See* FINRA Rule 5310, ''Best Execution and Interpositioning.''

[1078] In addition, RIAs are fiduciaries to their advisory clients, with a fundamental obligation to act in the best interests of their clients and to provide investment advice in their clients' best interests. RIAs also must seek to obtain the best price and execution for the securities transactions of their advisory clients.

[1079] Proposing Release, 85 FR at 16790.

[1080] *See* Data Boiler Letter I at 59.

[1081] *See id.*

consolidators and biased towards self-aggregators.[1082] The commenter also questioned whether market data vendors would be self-aggregators and urged the Commission to respect the commercial autonomy of private data vendors.[1083]

Under Rule 600(b)(83), as adopted, a self-aggregator may use consolidated market data solely for its internal use. A market data vendor could not be a self-aggregator because its function is to disseminate data to its subscribers.[1084] With respect to the commenter's question regarding the sale of a variated version of consolidated market data, as discussed in the Proposing Release, a self-aggregator that redistributed or re-disseminated consolidated market data, or any subset of proposed consolidated market data, would be performing the functions of a competing consolidator and would be required to register as a competing consolidator.[1085] With respect to the commenter's question regarding whether a vendor aggregating consolidated market data in a public cloud would be using its own facility, the Commission believes it would to the extent the vendor is contracting for its own use of the public cloud, but not if the vendor is contracting on behalf of individual self-aggregator customers. However, the determination of whether a vendor is facilitating its customer's self-aggregation or is acting as a competing consolidator will depend on an assessment of the individual facts and circumstances of its business and its arrangements with its customers. In this regard, the Commission believes that a key factor in this determination will be the degree of customization in the product or service that the vendor provides because a highly customized product or service would suggest that the vendor is fulfilling the highly specialized and specific needs of its client. Thus, a vendor that provides meaningfully customized products or services to its customers likely would be facilitating its customer's self-aggregation and not acting as a competing consolidator.[1086] A vendor that provides a standardized consolidated market data product to its customers, however, likely would be acting as a competing consolidator. With respect to the comment regarding a competing consolidator's ability to make a return on its investment, the viability of the decentralized model is discussed in Section III.B.3, *supra.*

(b) Permitted Uses of Self-Aggregated Data

(i) Sharing Consolidated Market Data With Affiliates

The Commission requested comment on whether the restriction preventing self-aggregators from providing consolidated market data or a subset thereof to customers or affiliates reflected a significant departure from current practices.[1087] One commenter stated that broker-dealers that self-aggregate typically share consolidated market data with affiliates,[1088] and another stated that requiring self-aggregators either to register as competing consolidators or to maintain separate and redundant market data sets for each affiliated entity could be costly and disruptive.[1089] Some commenters recommended that the Commission allow self-aggregators to share market data with affiliated entities to avoid significant changes to how firms currently consume and manage data.[1090] One commenter stated that the proposal would raise costs for firms affiliated with a self-aggregator,[1091] and another stated that requiring each affiliated entity to aggregate and build its own market data systems would be a needless drain of resources.[1092] This commenter further stated that self-aggregators should be permitted to share self-aggregated data with their affiliates because a market maker should be able to know when facilitating interest for an agency affiliate that its view of the quoted market is consistent with that of the affiliate.[1093] Another commenter suggested that the Commission allow self-aggregators to use consolidated market data in handling and routing orders on behalf of the broker-dealer's customers, including in cases where customer business is conducted through an affiliate, without being required to pay separate fees for that purpose.[1094] However, one commenter stated that permitting a self-aggregator to disseminate consolidated market data to its affiliates would allow the self-aggregator to perform the function of a competing consolidator without the burdens of being a competing consolidator.[1095]

The Commission believes that self-aggregators should be permitted, as an internal use, to make consolidated market data available to their affiliates that are registered with the Commission. A broker-dealer or RIA that is affiliated with a self-aggregator may require consolidated market data to fulfill its regulatory obligations, as described above. In addition, as noted above, the Commission has the authority to examine the registered affiliated entities of a self-aggregator and would be able to determine how the self-aggregator provides consolidated market data to a registered affiliate and how the registered affiliate uses that data. Therefore, a self-aggregator will be permitted to share consolidated market data only with affiliates that are registered with the Commission.

An affiliate of a self-aggregator that is not registered with the Commission, however, may not have the same regulatory obligations as registered entities,[1096] and the Commission does not have the authority to examine a self-aggregator's unregistered affiliates. In

[1082] *See id.*

[1083] *See id.* at 60.

[1084] *See also supra* Section III.C.7(a)(iii) for a discussion of data vendors and competing consolidator registration.

[1085] *See* Proposing Release, 85 FR at 16790.

[1086] *See* Proposing Release, 85 FR at 16790.

[1087] *See id.* at 16791.

[1088] *See* SIFMA Letter at 12.

[1089] *See* FIA–PTG Letter at 1–2. *See also* SIFMA Letter at 12 (broker-dealers should be able to continue their established practice of sharing consolidated market data with affiliated entities rather than being required to register as competing consolidators or to develop and maintain redundant consolidated data sets for each affiliate user within the organization); Susquehanna Letter at 5 (precluding self-aggregating broker-dealers from sharing market data with affiliates would be a ''significant departure from current practices'' and ''unnecessarily disruptive to the current market data infrastructure landscape'').

[1090] *See* SIFMA Letter at 12. *See also* STANY Letter II at 7 (stating that self-aggregators should include broker-dealer affiliated organizations to avoid significant changes to how firms currently consume and manage data).

[1091] *See* MFA Letter at 5.

[1092] *See* Susquehanna Letter at 5. In addition, the commenter argued that ''self-aggregator organizations should not be faced with the disruptive and needlessly costly and burdensome choice of (1) developing and maintaining redundant consolidated data sets for each respective user within the organization, (2) registering as a CC and assum[ing] the related obligations and liabilities even though it never wanted to be in that business, or (3) subscribing to the outside services of registered CCs (again on a redundant basis for each entity within the organization), whose quality and/or cost efficiency may be less, and over whom such organization would have less control to customize or improve services, or to remediate problems.'' *Id.* at 6.

[1093] *See* Susquehanna Letter at 4.

[1094] *See* IEX Letter at 9. One commenter expressed the view that sharing consolidated market data within a single affiliated entity organization, under common beneficial ownership and senior hierarchical management, is not performing the functions of a competing consolidator because the consolidated market data is not intended for public dissemination in connection with commercial competition of exchange data feeds. *See* Susquehanna Letter at 5–6.

[1095] *See* Data Boiler Letter I at 60.

[1096] For example, broker-dealers execute customer orders and must comply with Regulation NMS related to the routing and execution of orders in the national market system, including Rules 611 and 610(d). In addition, broker-dealers are subject to the duty of best execution. RIAs and SROs also have regulatory obligations, as discussed above in Sections III.D.2(a)(ii) and III.D.2(a)(i), respectively.

addition, as discussed above, the Commission believes the widespread dissemination of consolidated market data must be subject to Commission oversight and, accordingly, must be performed by competing consolidators. Competing consolidators will be subject to the registration, disclosure, and other regulatory requirements in Rule 614 and Form CC.[1097]

(ii) Sharing Consolidated Market Data With Customers

Several commenters stated that broker-dealers that self-aggregate should be permitted to display their self-aggregated data to their customers without registering as a competing consolidator or becoming a Regulation SCI entity.[1098] One commenter stated that if brokers are not permitted to share consolidated market data with their customers, proprietary traders and high frequency firms would add to their significant data cost advantage over retail investors and the two-tiered data system would be preserved.[1099] The commenter further stated that the Commission should allow self-aggregators to display consolidated market data to their customers to encourage competition among the competing consolidators, enable retail investor access to data with the least amount of latency without additional cost, and allow broker-dealers to share with their customers the same view of the same core data.[1100] Another commenter stated that registered broker-dealers should be allowed to share self-aggregated consolidated market data with their brokerage clients without registering as competing consolidators, noting that the benefits of Regulation SCI compliance are ''inherent in the registered broker-dealer regulatory regime for continuity of operations and display of the data.'' [1101]

Under the amendments, self-aggregators will not be permitted to disseminate or otherwise share or make available consolidated market data to any persons, including their customers or clients.[1102] The dissemination of consolidated market data entails a different process from self-aggregating consolidated market data for internal uses (*e.g.,* for order handling, routing, and execution). Self-aggregators are not subject to the regulatory regime established for competing consolidators, which is designed to ensure that consolidated market data is reliable, resilient, and accurate. The Commission believes that entities that deliver consolidated market data to third parties should be subject to such standards.[1103]

The Commission believes that investors and other non-registered entities should receive consolidated market data from entities that are subject to a regulatory regime that is designed to ensure the data they receive is reliable, resilient, and accurate and that they are able to assess such reliability, resiliency, and accuracy on an ongoing basis. Self-aggregators are not subject to such standards or requirements and therefore will not be permitted to disseminate or otherwise make available self-aggregated consolidated market data with customers, clients, or non-registered affiliates.

(c) Self-Aggregators and Market Data Fees

One commenter stated that exchanges seeking the business of self-aggregators might offer ''enterprise license'' pricing packages that would allow a firm and all of its affiliates to receive proprietary data for one price, effectively allowing the self-aggregator to share data with its affiliates.[1104] An exchange seeking to establish ''enterprise license'' pricing packages for proprietary data would be required to file those proposed fees with the Commission pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder, and such fees must satisfy the statutory standards of being an equitable allocation of reasonable fees, dues, and other charges,[1105] not being unfairly discriminatory,[1106] and not an undue burden on competition.[1107]

(d) Two-Tiered Market and Potential Advantages of Self-Aggregators

The Commission requested comment on the potential latency advantage of self-aggregators.[1108] One commenter stated that self-aggregators' latency advantage would not be material.[1109] In contrast, another commenter stated that the latency advantage would not be minor, given the time increments currently used in the market and the likelihood of finer increments over time.[1110] The commenter questioned whether the Commission had considered eliminating the self-aggregator category and requiring all market participants to receive data from one or more competing consolidators, or requiring SROs to delay the provision of data to match the latencies introduced by competing consolidators.[1111] One

[1097] *See supra* Section III.C.7(a)(iv).

[1098] *See* SIFMA Letter at 12 (stating that broker-dealers that self-aggregate should be permitted to display their data to their customers, subject to the requirements of the Vendor Display Rule, without being required to register as a competing consolidator or Regulation SCI entity); TD Ameritrade Letter at 12 (stating that registered broker-dealers should be allowed to use self-aggregated consolidated market data for display to their brokerage clients, without further sale or redistribution to unaffiliated third parties; the proposal would require a broker-dealer self-aggregator that wishes to provide its self-aggregated data to its clients to invest time and resources into becoming a competing consolidator compliant with Regulation SCI requirements, or to buy consolidated market data from competing consolidators for display purposes); Schwab Letter at 2, 6–7 (stating that self-aggregators should be allowed to share consolidated data with their customers on a not-for-profit and non-redistribution basis, but not with external parties, and should not be required to comply with Regulation SCI because they are not holding themselves out as a ''public utility'').

[1099] *See* Schwab Letter at 7. *See also* TD Ameritrade Letter at 11–12 (stating that the internal-use limitation on self-aggregated data could disadvantage retail investors because a broker-dealer would be compelled to purchase consolidated data from a competing consolidator, and those able to pay the competing consolidator for faster speeds could ''get to the market'' more quickly).

[1100] *See* Schwab Letter at 6.

[1101] TD Ameritrade Letter at 12. The commenter noted that broker-dealers are subject to FINRA Rule 4370 (establishing requirements for designing business continuity plans which require data backup and recovery, mission critical systems, and alternate location requirements, among others) and FINRA Rule 4380 (requiring mandatory participation in FINRA business continuity and disaster recovery (''BC/DR'') Testing under Regulation SCI if determined necessary by FINRA). *See id.* at n. 36.

[1102] The Commission has revised the definition of self-aggregator to further clarify that a self-aggregator may not disseminate or otherwise make available consolidated market data, or components of consolidated market data, as provided in § 242.600(b)(20), to any person other than an affiliate that is registered with the Commission.

[1103] Competing consolidators will be registered with the Commission and will be subject to systems integrity and operational capability standards that will help to ensure the accuracy and availability of the consolidated market data that they produce. *See infra* Section III.F. Competing consolidators also will have certain responsibilities and obligations, including obligations to disclose publicly operational information and performance metrics, which will help to ensure transparency, accountability, and oversight, and obligations to ensure the integrity, quality, and resiliency of consolidated market data. *See supra* Section III.C.8. Self-aggregators, by contrast, will not be subject to similar requirements in the collection, consolidation, or generation of consolidated market data because they will not disseminate consolidated market data or otherwise make consolidated market data available to persons other than affiliates registered with the Commission.

[1104] Nasdaq Letter IV at 57, n. 80.

[1105] Section 6(b)(4) of the Exchange Act.

[1106] Section 6(b)(5) of the Exchange Act. *See also* Rule 603 of Regulation NMS.

[1107] Section 6(b)(8) of the Exchange Act.

[1108] *See* Proposing Release, 85 FR at 16791.

[1109] *See* Clearpool Letter at 10.

[1110] *See* FINRA Letter at 8. *See also* Data Boiler Letter I at 59 (stating that the latency advantage would be material).

[1111] *See* FINRA Letter at 8–9. *See also* Angel Letter at 8 (suggesting that the Commission embargo the exchanges from releasing any data until the consolidators have had sufficient time to process the data to create a more level playing field); Healthy Markets Letter at 3 (suggesting that the Commission remove the latency advantage of exchange proprietary data feeds by requiring all

Continued

commenter stated that, because of ''the additional inherent latency in third-party aggregation,'' it is unlikely that broker-dealer algorithms would be competitive without self-aggregation.[1112] Another commenter stated that the proposal would create a tiered market in which broker-dealers have systematically better and more timely access to market data than registered investment advisers and noted that self-aggregators would have both a speed and potential cost advantage over those who receive consolidated market data from competing consolidators.[1113] Other commenters similarly argued that the proposal would create a two-tiered market data system comprising self-aggregators and those who receive data from competing consolidators.[1114]

The Commission acknowledges that, unlike self-aggregators, competing consolidators would need to transmit consolidated market data to their customers, but does not believe that this would lead to the development of a two-tiered market. Latency sensitive customers of competing consolidators are likely to be co-located in the same data centers as their competing consolidators, so the transmission time between the servers of the competing consolidator and its customer will be exceedingly small. In many cases, self-aggregators may be located in the same data centers, and the potential latency differential between a self-aggregator and competing consolidator resulting from the extra hop that competing consolidators add to the process of data consolidation and dissemination could amount only to the period of time it takes to send a message from one server (*i.e.,* a competing consolidator's server) that is located in close proximity to another server (*i.e.,* a subscriber's server) and connected via a cross connect.

The Commission expects that market participants that elect to aggregate consolidated market data, whether competing consolidators or self-aggregators, will innovate and compete aggressively on the efficiency and cost-effectiveness of their aggregation technologies. The Commission believes that the development and implementation of the technology to collect, consolidate, and generate consolidated market data will create opportunities for latency efficiencies that are of substantially greater magnitude than the transmission time between the server of a competing consolidator and its customer. Competing consolidators, for example, may benefit from economies of scale that allow them to offer a very low-latency product more cost effectively that an individual self-aggregator. In some cases, a competing consolidator may have a latency or cost advantage, and in others a self-aggregator may have such advantages.[1115] Competition may also impact the efficiency of choices.[1116] Therefore, the Commission does not believe that self-aggregators would necessarily have a systematic latency advantage over customers of competing consolidators.

(e) Fees Charged by Competing Consolidators

One commenter recommended that the Commission implement a mechanism for it to review or abrogate fees charged by competing consolidators to ensure that consolidated market data is available on terms that are fair and reasonable (*i.e.,* reasonably related to costs) if non-broker-dealers are not permitted to act as self-aggregators.[1117] As discussed above, competing consolidator fees will be disclosed on Exhibit G to Form CC. The Commission believes that competition among competing consolidators, along with disclosure, will help to ensure that the fees charged by competing consolidators are fair and reasonable. The fees for the data content underlying consolidated market data established by the Equity Data Plan(s) will be filed under Rule 608 and must comply with statutory standards.[1118]

E. Amendment to the Effective National Market System Plan(s) for NMS Stocks Under Rule 614(e)

The effective national market system plan(s) for NMS stocks will continue to play an important but modified role in the provision of consolidated market data to market participants.[1119] Today, the Equity Data Plans operate the exclusive SIPs and therefore, directly collect, consolidate, and disseminate SIP data. Under the decentralized consolidation model, the effective national market system plan(s) for NMS stocks will no longer operate the exclusive SIPs and therefore, will not be directly responsible for collecting, consolidating, and disseminating consolidated market data. The plan(s) will, however, continue to develop and oversee the national market system for consolidated market data.

1. Proposal

The Commission proposed Rule 614(e), to require the participants to the effective national market system plan(s) for NMS stocks to file an amendment to such plan(s) to reflect the decentralized consolidation model and the new role and functions of the plan(s). The Commission proposed several specific provisions to be included in the amendment, including (1) the proposed fees to be charged by the plan(s) for the data content underlying consolidated market data, (2) a requirement under the plan(s) for the application of timestamps by the SROs to the data content underlying consolidated market data, (3) a requirement under the plan for the completion of annual assessments by the plan participants of the performance of competing consolidators, and (4) a requirement for the development a list of the primary listing markets for each NMS stock. In addition, under proposed Rule 614(d)(5), the plan(s) would be required to develop the monthly performance metrics for competing consolidators. As proposed, the participants would be required to file this amendment pursuant to Rule 608 within 60 calendar days from the effective date of Rule 614.

2. Final Rule and Response to Comments

The Commission continues to believe in the importance of the use of effective

market participants to receive data from SIP distributors).

[1112] *See* NBIM Letter at 4.

[1113] The commenter stated that self-aggregators would be able to receive the data necessary to generate consolidated market data at the price established by the effective national market system plan(s), while market participants that receive consolidated market data from competing consolidators might have to pay a premium over that amount to compensate the competing consolidator for its services. *See* MFA Letter at 4.

[1114] *See, e.g.,* FINRA Letter at 8; NYSE Letter II at 23 (stating that the proposal would continue the two-tiered structure, with participants that can afford to act as self-aggregators able to obtain and use that data faster than those relying on competing consolidators); STANY Letter II at 6 (stating that the proposal would replace the existing two-tiered structure between SIPs and proprietary data feeds with, at minimum, a different two-tiered structure between self-aggregators and competing consolidators); Nasdaq Letter IV at 3 (stating that self-aggregation would add market-wide disparities in terms of data content and speed).

[1115] Self-aggregators could have a cost advantage over market participants that receive consolidated market data from a competing consolidator because self-aggregators will not be required to compensate a competing consolidator for its services. At the same time, a self-aggregator will need to have the systems capability to collect, consolidate, and generate consolidated market data, and it may use a vendor to establish connectivity to an SRO or to perform aggregation or other functions necessary for generating consolidated market data. As a result, any potential cost advantage of a self-aggregator over market participants that purchase consolidated market data from competing consolidators may not be significant.

[1116] *See infra* Section V.C.4(b).

[1117] *See* MFA Letter at 5.

[1118] *See infra* Section III.E.2(c).

[1119] *See* Governance Order, *infra* note 1128.

national market system plan(s) in the planning, development, operation, and regulation of the national market system for the dissemination of consolidated market data. The Commission believes that joint consideration by the SROs and other market participants on the Operating Committee of such plan(s) will help to foster a consolidated market data national market system that is prompt, accurate, reliable, and fair and furthers the goal of helping to ensure that the consolidated market data remains useful to investors in the future.

The Commission received several comments on proposed Rule 614(e) and the role of the effective national market system plan(s) in the decentralized consolidation model.[1120] One commenter questioned the need for the effective national market system plan(s) saying that retention of the plan(s) was ''illogical'' as the SROs would no longer be responsible for jointly disseminating data.[1121] This commenter described the current responsibility of the Operating Committees to include ''entering into agreements with the exclusive processors, overseeing the operation of the exclusive processors, establishing the fees for the consolidated data disseminated by the exclusive processors, and overseeing the functions of the Administrators, which manage the subscriber agreements, collect fees and distribute revenue to SROs.'' [1122] Another commenter stated that the proposal would increase the power of the Operating Committee over the ''market for market data.'' [1123]

The Commission continues to believe that the SROs should have joint responsibilities and should continue to have an important role in developing, operating, and regulating the national market system for the dissemination of consolidated market data. Therefore, Rule 603(b) requires the SROs to act jointly pursuant to one or more effective national market system plans for the dissemination of consolidated market data. As noted, the plan(s) will be responsible for: (1) Developing the fees for the data content underlying consolidated market data; (2) the billing and the audit process; (3) establishing the multiple installations, single users (''MISU'') policy; [1124] (4) allocating revenue to the SRO participants that is collected for the data content underlying consolidated market data; (5) considering additional regulatory, administrative, or self-regulatory organization-specific program data elements that may be included as consolidated market data in the future; [1125] (6) developing the list of primary listing exchanges; (7) developing the monthly performance metrics for competing consolidators; (8) assessing the operation of the decentralized consolidation model; and (9) developing an annual report that assesses competing consolidator performance for provision to the Commission. The Operating Committee is equipped under the plan(s) to develop the policies and rules necessary for developing, operating, and regulating the national market system for the dissemination of consolidated market data to market participants, subject to Commission oversight under Rule 608.

While the SROs may not be acting jointly in operating the exclusive SIPs, they will continue to act jointly in planning, developing, and regulating the national market system for the provision of consolidated market data. These are important responsibilities for the operation of the national market system and the Commission believes that the national market system plan structure continues to be an efficient and necessary mechanism. Section 11A(a)(3)(B) of the Exchange Act authorizes the Commission, by rule or order, to require the SROs to act jointly with respect to matters as to which they share authority in planning, developing, operating, or regulating a national market system (or subsystem thereof) or one or more facilities thereof to facilitate the establishment of a national market system.

Rule 614(e) requires the effective national market system plan(s) to file an amendment to conform the plan(s) to the decentralized consolidation model, including several specified provisions.[1126] The Commission is extending the date of the filing for the participants to the effective national market system plan(s) to file the amendment to the plan from within 60 calendar days to within 150 calendar days, after the effectiveness of Rule 614. The additional time will allow the Operating Committee of the existing Equity Data Plans or of the New Consolidated Data Plan (if it has replaced the existing plans) to develop and file the plan amendment.

The Commission is adopting Rule 614(e) substantially as proposed with modifications to account for the establishment of a Regulation SCI competing consolidator threshold, which is discussed below,[1127] to require the SROs to apply time stamps to the data content underlying consolidated market data, and for the Commission to make public the annual assessment on the Commission's website. Further, the Commission received other comments on Rule 614(e) and the required amendment. These comments are discussed below.

(a) Governance Order

On May 6, 2020, the Commission issued an order directing the SROs to develop and file with the Commission a new effective national market system plan that would combine the existing three Equity Data Plans into single national market system plan, the New Consolidated Data Plan.[1128] The New Consolidated Data Plan was filed with the Commission pursuant to Rule 608 on August 11, 2020, and contains several provisions related to its governance that are not in the existing Equity Data Plan, including establishing a new Operating Committee structure

[1120] *See* NYSE Letter II; Nasdaq Letter IV; Better Markets Letter.

[1121] NYSE Letter II at 26.

[1122] *Id.* at 27.

[1123] Nasdaq Letter IV at 34. This commenter stated that the Operating Committee would set fees for ''the sale of any proprietary data products of the exchanges that provide any of the newly defined 'core data.' '' *Id.* The Operating Committee will not be setting fees for proprietary data products. The Operating Committee will be required to develop the fees for data content underlying consolidated market data and subsets of consolidated market data. Subject to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder, each exchange would be responsible for establishing fees for its proprietary market data. While some proprietary DOB products may be provided by the exchanges to competing consolidators and self-aggregators for purposes of complying with Rule 603(b), the exchanges will have to develop fees for their proprietary data and the Operating Committee will have to develop the fees for the data content underlying consolidated market data. *See also supra* Section III.B.9(b).

[1124] MISU policies seek to ensure that a single device fee is applied to a data user that receives consolidated market data on multiple display devices. *See, e.g.,* CTA, CTA Multiple Installations for Single Users (MISU) Policy (Apr. 2016), *available at https://www.ctaplan.com/publicdocs/ctaplan/notifications/trader-update/Policy%20-%20MISU%20with%20FAQ.pdf.* MISU policies will need to be conformed in the decentralized consolidation model to reflect that consolidated market data users may seek to receive consolidated market data through more than one competing consolidator and/or access through multiple devices.

[1125] *See* 17 CFR 242.600(b)(19)(v) (Rule 600(b)(19)(v)).

[1126] The amendment required by Rule 614(e) does not require the plan(s) to include provisions to decommission the exclusive SIPs. The exclusive SIPs will continue to collect, consolidate and disseminate SIP data through the transition period. *See infra* Section III.H.

[1127] *See infra* Section III.F (discussing amendment to Rule 1000 of Regulation SCI to apply to competing consolidators exceeding a specified threshold and the adoption of Rule 614(d)(9) establishing a tailored set of operational capability and resiliency obligations to all competing consolidators during the transition period and to other competing consolidators below a threshold thereafter).

[1128] *See* Securities Exchange Act Release No. 88827 (May 6, 2020), 85 FR 28702 (May 13, 2020) (''Governance Order'').

with non-SRO members, a new voting structure for SRO members as well as non-SRO members, new conflicts of interest and confidentiality policies, the retention of an independent plan administrator, and the use of executive sessions by the Operating Committee.[1129] The Commission received several comments regarding commenters' views of the relationship between the Governance Order and the Market Data Infrastructure Proposing Release, with several commenters supporting the Governance Order,[1130] but others stating that the Governance Order and the Proposing Release are contradictory or inconsistent.[1131] The Governance Order and the Proposing Release are not contradictory or inconsistent. Rather, the two proposals address distinct aspects of the exclusive SIPs and the national market system for NMS information. The Governance Order addresses the governance structure of the Equity Data Plans and particularly concerns about certain conflicts of interest and the allocation of voting power with respect to these Plans. The amendments address the content of NMS information and the manner in which it is collected, consolidated, and disseminated under the rules of the national market system.

(b) Comments on the Plan's Role in Developing Fees for Data Content Underlying Consolidated Market Data

While the effective national market system plan(s) will no longer operate the exclusive SIPs, the Operating Committee of the effective national market system plan(s) for NMS stocks will continue to develop and file with the Commission the fees associated with the NMS information that is required to be collected, consolidated, and disseminated, *i.e.,* the data content underlying consolidated market data. Specifically, the Operating Committee will need to propose the new fees that will be charged for the quotation and transaction information that is necessary to generate consolidated market data that is required to be made available by the SROs under Rule 603(b) to competing consolidators and self-aggregators.[1132] The proposed new fees will need to reflect the following: (i) That consolidated market data includes additional new content (*i.e.,* depth of book data, auction information, and additional information on orders of sizes smaller than 100 shares); (ii) that the effective national market system plan(s) is no longer operating the exclusive SIPs and is no longer performing collection, consolidation, and dissemination functions; and (iii) that the SROs are no longer responsible for the connectivity and transmission services required for providing data to the exclusive SIPs from the SROs' data centers.[1133] The proposed new fees for the data underlying consolidated market data must be fair and reasonable and not unfairly discriminatory [1134] and must be filed with the Commission pursuant to Rule 608 under the Exchange Act.

Several commenters supported the proposal to retain the use of the effective national market system plan(s) to propose fees for the data content underlying consolidated market data in the decentralized consolidation model.[1135] One commenter suggested that the effective national market system plan(s) also propose fees for connectivity ''in order to avoid the imposition of fees that are substantially disproportionate to the cost of providing these connectivity methods.'' [1136]

Four commenters questioned the role of the Operating Committee of the effective national market system plan(s) in developing fees for the data content underlying consolidated market data.[1137] One commenter stated that the exchanges would ''continue to have pricing power over a fundamental component of the NMS.'' [1138] Two commenters argued that such a responsibility would be inconsistent with Section 19(b) of the Exchange Act.[1139] Specifically, one commenter stated that fees for exchange facilities, including proprietary market data products, are considered part of the SROs' rules and subject to the Section 19(b) rule filing process.[1140] The other commenter stated that the Exchange Act authorizes the exchanges to set their own fees for market data products.[1141] One of the commenters further pointed out that an SRO would run afoul of the Exchange Act if it charged certain classes of customers a price for its proprietary products that is different from the pricing established pursuant to its effective fee schedule.[1142]

The Commission believes that the effective national market system plan(s) should continue to have an important role in the operation, development, and regulation of the national market system for the collection, consolidation, and dissemination of consolidated market data. The development, and proposal under Rule 608, of the fees for the data underlying consolidated market data, along with the other responsibilities described above, are critical for the successful operation of the national market system. The development of the fees for information required to be made available by the SROs pursuant to Rule 603(b) of Regulation NMS to competing consolidators and self-aggregators is an integral component of the national market system.[1143]

[1129] New Consolidated Data Plan Notice, *supra* note 40.

[1130] *See* Clearpool Letter; Fidelity Letter; MFA Letter; RBC Letter; Schwab Letter; State Street Letter.

[1131] *See* letter from Joan C. Conley, Senior Vice President and Corporate Secretary, Nasdaq, to Vanessa Countryman, Secretary, Commission, dated Feb. 28, 2020, (''Nasdaq Letter I''); Cboe Letter at 4; NYSE Letter II at 12.

[1132] The fees for the data content underlying consolidated market data will be proposed and filed with the Commission under Rule 608 of Regulation NMS. The effective national market system plan(s) will not develop fees for individual SRO data. If competing consolidators wish to receive SRO data that is beyond what is required to be provided by the SROs pursuant to Rule 603(b), they will have access to such data pursuant to individual SRO rules and fees.

[1133] Under Rule 603(b), each SRO must provide its NMS information, including all data necessary to generate consolidated market data, to all competing consolidators and self-aggregators in the same manner and using the same methods, including all methods of access and the same format, as such SRO makes available any information to any other person. The competing consolidators and self-aggregators would be responsible for establishing the connectivity and transmission services they use to connect to the SROs.

[1134] *See* Rule 603(a) of Regulation NMS, 17 CFR 242.603(a). *See infra* Section III.E.2(c) for a discussion of the statutory standards for the data content underlying consolidated market data.

[1135] *See* IEX Letter at 8. *See also* Clearpool Letter at 3 (stating that it hoped the new governance structure of the effective national market system plan(s) would provide additional checks into controlling market data costs and help to ensure the reasonableness of such fees).

[1136] IEX Letter at 8. This commenter also suggested alternatives such as clarifying that the exchanges would not be permitted to impose a separate set of connectivity fees to competing consolidators and self-aggregators or charge fees for connectivity that are different than those charged to proprietary data customers. Connectivity fees will be developed by the exchanges. The SROs will need to develop new connectivity fees for competing consolidators and self-aggregators to receive the data necessary to generate consolidated market data. New connectivity fees will have to reflect that the SROs are only providing data to competing consolidators and self-aggregators with such connectivity. Further, as discussed below, the fees proposed by the SROs should not contain redistribution fees for competing consolidators because this would hinder their ability to compete.

[1137] *See* NYSE Letter II at 28; Nasdaq Letter IV at 34; Cboe Letter at 27; ACTIV Financial Letter at 3. One commenter offered suggestions as to the governance of the effective national market system plan(s). *See* Better Markets Letter at 7. The Commission has not proposed further governance changes in this release.

[1138] ICI Letter at 11.

[1139] *See* Cboe Letter at 27; Nasdaq Letter IV at 10.

[1140] The commenter stated that ''as a practical matter order-by-order depth-of-book products are likely the only way to enable the creation of consolidated market data.'' Cboe Letter at 28.

[1141] *See* Nasdaq Letter IV at 10.

[1142] *See* Cboe Letter at 28.

[1143] The Commission believes that the use of effective national market system plan(s), along with

The Equity Data Plans have been developing fees for SIP data for many years. It is one of their main responsibilities. The Commission disagrees with comments that the plan(s) will be developing fees for exchange data and that the development of fees by the plan(s) will be inconsistent with Sections 6 and 19 of the Exchange Act. The Commission is exercising its authority under Section 11A of the Exchange Act to expand the content of core data to include new data elements that the Commission believes are necessary to enhance the usefulness of the NMS information that is disseminated within the national market system. Therefore, the fees for data content underlying consolidated market data, as now defined, are subject to the national market system process that has been established—specifically the effective national market system plan(s) will develop the fees for data content underlying consolidated market data and seek Commission approval for such fees pursuant to the notice and comment process under Rule 608. The amended rules, however, do not permit the plan(s) to develop fees for connectivity to the individual SROs. These fees must be filed by individual SROs with the Commission and approved pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder, and are subject to the substantive requirements of Sections 6 and 15A of the Exchange Act, respectively for exchanges and national securities associations, as well as Section 19(b) of the Exchange Act.

The plan(s) will not be developing fees for an SRO's proprietary data products.[1144] As the Commission discussed in the Proposing Release, the SROs may continue to develop proprietary data products and must propose fees for such products subject to the requirements of Sections 6(b), 15A(b), and 19(b) of the Exchange Act.

One commenter expressed concern about the ability of the SROs, some of which may become competing consolidators, to develop fees.[1145] This commenter noted the new governance provisions on voting but stated that if the SROs could arbitrarily set fees charged to their competitors and ''jam them through'' the Operating Committee then no firm would be able to compete effectively and it would be doubtful that any firm would become a competing consolidator without assurances that the fees would be fair, reasonable, and do not unduly benefit one participant.[1146]

The fees for data content underlying consolidated market data will be filed with the Commission pursuant to Rule 608. These fees will be subject to the procedure set forth in Rule 608(b)(1) and (2), including an opportunity for public comment and Commission approval by order before such fees can become effective. This regulatory process set forth in Rule 608 allows commenters to provide their views about any proposed fee before they are charged and allows the Commission to consider commenters' views before such fees becomes effective.[1147]

One commenter stated that the Operating Committee would have no experience in undertaking a cost allocation between the data underlying consolidated market data and proprietary data.[1148] This commenter stated that directing the Operating Committee to engage in cost allocation without standards is arbitrary because the Operating Committee would be unable to predict whether its cost allocation decisions and permissible rates of return would be consistent with the Exchange Act.[1149]

The Commission disagrees with the commenter that the Operating Committee is ill-suited to allocate costs to develop fees for the data content underlying consolidated market data or that the exchanges cannot develop reasonable fees for proprietary data products that contain data content underlying consolidated market data. The Operating Committee(s) have plenty of experience in developing fees for SIP data that contain different cost elements, and any future Operating Committee, which will comprise many of the same participants, should be well-suited to develop fees for the data content underlying consolidated market data, with the expectation that the Operating Committee can leverage the experience and knowledge from operating today's Equity Data Plans. The SROs and the Equity Data Plans each develop fees for market data—the SROs develop fees for proprietary data and the Equity Data Plans develop fees for SIP data. The Operating Committees have to evaluate, develop, and propose SIP data fees and the exchanges have to evaluate, develop, and propose proprietary data fees for the proprietary data products that they decide to offer. This dynamic will not change in the decentralized consolidation model. The effective national market system plan(s) will develop fees for the data content underlying consolidated market data,[1150] and the SROs will develop fees for proprietary data, each of which may contain some of the same underlying data content.

One commenter stated that the proposal to retain the use of the effective national market system plan(s) is at odds with how the Commission considered a competing consolidator model in the context of adopting Regulation NMS.[1151] Another commenter suggested that the Commission rethink the use of effective national market system plan(s) and instead allow the exchanges to develop their individual fees for data content underlying consolidated market data.[1152] This commenter questioned the need for the effective national market system plan(s) because the SROs would no longer be jointly operating an exclusive SIP and therefore no longer involved in the collection, consolidation, or dissemination of consolidated market data. The commenter stated that it would be more efficient and would eliminate the need for the plan(s) to determine fees for a competitor's data.[1153]

As to the questions about the Commission's past analysis of a competing consolidator model that was discussed in the context of adopting Regulation NMS, the Commission was analyzing a different competing consolidator model—one that would have eliminated the use of effective national market system plan(s). The

the new governance structure required by the Governance Order, will help to ensure broad participation in the development, operation, and regulation of the national market system. *See infra* note 1185 and accompanying text.

[1144] One commenter stated that the Operating Committee would be establishing fees for exchange proprietary data products, which the commenter stated would greatly increase the power of the Operating Committee. *See* Nasdaq Letter IV at 34. However, the Operating Committee will only be developing fees for data content underlying consolidated market data products, not the exchanges' fees for proprietary data products.

[1145] *See* ACTIV Financial Letter at 3.

[1146] *Id. See also* Schwab Letter at 6 (stating that competing consolidators would be unlikely to commit to a business without confidence that the prices charged do not put then at a competitive disadvantage); ICI Letter at 11.

[1147] *See* Effective-Upon-Filing Adopting Release, *supra* note 17.

[1148] *See* Nasdaq Letter IV at 34. This commenter also suggested that the Operating Committee would reduce fees for proprietary market data, which the commenter stated would limit access to new proprietary data products. The commenter continued that this would be inconsistent with Section 11A(a)(2) of the Exchange Act by undermining the public interest and protection of investors. The Operating Committee would not be establishing fees for proprietary data products.

[1149] *See* Nasdaq Letter IV at 34.

[1150] As described below, the proposed new fees for the data content underlying consolidated market data must be fair and reasonable and not unfairly discriminatory and must be filed with the Commission pursuant to Rule 608 under the Exchange Act. *See* Section III.E.2(c).

[1151] *See* Cboe Letter at 29.

[1152] *See* NYSE Letter II at 27.

[1153] *Id.*

Regulation NMS competing consolidator alternative eliminated the use of effective national market system plans, and the Commission expressed concerns about the lack of competitive forces in setting data fees because each SRO would be establishing its own individual fees for NMS information. The Commission stated that payment of every SRO's fees would be mandatory and would afford little room for competitive forces to influence the level of fees. Further, the Commission stated that such a model would require it to review ''at least ten separate fees'' for the individual SROs and that it was unlikely that any SRO would voluntarily propose to lower its own fees. The Commission also had stated that the fees established under the Equity Data Plans reflected broad industry consensus and that such ''consensus underlying a single fee for a Network's stream of data would be lost'' [1154] in the competing consolidator model that it was then analyzing.

In contrast, the decentralized consolidation model that the Commission proposed, and as adopted, retains the effective national market system plan structure. The Commission believes today, as it did when it was considering Regulation NMS, that elimination of the use of an effective national market system plan(s) would not further the goals of the national market system because the Commission still believes that the effective national market system plan structure is the appropriate method for developing, operating, and regulating the national market system. The suggestion that the Commission eliminate the effective national market system plan(s) structure and allow the SROs to develop individual fees for their data content that is used to develop consolidated market data was dismissed by the Commission when it considered the competing consolidator proposal in the context of Regulation NMS. The Commission believes that the same shortcomings, described above, will occur similarly today if the plan(s) were not developing the fees for the data underlying consolidated market data.

(c) Comments on Fees for Consolidated Market Data

There will be several fee components related to the collection, consolidation and dissemination of consolidated market data and consolidated market data products. The effective national market system plan(s) will propose and file with the Commission, pursuant to Rule 608, the fees for the data content underlying consolidated market data. The fees for the data content underlying consolidated market data must satisfy the statutory standards of being fair, reasonable and not unreasonably discriminatory.[1155] As described further below, the Commission has historically assessed fees for data such as the data content underlying consolidated market data using a reasonably related to cost standard.

Further, the SROs will have to develop and propose their own fees for connectivity. Individual SRO connectivity fees must be filed with the Commission pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder and satisfy the statutory requirements under Sections 6 and 15A of the Exchange Act.[1156] Connectivity to all of the SROs for purposes of receiving the data content underlying consolidated market data is necessary under Rule 603(b) and the SROs are the sole providers of such access. Because of the mandatory nature of connectivity to all of the SROs for purposes of providing the information necessary to generate consolidated market data,[1157] the Commission believes that one method for demonstrating that such fees are fair and reasonable and not unreasonably discriminatory is by demonstrating that they are reasonably related to costs.[1158]

Finally, competing consolidators will establish fees for their consolidated market data products. These fees will be disclosed on Exhibit G of Form CC. Competing consolidators' fees for their services related consolidated market data products may include fees for aggregation and generation of consolidated market data products and transmission of such products to subscribers. Competing consolidators' fees may include the fees for the data content underlying consolidated market data as well as fees for connectivity to the SROs, or the fees for data content underlying consolidated market data may be charged directly to the end users.

The Commission received several comments on the anticipated fees for the data content underlying consolidated market data.[1159] Some commenters stated that understanding the anticipated fees for data content underlying consolidated market data is necessary to analyzing the implications of the decentralized consolidation model [1160] and necessary to evaluating whether entities would decide to make the business decision to act as a competing consolidator.[1161] Two commenters argued that the failure to describe anticipated fees violates the APA by denying commenters the ability to assess the proposal and impairing the Commission in its ability to conduct a cost-benefit analysis.[1162]

The Commission disagrees. Fees proposed by the plan(s) for the data content underlying consolidated market data will be a fixed cost that will be imposed on all competing consolidators and self-aggregators. These entities can develop business plans on whether to enter this business based on other information, such as the technology that will be necessary to aggregate, generate, and disseminate consolidated market data, and their expected subscribers. The Commission believes that there is sufficient information available to potential entrants to assess the costs and benefits of acting as a competing consolidator.[1163]

Further, in the Proposing Release, the Commission described the anticipated new fees for the data underlying consolidated market data as needing to reflect the following: (i) That consolidated market data includes new content described above, including depth of book data, auction information,

[1154] *See* Securities Exchange Act Release No. 49325 (Feb. 26, 2004), 69 FR 11126, 78 (Mar. 9, 2004) (''Regulation NMS Proposing Release'').

[1155] Sections 11A(c)(1)(C) and 11A(c)(1)(D) and Rule 603(a) of Regulation NMS.

[1156] *See also supra* note 826.

[1157] *See* Rule 603(b) of Regulation NMS.

[1158] Historically, the Commission has stated that one method for assessing the fairness and reasonableness of fees charged by an exclusive processor, as defined in Exchange Act Section 3(a)(22)(B), is to show a reasonable relation to the costs. *See* Market Information Concept Release, *supra* note 22, at 70627 (''[T]he fees charged by a monopolistic provider (such as the exclusive processors of market information) need to be tied to some type of cost-based standard in order to preclude excessive profits if fees are too high or underfunding or subsidization if fees are too low.''). *See also* Proposing Release at 16770, note 439 and accompanying text. Several exchanges have filed proposed connectivity fees and have provided information about costs related to such connectivity to demonstrate compliance with statutory standards. *Cf.* Securities Exchange Act Release Nos. 86626 (Aug. 9, 2019), 84 FR 41793 (Aug. 15, 2019) (SR–IEX–2019–07); 87875 (Dec. 31, 2019), 85 FR 770 (Jan. 7, 2020) (SR–MIAX–2019–51); 87876 (Dec. 31, 2019), 85 FR 757 (Jan. 7, 2020) (SR–PEARL–2019–36); 87877 (Dec. 31, 2019), 85 FR 738 (Jan. 7, 2020) (SR–EMERALD–2019–39); 88161 (Feb. 11, 2020), 85 FR 8968 (Feb. 18, 2020) (SR–BOX–2020–03).

[1159] *See, e.g.,* SIFMA Letter; Nasdaq Letter IV; Cboe Letter; NYSE Letter II; BlackRock Letter; Fidelity Letter; State Street Letter; Schwab Letter; ICI Letter; MFA Letter; Citadel Letter; Virtu Letter; AHSAT Letter; Proof Trading Letter; Wharton Letter; ACTIV Financial Letter; Clearpool Letter; STANY Letter II.

[1160] *See, e.g.,* STANY Letter II; NYSE Letter II; Cboe Letter; Schwab Letter; IDS Letter I; ACTIV Financial Letter.

[1161] *See* STANY Letter II; IDS Letter I; ACTIV Financial Letter.

[1162] *See* NYSE Letter II; Cboe Letter.

[1163] *See supra* note 649 and accompanying text.

and additional information on orders of sizes smaller than 100 shares;[1164] (ii) that the effective national market system plan(s) for NMS stocks is no longer operating an exclusive SIP and is no longer performing aggregation and other operational functions; and (iii) that the SROs are no longer responsible for the connectivity and transmission services required for providing data to the exclusive SIPs from the SROs' data centers since the exclusive SIPs will no longer be operated by the effective national market system plan(s) for NMS stocks.

In addition, the Commission believes that the fees for the data content underlying consolidated market data should not include redistribution fees for competing consolidators.[1165] Competing consolidators will take the place of the exclusive SIPs in the dissemination of consolidated market data, which today do not pay redistribution fees for the consolidation and dissemination of SIP data. The Commission believes imposing redistribution fees on data content underlying consolidated market data that will be disseminated by competing consolidators would be difficult to reconcile with statutory standards of being fair and reasonable and not unreasonably discriminatory in the new decentralized model.[1166] Under the new decentralized consolidation model, self-aggregators also will directly receive the data content necessary for generating consolidated market data from the SROs and, because by definition they are limited to using the data for internal purposes, would not be subject to fees for redistributing such consolidated market data. If the plan(s) proposed to impose redistribution fees on the data content underlying consolidated market data, the Commission would be concerned that competing consolidators could be subject to unreasonable discrimination as they would be required to pay higher fees for such data than self-aggregators would pay for the same data. The Equity Data Plans have not imposed redistribution fees on the exclusive SIPs and the Commission believes that such plan(s) should not impose such fees on the entities that will distribute consolidated market data in the decentralized consolidation model, *i.e.,* competing consolidators.

Several commenters stated that the Commission should scrutinize SRO fees for market data.[1167] Some commenters requested the Commission review market data fees to help to ensure that they are fair and reasonable,[1168] while a few stated that market data fees should be cost-based.[1169] One commenter, however, stated that the proposal establishes a rate-making board and would impose cost-based regulation on the sale of consolidated market data.[1170] This commenter stated that the proposal failed to provide guidance on how to determine the cost of market data especially in light of exchange practices of allocating costs across products.[1171]

In the Proposing Release, the Commission explained that it seeks to ensure that consolidated market data is widely available for reasonable fees.[1172] The Commission must assess the proposed fees for data content underlying consolidated market data and determine whether they are fair and reasonable, and not unreasonably discriminatory.[1173] To do this, the Commission must have ''sufficient information before it to satisfy its statutorily mandated review function''—that the fees meet the statutory standard.[1174] The Commission stated that fees for consolidated SIP data can be shown to be fair and reasonable if they are reasonably related to costs.[1175] The Commission cited the Market Information Concept Release, in which the Commission stated ''the fees charged by a monopolistic provider (such as the exclusive processors of market information) need to be tied to some type of cost-based standard in order to preclude excessive profits if fees are too high or underfunding or subsidization if fees are too low. The Commission therefore believes that the total amount of market information revenues should remain reasonably related to the cost of market information.'' [1176] The Commission later explained in the context of approving an SRO fee filing that, because core data must be purchased, their fees are less sensitive to competitive forces;[1177] therefore, a reasonable relation to costs has since been the principal method discussed by the Commission for assessing the fairness and reasonableness of such fees for core data, with the recognition that ''[t]his does not preclude the Commission from considering in the future the appropriateness of another guideline to assess the fairness and reasonableness of core data fees in a manner consistent with the Exchange Act.'' [1178] The Commission then stated that the proposal did not change the mandatory nature of the provision of the data necessary to generate consolidated market data by the SROs.[1179]

These standards have been previously articulated by the Commission; they are not new. The Commission was not proposing a ''new cost-based regulation'' or a new ''rate-making board.'' The Equity Data Plans have been establishing fees for SIP data for many years. The Commission proposed to utilize the current plan mechanism for establishing fees, subject to applicable statutory standards and

[1164] *See supra* Section II.B.

[1165] *See* AHSAT Letter (''The Commission should take care that SROs do not design their fee structure to unduly target competing consolidators in practice, especially when SROs are likely to operate their own competing consolidators . . . In this way profit-motivated SROs that are allowed to charge competing consolidators might find ways to make them uneconomic, thereby eliminating the competitiveness presented by the new consolidated data feeds.'').

[1166] *See infra* note 1172 and accompanying text.

[1167] *See* BlackRock Letter; Fidelity Letter; State Street Letter; ICI Letter; Virtu Letter; SIFMA Letter.

[1168] *See* BlackRock Letter; ICI Letter.

[1169] *See* Schwab Letter; ICI Letter; SIFMA Letter; AHSAT Letter. One commenter argued that current market data fees have no relationship to cost and that the proposal provided no mechanism to connect SIP fees to cost. *See* Proof Trading Letter.

[1170] *See* Nasdaq Letter IV at 9, 22.

[1171] *Id.*

[1172] Currently, the exclusive SIPs are subject to Exchange Act Section 11A(c)(1)(C) (as implemented by Rule 603(a)(1)), which requires that exclusive processors (which include the exclusive SIPs and SROs when they distribute their own data) must assure that all securities information processors may obtain on fair and reasonable terms information with respect to quotations for and transactions in securities, which includes consolidated market data. *See* 15 U.S.C. 78k–1(c)(1)(C). *See also* 17 CFR 242.603(a)(1). Section 11A(c)(1)(D), in turn (as implemented by Rule 603(a)(2)), requires that the SROs provide such data to broker-dealers and others on terms that are not unreasonably discriminatory. *See* 15 U.S.C. 78k–1(c)(1)(D). *See also* 17 CFR 242.603(a)(2). As competing consolidators will be securities information processors, Exchange Act Section 11(A)(c)(1)(C) will continue to apply. Similarly, self-aggregators are broker-dealers, SROs, or RIAs (*i.e.,* others) and thus Exchange Act Section 11A(c)(1)(D) will continue to apply.

[1173] *See* 15 U.S.C. 78k–1(c). *See also* Rules 603(a)(1) and (2), 608 of Regulation NMS, 17 CFR 242.603(a)(1) and (2), 608; *Bloomberg Order, supra* note 22, at 11–12.

[1174] *Bloomberg Order, supra* note 22, at 15; cf. 17 CFR 201.700, Rule of Practice 700 (providing that the burden of demonstrating that a proposed rule change satisfies statutory standards is on the self-regulatory organization that proposed the rule change).

[1175] *See* Proposing Release, 85 FR at 16770.

[1176] Market Information Concept Release, *supra* note 22, at 70627. An ''exclusive processor'' is defined in Section 3(a)(22)(B) of the Exchange Act and includes any national securities exchange or registered securities association, which engages on an exclusive basis on its own behalf, in collecting, processing, or preparing for distribution or publication any information with respect to quotations or transactions on or effected or made by means of any facility of such exchange or quotations distributed or published by means of any electronic system operated or controlled by such association.

[1177] *See* Securities Exchange Act Release No. 59039 (Dec. 2, 2008), 73 FR 74770, 74782 (Dec. 9, 2008) (File No. SR–NYSEArca–2006–21).

[1178] *Bloomberg Order, supra* note 22, at 15 & n. 63.

[1179] *See* Proposing Release, 85 FR at 16770.

regulatory requirements.[1180] Under Rule 603(b), the SROs are required to make available all data that is necessary to generate consolidated market data. The Commission has determined that it is necessary to disseminate this data within the national market system. The Commission believes that consolidated market data will significantly enhance the ability of market participants to trade competitively and efficiently and will indirectly benefit investors, even if they do not directly consume all of the new data elements of consolidated market data, by facilitating executing broker-dealers' access to information.

One commenter cautioned the Commission to ensure that fee structures are not designed to unduly target competing consolidators in practice, especially if one or more SROs become competing consolidators.[1181] All fees for the data underlying consolidated market data must satisfy the statutory standards, including not being unreasonably discriminatory. A fee that unduly ''targets'' competing consolidators in an unfair or unreasonable manner would not satisfy statutory requirements.

One commenter stated that it hoped that in a new competitive model that overall costs for broker-dealers would be lower. The commenter, however, stated that broker-dealers would still need to purchase proprietary data to get information that is not included in consolidated market data. Therefore, the commenter suggested that the Commission ensure that safeguards are in place to keep exchanges from increasing market data prices to recoup revenue lost from the requirement to provide new core data to competing consolidators.[1182] The Commission will analyze fees for data content underlying consolidated market data consistent with the standards set forth above. The new governance structure required by the Governance Order,[1183] as well as the recently adopted Effective-Upon-Filing Amendments,[1184] will provide additional opportunities for interested market participants to participate in establishing effective national market system plan fees. In the Governance Order, the Commission stated that ''a more diverse set of perspectives from full voting members of the operating committee of the New Consolidated Data Plan would improve the governance structure of the SIPs and help to ensure that the [O]perating [C]ommittee benefits from these views *before* it takes action or files plan amendments with the Commission.'' [1185] Further, pursuant to the Effective-Upon-Filing Amendments, fees established and proposed by the effective national market system plan(s) are no longer effective upon filing but must be published for public comment and approved by the Commission before they can take effect.

Several commenters discussed whether market data fees would be lower in a decentralized consolidation model.[1186] One commenter suggested that if competitive forces fail to materialize and drive fees for consolidated market data down that the Commission should adopt a rule to enable it to review consolidated market data fees for fairness, reasonableness, and non-discriminatory pricing.[1187] Another commenter stated that the New Consolidated Data Plan, the Effective-Upon-Filing Amendments,[1188] the Commission's continued scrutiny of exchange fee proposals, and public disclosure of SRO costs were necessary predicates to control market data costs.[1189] Fees for the data content underlying consolidated market data must be filed with the Commission pursuant to Rule 608 and must satisfy statutory standards.

In addition, one commenter stated that the Commission failed to analyze how exchanges have incentives to cut trading fees in order to win market share and increase market data revenues. The commenter stated that the proposal would eliminate the incentive to reduce trading fees. Further, this commenter argued that the Commission failed to consider the all-in price of trading.[1190] However, another commenter stated that market data fees comprise ''a larger-than-ever share'' of overall transaction costs and urged the Commission to ensure that any new fees are consistent with the Exchange Act.[1191]

The Commission is not considering the proposed fees for data content underlying consolidated market data in this release; they have not been developed or filed with the Commission, as required pursuant to Rule 608. The effective national market system plan(s) will have to develop and file such proposed fees with the Commission pursuant to Rule 608 within 150 days of the effectiveness of Rule 614, as noted above [1192] and they must satisfy statutory standards.[1193]

As discussed above, the Commission believes that there will be downward pressure on the fees for the data content underlying consolidated market data as compared to fees for proprietary data. The proposed new fees for the data content underlying consolidated market data, while needing to reflect additional new content, will be evaluated by the Commission for compliance with statutory standards and one way to assess compliance is to show they are reasonably related to costs.[1194] In addition, proposed SRO connectivity fees will have to satisfy statutory standards in a similar manner to reflect the mandatory nature of such connectivity. Finally, the fees established by competing consolidators for their consolidated market data products will be subject to competitive market forces in the aggregation and transmission of such data.

One commenter stated its ''strong opinion'' that ''the regulated privilege of order protection [pursuant to Rule 611] be accompanied by a requirement to openly disseminate information regarding those orders at no revenue to the SRO or liquidity provider.'' [1195] This commenter stated that this could lead to ''higher net transaction fees or even order placement fees,'' but the commenter said that ''competitive forces are working better with respect to net transaction fees than market data fees.'' [1196] In the alternative, the commenter suggested that competing consolidators pay the SROs their marginal cost to disseminate data but also acknowledged that marginal costs may be difficult to calculate. Further, the commenter stated that ''[t]he marginal cost is likely to strictly focus on the modest networking costs of an additional multicast recipient, and to

[1180] *See supra* notes 1173–1179 and accompanying text.

[1181] *See* AHSAT Letter at 2.

[1182] *See* Clearpool Letter at 3 (''It will therefore be important for the Commission to ensure that robust safeguards are in place under the new regime to control market data costs and prevent exchanges from just increasing market data prices to make up for any loss of revenue due to the proposed requirement to provide the new core data to competing consolidators.'').

[1183] *See* Governance Order, *supra* note 1128.

[1184] *See* Effective-Upon-Filing Adopting Release, *supra* note 17.

[1185] Governance Order, *supra* note 1128.

[1186] *See* Clearpool Letter; Schwab Letter; Fidelity Letter; Nasdaq Letter IV; Citadel Letter.

[1187] *See* Schwab Letter at 6.

[1188] *See* Effective-Upon-Filing Adopting Release, *supra* note 17.

[1189] *See* Fidelity Letter at 8.

[1190] *See* Nasdaq Letter IV at 29.

[1191] ICI Letter at 11.

[1192] *See infra* Section III.H.2.

[1193] *See supra* note 1172 and accompanying text. In the Market Information Concept Release, the Commission said that ''the total amount of market information revenues should remain reasonably related to the cost of market information.'' Market Information Concept Release, *supra* note 22, at 28.

[1194] *See* Proposing Release, 85 FR at 16770; *supra* note 1172 and accompanying text. *See also* supra note 1158.

[1195] AHSAT Letter at 2.

[1196] *Id.*

exclude SRO software development or broader marketplace costs.'' [1197]

This comment relates to a future proposed fee amendment. The Commission has not proposed to modify the revenue formula or set fees for data content underlying consolidated market data.

(d) Comments on Transparency of Market Data Fees

Several commenters stated that there should be enhanced transparency around market data fees.[1198] One commenter suggested that the Commission require exchanges to publicly disclose, on a periodic basis, the cost of the equity market data content that they sell to competing consolidators in order to allow the Commission and the public to ensure that the fees for this data are fair and reasonable.[1199]

The Commission has reviewed these comments and reiterates that any fees for data content underlying consolidated market data, including subsets of consolidated market data, will be set pursuant to fees that will be proposed and filed by the effective national market system plan(s) pursuant to Rule 608.[1200]

(e) Comments on Fees for Different Consolidated Market Data Offerings

In the Proposing Release, the Commission stated that the plan(s) would develop and file with the Commission fees for SRO data content required to be made available by each SRO to competing consolidators and self-aggregators for the creation of proposed consolidated market data and could also develop fees for data content underlying other consolidated market data offerings that contain subsets of the components of consolidated market data.[1201] The Commission believed that the effective national market system plan(s) could develop different fees for data content underlying market data offerings that contain subsets of the data content underlying consolidated market data based upon the needs of market participants and cited a NYSE proposal to develop different levels of SIP data products.[1202] Thus, in addition to developing a fee for data content underlying a consolidated market data offering that contains all of the data content underlying consolidated market data,[1203] the plan could develop a fee for data content underlying a consolidated market data offering that contains only TOB information, regulatory data, and administrative data, or the plan could develop a fee for depth of book data, regulatory data, and administrative data but not auction information. As described, the proposed new fee schedule would include proposed new fees for the data content underlying consolidated market data, as well as any proposed new fees for consolidated market data offerings that reflect only a subset of consolidated market data.

One commenter challenged the view that the plan(s) would develop different fees for different subsets of the data content underlying consolidated market data.[1204] The commenter stated that the Commission could not assume that the Operating Committee would develop such fees.[1205] The Commission notes that this commenter had developed a proposal similar to the suggestion for SIP data.[1206] The commenter had acknowledged in its proposal that a ''one-size-fits-all'' SIP data product was not meeting the needs of market participants [1207] and recommended that the Operating Committee establish different content products that would be designed to serve the needs to specific types of investors.[1208] The Commission believes that the Operating Committee will consider the needs of investors and the different use cases for consolidated market data when developing the proposed fees for the data content underlying consolidated market data. The Commission recently has taken steps to help to ensure that the needs of investors are considered in the national market system in addition to the adopted rules. For example, the New Consolidated Data Plan is required to contain a new governance structure that has a broader representation of market participants involved in the operation of the plan,[1209] and the Commission adopted amendments to the filing and review process for plan fees.[1210]

One commenter, however, suggested that competing consolidators, not the Operating Committee, should be able to develop competing products that contain consolidated market data.[1211] This commenter said that competing consolidators could develop products to satisfy the needs of market participants.[1212] Competing consolidators will develop consolidated market data products that their end users desire. However, the Commission believes that the Operating Committee of the effective national market system plan(s) needs to develop the fees associated with the data content underlying any consolidated market data product or subset thereof. The Operating Committee is well-situated to develop and propose such fees. However, competing consolidators could convey their subscribers' market data needs to the Operating Committee and suggest new offerings as necessary, as could any person. Further, competing consolidators could communicate via the public comment process for effective national market system plan(s)' proposed data content underlying consolidated market data fees that must be filed with the Commission pursuant to Rule 608.

(f) Comments on Collection of Fees for Data Content Underlying Consolidated Market Data and Allocation of Revenues

The effective national market system plan(s) would be responsible for collecting the fees for the data content underlying consolidated market data and underlying any consolidated market data offerings that contain subsets of the components of consolidated market data. The effective national market system plan(s) also would be responsible for allocating revenues among the SRO participants.

One commenter stated that the Commission failed to address the revenue allocation formula in the Proposing Release and how it would work under the decentralized consolidation model, if at all.[1213] The

[1197] *Id.*

[1198] *See* Fidelity Letter; State Street Letter; Schwab Letter; SIFMA Letter; Committee on Capital Markets Letter; ACTIV Financial Letter at 3.

[1199] *See* Committee on Capital Markets Regulation Letter at 3.

[1200] *See supra* note 1174 and accompanying text.

[1201] *See* Proposing Release, 85 FR at n. 616 and accompanying text.

[1202] *See, e.g.,* NYSE Equities Insights, Stock Quotes and Trade Data: One Size Doesn't Fit All (Aug. 22, 2019), *available at https://www.nyse.com/data-insights/stock-quotes-and-trade-data-one-size-doesnt-fit-all.* The NYSE proposed offering different levels of services based on the needs of market participants (''NYSE SIP Tiers Proposal''). The Operating Committee could develop different products that utilize consolidated market data components and propose the relevant fees for such products. *See also* Feb. NYSE Letter.

[1203] As described above, the Commission is adopting a new definition of consolidated market data products, which will allow competing consolidators to develop market data product offerings that contain all consolidated market data or subset thereof. *See* Rule 600(b)(20); Section II.B.2.

[1204] *See* NYSE Letter II at 4.

[1205] *See id.*

[1206] *See* NYSE SIP Tiers Proposal, *supra* note 1202.

[1207] *Id.*

[1208] *Id.*

[1209] *See* Governance Order, *supra* note 1128.

[1210] *See* Effective-Upon-Filing Adopting Release, *supra* note 17.

[1211] *See* MEMX Letter at 8.

[1212] *See id.*

[1213] *See* Nasdaq Letter IV at 37. *See also id.* at 39–40 and 60, n. 149 (stating that the proposal fails to address how the revenue allocation formula adopted as part of Regulation NMS and the new

Continued

commenter stated these issues are needed to evaluate the proposed rules and that failure to address the revenue allocation formula was arbitrary and capricious. The revenue allocation formula was adopted in Regulation NMS, and the Commission stated that ''the language added to the Plans by the Allocation Amendment can be adjusted in the future pursuant to the normal process of Commission approved amendments.'' [1214] The Commission believes that the Operating Committee is best placed to evaluate whether and, if so, how the revenue allocation formula needs to be amended to reflect the new content of data that is included in the definition of consolidated market data as well as the new responsibilities of the primary listing exchanges in collecting and calculating Regulatory Data. Any plan amendment would be developed by the Operating Committee and filed with the Commission pursuant to Rule 608.

(g) Comments on Accounts and Audits

As proposed, the plan(s) would be responsible for overseeing accounts and conducting audits for purposes of billing, among other things. The plan(s) generally would also have to develop a harmonized approach to data billing protocols, including with respect to any unified MISU policy.[1215]

One commenter stated that the proposal did not specify how contracting for data would occur under the plan(s), including who would enter into contracts with, collect fees from, and resolve disputes with customers.[1216] This commenter questioned whether ''(a) the SROs would charge data fees to the competing consolidators and then the competing consolidators would pass through the cost of data to their customers, (b) the SROs would charge competing consolidators' customers directly for the SROs data, or (c) the NMS Plans would charge data fees to the competing consolidators and their customers.'' [1217]

As stated in the Proposing Release, the effective national market system plan(s) would charge the fees for the data content underlying consolidated market data, collect the revenue, oversee accounts and billing, and develop billing protocols, including any MISU policies. The proposal set forth the responsibilities of the effective national market system plan(s) as to billing. The SROs would not be responsible for charging competing consolidators or their customers directly for consolidated market data.

The Commission believes that the licensing, billing, and audit processes under the decentralized consolidation model could be similar to existing processes that are in place under the Equity Data Plans. For example, while today the Equity Data Plans provide a data feed to market participants, the fees and billing for that data are not based simply upon the receipt of the data feed. Rather, broker-dealers and other market participants who receive SIP data are billed based upon both the type of user (*e.g.,* professional vs. non-professional) and specific use cases for the data (*e.g.,* display vs. non-display). Purchasers of SIP data provide the administrator of the Equity Data Plans with information and attestations about the number and type of users and specific use cases, and the administrator (or its auditor) audit and assess this information to determine appropriate billing for SIP data purchasers.

As discussed above, the SROs can comply with their obligation under Rule 603(b) to make all data necessary to generate consolidated market data available by providing their existing proprietary data feeds that contain this information to competing consolidators and self-aggregators.[1218] These data feeds may contain information that goes beyond what is necessary to generate consolidated market data, but competing consolidators and self-aggregators will not be billed based upon the data feed that they receive. Similar to the current billing, reporting and audit processes, the administrator of the effective national market system plan(s) could be expected to license and bill and, when required, employ an audit process to assess the usage of the data content made available to competing consolidators and self-aggregators under Rule 603(b) for billing purposes.[1219]

(h) Comments on Timestamps

As proposed, Rule 614(e)(1)(ii) required that the amendment to the effective national market system plan(s) for NMS stocks include provisions requiring the application of timestamps by the SRO participants on all consolidated market data, at the time the consolidated market data component was generated by the SRO participant and at the time the SRO participant made the consolidated market data available to competing consolidators and self-aggregators.[1220]

One commenter stated that the proposal would require the effective national market system plan(s) participants to apply timestamps to consolidated market data even though they were not consolidating and disseminating consolidated market data.[1221] The Commission has modified the language of Rule 614(e)(1)(ii) to require the SRO participants to apply timestamps to all information with respect to quotations for and transactions in NMS stocks that is necessary to generate consolidated market data and not to consolidated market data as the proposed rule required. Specifically, the timestamps applied by the SROs must be to the individual components of data content underlying consolidated market data, *i.e.,* all of the individual components of data content underlying core data, regulatory data, administrative data, self-regulatory organization-specific program data, and additional elements defined as ''consolidated market data.''

This commenter also criticized the proposal for underestimating the burdens of adding timestamps.[1222] The Commission disagrees with the commenter regarding the burden of adding timestamps. The SROs currently add timestamps to all elements of consolidated market data and thus, the Commission does not believe that ensuring that timestamps are applied in a consistent manner going forward would impose significant, if any, costs to the SROs. Timestamps are important for market participants as they provide the ability to measure latency and ensure accurate sequencing of data. The application of timestamps may also incentivize the SROs to make available their consolidated market data as quickly as possible. Therefore, the

framework for disseminating and pricing market data would work together, and that abandoning the revenue allocation formula would be arbitrary and capricious and therefore violate the APA).

[1214] Regulation NMS Adopting Release, *supra* note 7, at 37561–62.

[1215] *See supra* note 1124.

[1216] *See* IDS Letter I at 12.

[1217] *Id.*

[1218] *See supra* Section III.B.9(b).

[1219] *See supra* Section III.E.2(e).

[1220] The SROs currently submit timestamped data under the Equity Data Plans and the National Market System Plan Governing the Consolidated Audit Trail (''CAT NMS Plan''). *See, e.g.,* CTA Plan, *supra* note 10, at Section VI.(c); Nasdaq UTP Plan, *supra* note 10, at Section VIII; CAT NMS Plan at Sections 6.3(d), 6.8, *available at https://www.catnmsplan.com/sites/default/files/2020–02/CAT-2.0-Consolidated-Audit-Trail-LLC%20Plan-Executed_%28175745081%29_%281%29.pdf* (last accessed Nov. 27, 2020). See also 17 CFR 242.613; Securities Exchange Act Release No. 78318 (Nov. 15, 2016), 81 FR 84696, (Nov. 23, 2016) (''CAT NMS Plan Approval Order''). The CAT NMS Plan was Exhibit A to the CAT NMS Plan Approval Order. However, the limited liability company agreement of a new limited liability company named Consolidated Audit Trail, LLC now serves as the CAT NMS Plan. *See* Securities Exchange Act Release No. 87149 (Sept. 27, 2019), 84 FR 52905 (Oct. 3, 2019).

[1221] *See* NYSE Letter II at 21.

[1222] *See id.*

application of timestamps needs to be consistent and reliable.[1223]

(i) Comments on Annual Assessment

As proposed, Rule 614(e)(1)(iii) required the amendment to the effective national market system plan(s) for NMS stocks to reflect that the participants are required to conduct an annual assessment of the overall performance of competing consolidators—including speed, reliability, and cost of data provision—and provide the Commission with a report of such assessment on an annual basis. The Equity Data Plans play an important role in governing the operation of the national market system. The Commission believes that the effective national market system plan(s) for NMS stocks should continue in this important role by monitoring the overall performance of the provision of consolidated market data by competing consolidators to seek to ensure that the decentralized consolidation model is operating soundly and is therefore adopting this provision, as proposed, with one modification.

As described in the Proposing Release, the plan must assess several key factors of the operation of the decentralized consolidation model, including: (1) The speed of competing consolidators in receiving, calculating, and disseminating consolidated market data products; (2) the reliability of the transmission of consolidated market data products; and (3) a detailed cost analysis of the provision of consolidated market data products. The effective national market system plan(s) would base their assessments on the information made publicly available by competing consolidators, including the information that each competing consolidator is required to make available under Rule 614.

One commenter supported requiring the filing of a proposed plan amendment to mandate an annual assessment and suggested that the annual assessment be made public to further assist broker-dealers in selecting competing consolidators.[1224] One commenter stated that ''the Proposal does not indicate whether the results of particular assessments will be made publicly available to firms and what, if any, actions broker-dealers will be required to make in response to such assessments.'' [1225] One commenter suggested that the annual report not review individual competing consolidator performance ''in silo'' by also reviewing at the competition.[1226]

The Commission is adopting the rule, with the addition that the annual report would be made publicly available by the Commission. The Commission believes that the annual report should be made publicly available to provide transparency to investors as to the operation of the national market system. The Commission believes that the annual report can assist the Commission in monitoring and evaluating the operation of the national market system and decentralized consolidation model. The annual report, however, is not an assessment of individual competing consolidators but of the overall performance of the provision of consolidated market data by competing consolidators. Market participants that want to evaluate the individual performance of a competing consolidator can utilize the individual competing consolidator's disclosures on its Form CC and the monthly performance metrics published by each competing consolidator.

Another commenter stated that the SROs would incur costs associated with assessing competing consolidators although the effective national market system plan(s) would not have a role in selecting or monitoring competing consolidators.[1227] The SROs currently incur costs in overseeing the national market system and some of these costs may change in the decentralized consolidation model, including the new costs associated with conducting an assessment and developing the annual report. The Commission does not believe that the costs should be overly burdensome. As stated above, the Operating Committee can use public reports of competing consolidator performance as well as any pertinent information that the plan(s) believe would be useful to assess competing consolidators and develop the annual report. Further, the Commission believes that the Operating Committee is well-suited to perform this assessment. The SROs will be making the data content underlying consolidated market data available to competing consolidators and establishing the necessary connectivity to competing consolidators, and as stated, the effective national market system plan(s) will continue to have important responsibilities in developing, operating, and regulating the national market system. The Commission believes that the Operating Committee should develop the annual report as a means to monitor the overall performance of competing consolidators and to seek to ensure that the national market system is operating soundly.

(j) Comments on List of Primary Listing Exchanges

Finally, proposed Rule 614(e)(1)(iv) required the amendment to the effective national market system plan(s) for NMS stocks to include a list of the primary listing exchanges for each NMS stock.[1228] The primary listing exchanges will be required to collect, calculate, and make available regulatory data to competing consolidators and self-aggregators. Therefore, each primary listing exchange must be identified to determine who is responsible for collecting, calculating, and making regulatory data available. One commenter agreed with developing a list identifying the primary listing exchange.[1229] One commenter suggested that the Commission develop this list.[1230] The Commission believes that the plan(s) are best suited to develop the list and to ensure that it is kept current and readily accessible. The Commission is modifying the language of Rule 614(e)(1)(iv) to require that the plan(s) develop, maintain, and publish the list. The Commission believes that the list of primary listing exchanges should be maintained and published so that market participants will know which exchange is responsible for providing regulatory data. Further, competing consolidators and self-aggregators will need to know which exchange will be making regulatory data available.

(k) Regulation SCI

The Commission is modifying Rule 614(e) to accommodate the new definition of SCI competing

[1223] SRO timestamps will also assist market participants in their ability to assess latencies in the provision of consolidated market data. Under Rule 614(d)(3), competing consolidators are required to make available consolidated market data products that include timestamps assigned by the SROs as well as competing consolidators. Competing consolidators will be required to timestamp the data underlying consolidated market data at specific intervals: (1) Upon receipt from an SRO at the SRO data center, (2) upon receipt at its aggregation mechanism, and (3) upon dissemination of consolidated market data to customers. *See supra* Section III.C.8(a) and the discussion of Rule 614(d)(4).

[1224] *See* Clearpool Letter at 9.

[1225] TD Ameritrade Letter at 13. This commenter asked several questions about the expectations on broker-dealers in response to the annual report. *See id.* at 13–14. As discussed above, the annual report will not be a report on individual competing consolidators but rather a report on the operational status of the whole decentralized consolidation model.

[1226] *See* Data Boiler Letter I at 64 (''How CC beat their competition among peers, and the overall industry rely less on Exchanges' PP and SAs' services are the best key performance indicators (KPIs).'').

[1227] *See* NYSE Letter II at 28.

[1228] The term ''primary listing exchange'' is defined in Rule 600(b)(68).

[1229] *See* Data Boiler Letter I at 64.

[1230] *See* NYSE Letter II at 28.

consolidator classification under Regulation SCI. Specifically, new paragraph (v) of Rule 614(e) will require the participants to the effective national market system plan(s) for NMS stocks to file with the Commission an amendment that requires the plan(s) to calculate and publish on a monthly basis the consolidated market data gross revenues for NMS stocks as specified by: (1) Listed on the NYSE; (2) listed on Nasdaq; and (3) listed on exchanges other than NYSE or Nasdaq. The Commission believes that the plan(s) are best suited to calculate and publish this information because, as noted above, the effective national market system plan(s) will charge the fees for the data content underlying consolidated market data, collect the revenue, and oversee accounts and billing. Competing consolidators will use the calculation and publication of consolidated market data gross revenues to assess whether they have reached the 5% threshold described in Rule 1000 for SCI competing consolidators. As discussed below, the Commission believes that competing consolidators that reach these thresholds should be held to higher systems resiliency and integrity standards as required under Regulation SCI than competing consolidators that are below this threshold.[1231]

F. Systems Capability: Amendment to Rule 1000 of Regulation SCI To Expand ''SCI Entities'' Definition To Include ''SCI Competing Consolidator''; Adoption of Rule 614(d)(9): Systems Integrity

In the Proposing Release, the Commission stated its preliminary belief that competing consolidators should be subject to the requirements of Regulation SCI.[1232] The Commission adopted Regulation SCI in November 2014 to strengthen the technology infrastructure of the U.S. securities markets, reduce the occurrence of systems issues in those markets, improve their resiliency when technological issues arise, and establish an updated and formalized regulatory framework, thereby helping to ensure more effective Commission oversight of such systems.[1233] The key market participants that are currently subject to Regulation SCI are called ''SCI entities'' and include certain SROs (including stock and options exchanges, registered clearing agencies, FINRA, and the Municipal Securities Regulatory Board) (''SCI SROs''); alternative trading systems that trade NMS and non-NMS stocks exceeding specified volume thresholds (''SCI ATSs''); the exclusive SIPs (''plan processors''); and certain exempt clearing agencies.[1234]

As the Commission stated in the Proposing Release, competing consolidators, as sources of consolidated market data, would serve an important role in the national market system. The Commission explained that, as it had stated when adopting Regulation SCI, ''both consolidated and proprietary market data systems are widely used and relied upon by a broad array of market participants, including institutional investors, to make trading decisions, and . . . if a consolidated or a proprietary market data feed became unavailable or otherwise unreliable, it could have a significant impact on the trading of the securities to which it pertains, and could interfere with the maintenance of fair and orderly markets.'' [1235] For these reasons, Regulation SCI applies to both the exclusive providers of consolidated market data (*i.e.,* the plan processors) and to proprietary market data systems, and is not limited to applicable systems of plan processors, but rather also includes the market data systems of any SCI entity, including SCI SROs. Taking into consideration the role of competing consolidators as providers of consolidated market data feeds that are likely to be widely used and relied upon by market participants, the Commission proposed to apply Regulation SCI to competing consolidators by including them within the definition of ''SCI entity'' and requested public comment.[1236] In particular, among other things, the Commission requested comment on whether all of the obligations set forth in Regulation SCI should apply to competing consolidators or whether only certain requirements should be imposed, such as those requiring written policies and procedures, notification of systems problems, business continuity and disaster recovery testing (including testing with participants/subscribers of a competing consolidator), and penetration testing.[1237]

A number of commenters supported applying the requirements of Regulation SCI to competing consolidators in some form.[1238] In particular, a few commenters supported application of Regulation SCI to competing consolidators as proposed.[1239] Others argued that competing consolidators should be considered to have ''critical SCI systems'' like the exclusive SIPs and thus subject to higher requirements than proposed.[1240] Some commenters, however, expressed concern that the costs of SCI compliance would be a barrier to entry and could deter entities from seeking to become competing consolidators.[1241] Similarly, several commenters, although not citing Regulation SCI specifically, expressed general skepticism about the ability to attract new entrants to register as competing consolidators, citing among other factors, potential lack of economic incentives.[1242]

The Commission continues to believe that competing consolidators, as providers of consolidated market data products, will serve an important role in the national market system. Thus, consistent with the views of many commenters, the Commission believes that it is important to impose requirements to help ensure that the technology systems of competing consolidators are reliable and resilient, consistent with the policy goals of Regulation SCI.[1243] The Commission is cognizant that Regulation SCI entails compliance burdens for new entrants [1244] and, in particular, that

[1231] *See infra* Section III.F.

[1232] *See* Proposing Release, 85 FR at 16785–89.

[1233] *See* Securities Exchange Act Release No. 73639 (Nov. 19, 2014), 79 FR 72252 (Dec. 5, 2014) (''SCI Adopting Release''), at 72252–56 for a discussion of the background of Regulation SCI.

[1234] *See* Rule 1000.

[1235] *See* Proposing Release, 85 FR at 16786 (quoting SCI Adopting Release, *supra* note 1233, at 72275).

[1236] In addition, the Commission proposed to revise the definition of ''critical SCI system'' to account, among other things, for the systems of OPRA's plan processor, since the competing consolidator model will not apply with respect to trading in options. *See* Proposing Release, 85 FR at 16786–87. The Commission is adopting the revision to the definition of ''critical SCI system'' as proposed. *See infra* notes 1315–1316 and accompanying text.

[1237] *See* Proposing Release, 85 FR at 16789.

[1238] *See* Cboe Letter at 26; Nasdaq Letter IV at 35–36; Data Boiler Letter I at 57; STANY Letter II at 6; FINRA Letter at 4, n. 14; MEMX Letter at 8; Fidelity Letter at 3, 10; Clearpool Letter at 9.

[1239] *See* FINRA Letter at 4, n. 14; MEMX Letter at 8; Fidelity Letter at 3, 10. *See also* Clearpool Letter at 9; STANY Letter II at 6.

[1240] *See* Cboe Letter at 26; Nasdaq Letter IV at 35–36; Data Boiler Letter I at 57; STANY Letter II at 6.

[1241] *See* NYSE Letter II at 15; ACTIV Financial Letter at 2; IDS Letter I at 13; STANY Letter II at 6–7; Angel Letter at 19–21. *See also* TD Ameritrade Letter at 13; Nasdaq Letter III at 4.

[1242] *See also supra* notes 626–629 and 641–649 and accompanying text (discussing commenters' views that a lack of sufficient economic incentives for potential competing consolidators and the costs to become a competing consolidator outweigh the benefits).

[1243] *See supra* note 1233 and accompanying text; Cboe Letter at 26; Nasdaq Letter IV at 35–36; Clearpool Letter at 9; Data Boiler Letter I at 57; FINRA Letter at 4, n. 14; MEMX Letter at 8; Fidelity Letter at 10. *See also* IntelligentCross Letter at 5, BlackRock Letter at 5; ACS Execution Services Letter at 5; Temple University Letter at 1–2.

[1244] *See* Proposing Release, 85 FR at 16808–09, 16836–38, 16845–48 (discussing paperwork burdens, costs, and benefits of complying with

those costs could serve as a barrier to entry for potential competing consolidators and deter some potential entities from becoming competing consolidators, as noted by several commenters.[1245] The Commission is adopting a two-pronged approach to competing consolidators with respect to Regulation SCI, as described more fully below. The Commission estimates that under this approach, due to the threshold levels being adopted, the requirements of Regulation SCI[1246] will apply to most competing consolidators following an initial transition period.[1247] In addition, the Commission is adopting a tailored set of operational capability and resiliency obligations designed to help ensure that the provision of consolidated market data products is prompt, accurate, and reliable, that is applicable to all competing consolidators during the transition period and to competing consolidators that are below the adopted threshold thereafter.

First, the Commission believes that the inclusion of certain competing consolidators in the definition of ''SCI entity'' is appropriate. Several commenters supported the Commission's proposal to apply the requirements of Regulation SCI to all competing consolidators, emphasizing the importance of ensuring the resiliency and reliability of the infrastructure for market data dissemination.[1248] However, in recognition of the more limited role that certain competing consolidators may play in the securities markets and to address the concerns of other commenters who believed that the compliance costs of Regulation SCI would be burdensome to potential competing consolidators and could pose a significant barrier to entry for some potential competing consolidators, the Commission has made certain modifications from the proposal.[1249]

The Commission is adopting a definition of ''SCI competing consolidator'' that will subject competing consolidators to Regulation SCI, after a one-year transition period (as discussed below) (''SCI CC Phase-In Period''),[1250] if they are above the adopted threshold.[1251] This approach is similar to that taken regarding the definition of ''SCI ATS,'' which applies Regulation SCI to those ATSs that meet certain volume thresholds and thus were determined by the Commission to play a significant role in the securities markets.[1252]

Specifically, an ''SCI competing consolidator'' will be defined in Rule 1000 of Regulation SCI to mean ''any competing consolidator, as defined in § 242.600 which during at least four of the preceding six calendar months, accounted for five percent (5%) or more of consolidated market data gross revenue paid to the effective national market system plan or plans required under § 242.603(b) for NMS stocks (1) listed on the New York Stock Exchange LLC, (2) listed on The Nasdaq Stock Market LLC, or (3) listed on national securities exchanges other than the New York Stock Exchange LLC or The Nasdaq Stock Market LLC, as reported by such plan or plans pursuant to the terms thereof.''[1253]

In the Proposing Release, the Commission requested comment on whether it would be appropriate to set a threshold to determine which competing consolidators should be subject to Regulation SCI.[1254] The Commission received one comment addressing the threshold inquiries, which expressed support for the adoption of a threshold.[1255] The Commission believes that adopting a threshold to determine which competing consolidators are subject to Regulation SCI is responsive both to commenters who emphasized the importance of ensuring the resiliency, reliability, and integrity of the infrastructure for market data dissemination, as well as commenters that expressed concerns about barriers to entry. In adopting a threshold in the definition of ''SCI competing consolidator,'' the Commission believes it is establishing a reasonable scope for the application of Regulation SCI to competing consolidators.

The adopted threshold level is designed to identify those entities which, if they were to experience a systems issue, could potentially affect a substantial number of market participants and impact a broad swath of the national market system.[1256] The Commission believes that the 5% threshold level is reasonable for assessing materiality both generally and in the context of competing consolidated market data providers.[1257] Specifically, the Commission believes that the adopted threshold level is not

Regulation SCI). *See also* Nasdaq Letter III at 4; NYSE Letter II at 15; Schwab Letter at 7; TD Ameritrade Letter at 13; ACTIV Financial Letter at 2; IDS Letter I at 13; STANY Letter II at 6–7; Angel Letter at 19–21.

[1245] *See* Nasdaq Letter III at 4; NYSE Letter II at 15; Schwab Letter at 7; TD Ameritrade Letter at 13; ACTIV Financial Letter at 2; IDS Letter I at 13; Angel Letter at 19–21.

[1246] As discussed in the Proposing Release, Regulation SCI would, among other things, require SCI entities, which would now include SCI competing consolidators (as discussed below), to establish, maintain, and enforce written policies and procedures reasonably designed to ensure that their key automated systems have levels of capacity, integrity, resiliency, availability, and security adequate to maintain their operational capability and promote the maintenance of fair and orderly markets, and that such systems operate in accordance with the Exchange Act and the rules and regulations thereunder and the entities' rules and governing documents, as applicable. *See* 17 CFR 242.1001 (Rule 1001) of Regulation SCI. Broadly speaking, Regulation SCI also requires SCI entities to take appropriate corrective action when systems issues occur; provide certain notifications and reports to the Commission regarding systems problems and systems changes; inform members and participants about systems issues; conduct business continuity and disaster recovery testing and penetration testing; conduct annual reviews of their automated systems; and make and keep certain books and records. *See* Rules 1002–1007 of Regulation SCI.

[1247] *See infra* Section III.H for a discussion of the initial transition period.

[1248] *See* FINRA Letter at 4, n. 14; MEMX Letter at 8; Fidelity Letter at 3, 10. *See also* Clearpool Letter at 9; STANY Letter II at 6.

[1249] *See supra* notes 1244–1245 and accompanying text.

[1250] *See infra* note 1268 and accompanying text (discussing that SCI competing consolidators will not be required to comply with Regulation SCI until one year after the compliance date of Rule 614(d)(3)).

[1251] The definition of ''SCI entity'' under Rule 1000 of Regulation SCI would be amended to include ''SCI competing consolidators.''

[1252] *See* Rule 1000 of Regulation SCI (definition of ''SCI ATS''). As discussed further below, for those competing consolidators, that are either (i) newly registered and operating during the initial transition period, or (ii) do not otherwise satisfy the SCI entity definition (because they are below the five percent threshold for an SCI competing consolidator), a more tailored set of safeguards would apply.

[1253] *See* Rule 1000 of Regulation SCI.

[1254] *See* Proposing Release, 85 FR at 16789 (requesting comment on whether a threshold test would be appropriate for competing consolidators subject to Regulation SCI and, if so, what such a threshold test should be).

[1255] *See* Data Boiler Letter I at 57 (arguing that because compliance with Regulation SCI would be a possible barrier to entry, the Commission should adopt a threshold of ten percent for requiring compliance and arguing also that those below the threshold should be encouraged to voluntarily adopt SCI as ''best practices''). *See also infra* note 1263 and accompanying text.

[1256] Further, while the Commission believes that the competing consolidator model is designed to result in multiple viable sources of consolidated market data, the Commission believes that adopting a threshold will ensure that, if the market is largely reliant on a small number of competing consolidators for the distribution of consolidated market data, such competing consolidators will be subject to the safeguards of Regulation SCI. The Commission believes that this could arise if only a small number of entities register as competing consolidators, if certain competing consolidators dominate the market, or if competing consolidators subsequently exit the market resulting in a concentration of competing consolidators. *See also infra* notes 1315–1316 and accompanying text (discussing ''critical SCI systems'' and competing consolidators).

[1257] The adopted five percent threshold is consistent with the threshold level in the ''Fair Access'' rule (Rule 301(b)(5)) of Regulation ATS, as well as one of the volume threshold levels in the definition of SCI ATS in Rule 1000 of Regulation SCI.

so high so as to exclude competing consolidators for which a systems issue could have a significant impact on market participants or the national market system as a whole and, at the same time, provides an opportunity for a competing consolidator to enter and grow its business prior to incurring the costs of compliance with Regulation SCI if it were to exceed the threshold level.[1258] Notably, during this time competing consolidators will be subject to the requirements of Rule 614(d)(9) of Regulation NMS, as discussed below. The Commission recognizes that this threshold ultimately represents a matter of judgment by the Commission relating to the application of Regulation SCI to a new decentralized consolidation model and a new category of regulated entity. In the exercise of this judgment, the Commission has sought to identify a threshold level designed to ease barriers to entry for competing consolidators during the SCI CC Phase-In Period and for new competing consolidators thereafter.[1259]

The adopted thresholds describe plan revenues by reference to current Tapes A, C, and B, respectively.[1260] Although it is possible that the existing definition of tapes may be modified post-implementation, the thresholds acknowledge that listing exchange status has been, and may continue to be, relevant as the plan(s) develop pricing for data content underlying consolidated market data because Tape A, C, and B encompass securities listed on NYSE, Nasdaq, and national securities other than NYSE and Nasdaq, respectively.[1261] Accordingly, this threshold is designed to help ensure that any competing consolidator that might have material market share for the securities in current Tapes A, B, or C (where a significant number of market participants rely on it for such market data, for example, if a competing consolidator were to focus or specialize in stocks listed on a particular exchange), is subject to the requirements of Regulation SCI, even if its market share in stocks listed across all national securities exchanges is not as significant.[1262]

Although one commenter suggested that the Commission adopt a ten percent threshold for compliance with Regulation SCI,[1263] the Commission believes that such a threshold could exclude competing consolidators for which a systems issue or cybersecurity incident could have a significant impact on market participants or the national market system as a whole. As noted above, the numerical thresholds in the definition of ''SCI competing consolidator'' reflect an assessment by the Commission of the likely economic consequences of the specific numerical threshold included in the definition.

The Commission believes that the time measurement period for calculating the threshold (''during at least four of the preceding six calendar months''), is appropriate for evaluating the market share of a competing consolidator, because it provides a new entrant time to develop their business prior to having to incur the costs of complying with Regulation SCI,[1264] and it provides a long enough period of data on revenue and subscriber levels to evaluate reasonably a competing consolidator's significance to the market.[1265] It also mitigates a possible barrier to entry for some new competing consolidators. Further, the Commission believes that this time measurement period will help to ensure that competing consolidators meeting the definition of SCI competing consolidator are those that have sustained gross revenue levels at the threshold warranting the protections of Regulation SCI and is less likely to result in competing consolidators moving in and out of the scope of the definition than if the Commission were to adopt a shorter measurement period.

The adopted definition of ''SCI competing consolidator'' also provides that consolidated market data gross revenue paid to the effective national market system plan or plans required under § 242.603(b) for NMS stocks (1) listed on the NYSE; (2) listed on Nasdaq; or (3) listed on exchanges other than NYSE or Nasdaq will be ''as reported by such plan or plans pursuant to the terms thereof.'' Competing consolidators will need information regarding the consolidated market data gross revenues to assess whether they meet the 5% threshold and are required to comply with Regulation SCI. Accordingly, as discussed above, Rule 614(e) will provide that the amendment to the effective national market system plan(s) will have to include a provision that requires the plan(s) to calculate and publish total consolidated market data gross revenues for NMS stocks (1) listed on the NYSE, (2) listed on Nasdaq, and (3) listed on national securities exchanges other than the NYSE or Nasdaq, on a monthly basis.[1266]

As noted above, the requirements of Regulation SCI will not apply to any competing consolidator[1267] during an

[1258] Basing the threshold on a measure of the consolidated market data gross revenue paid to the plan, rather than number of subscribers, will reflect the value of the consolidated market data as determined by the plan's fees and thus account for those competing consolidators that may have fewer subscribers but pay higher fees due to having mainly professional subscribers who typically trade at significantly higher volumes than retail customers, as well as those competing consolidators that may have a relatively high number of retail subscribers that pay lower fees.

[1259] Competing consolidators not subject to Regulation SCI will be subject to Rule 614(d)(9), as discussed below.

[1260] As discussed below, the Commission is also requiring the amendment to the effective national market system plan(s) to include a provision that requires the plan(s) to calculate and publish information relating to the consolidated market data gross revenues on a monthly basis.

[1261] Should pricing for consolidated market data become more granular than exists today (*e.g.,* by moving from a per-tape basis to a per-listing exchange basis), reconsideration of the adopted thresholds may be appropriate.

[1262] For context, annual tape revenues reported by the CTA and Nasdaq UTP plans in 2019 were as follows: $162.9 million, $95.8 million, and $130.7 million, Tapes A, B, C, respectively. Thus, Tape A accounted for 41.8% of total revenues, Tape B accounted for 24.6% of total revenues, and Tape C accounted for 33.6% of total revenues. Five percent of these annual figures divided by 12 (*i.e.,* per month) yield monthly figures as follows: $679,000, $399,000, and $545,000, for Tapes A, B, and C, respectively. As illustrated by these figures, the notional value of the threshold level in the definition of SCI competing consolidator will vary for NMS stocks (i) listed on the NYSE, (ii) listed on Nasdaq, or (iii) listed on national securities exchanges other than the NYSE or Nasdaq. However, based on these 2019 figures, the threshold level for each tape represents over 1% of total monthly revenues across all tapes ($324,500). Specifically, the threshold for Tape A represents approximately 2.1% of total monthly revenues, the threshold for Tape B represents approximately 1.2% of total monthly revenues, and the threshold for Tape C represents approximately 1.7% of total monthly revenues. *See* CTA, SIP Revenue Allocation Summary, Q1 2020 Quarterly Revenue Disclosure, *available at https://www.ctaplan.com/publicdocs/ctaplan/CTA_Quarterly_Revenue_Disclosure_1Q2020.pdf* (last accessed Nov. 27, 2020); UTP, SIP Revenue Allocation Summary, Q1 2020 Quarterly Revenue Disclosure, *available at http://www.utpplan.com/DOC/UTP_Revenue_Disclosure_Q12020.pdf* (last accessed Nov. 27, 2020).

[1263] *See* Data Boiler Letter I at 57 (arguing that those below the threshold should be encouraged to voluntarily adopt SCI as ''best practices''). The commenter did not provide further detail as to how it believed this threshold should be measured (*e.g.,* total subscribers) or provide any rationale as to why this would be an appropriate threshold level.

[1264] *See infra* note 1271 (discussing the time period before a competing consolidator would be subject to Regulation SCI).

[1265] This time measurement period is drawn from the current measurement period in the definition of ''SCI ATS.'' *See* Rule 1000 of Regulation SCI (definition of ''SCI ATS''). This measurement period is also consistent with the measurement period in 17 CFR 242.301(b)(6) (Rule 301(b)(6) of Regulation ATS).

[1266] *See supra* Section III.E.

[1267] National securities exchanges are subject to the requirements of Regulation SCI because they are SCI entities. *See* Rule 1000 of Regulation SCI. As discussed above, an exchange affiliated competing consolidator may qualify for a conditional exemption from certain requirements otherwise applicable to national securities exchanges. *See supra* Section III.C.7(a)(iv). If an exchange qualifies for such an exemption, during the SCI CC Phase-In Period and, subsequent to such period, if it does not exceed the threshold in the definition of ''SCI competing consolidator'' in Rule 1000 of Regulation

initial period of one year after the compliance date of Rule 614(d)(3) of Regulation NMS.[1268] Instead, during this SCI CC Phase-In Period, competing consolidators will be subject to the requirements adopted in Rule 614(d)(9) of Regulation NMS, as discussed below, which includes requirements similar to some of the key provisions of Regulation SCI. The Commission believes that this phase-in period will mitigate the concerns raised by some commenters regarding potential barriers to entry by allowing potential competing consolidators to enter the market and develop their business and subscriber base, without requiring them to immediately shoulder the costs and burdens of Regulation SCI as SCI entities. At the same time, applying the requirements of Rule 614(d)(9) of Regulation NMS provides that competing consolidators are immediately subject to certain obligations to help ensure the reliability and resiliency of their systems during the SCI CC Phase-In Period. In addition, during this initial period, the plan processors would still be required to operate and would be SCI entities, subject to the requirement of Regulation SCI.[1269]

In addition, the Commission believes that it is appropriate to provide competing consolidators who enter the market after the SCI CC Phase-In Period and meet the revenue threshold in the definition of ''SCI competing consolidators'' for the first time, a period of time before they are required to comply with the requirements of Regulation SCI. Thus, Rule 1000 provides that an SCI competing consolidator will not be required to comply with the requirements of Regulation SCI until six months after satisfying the threshold in the definition of SCI competing consolidator for the first time.[1270] The Commission believes that this six-month ''grace'' period is appropriate and necessary to allow an SCI competing consolidator the time needed to take steps to meet the requirements of the rules, rather than requiring compliance immediately upon meeting the threshold level. The Commission also believes that this additional period for compliance should give a new competing consolidator entrant the opportunity to initiate and develop its business by allowing additional time before a new competing consolidator must incur the costs associated with compliance with the requirements of Regulation SCI.[1271]

Some commenters argued that competing consolidators should not only be subject to the standard requirements of Regulation SCI but should be held to the heightened requirements imposed on ''critical SCI systems.'' [1272] As the Commission stated in the Proposing Release, under the current consolidation model, because the exclusive SIPs represent single points of failure, they are all subject to heightened requirements as ''critical SCI systems.'' [1273] However, the competing consolidator model is designed to result in multiple viable sources of consolidated market data, and the competing consolidator model would not be initiated until a transition period is complete. Accordingly, the Commission believes that including systems of such competing consolidators within the scope of ''critical SCI systems'' is unnecessary, because any individual competing consolidator would no longer be the sole source of a consolidated market data product, as each SIP is today for its respective securities.[1274] Some commenters argued that, even with multiple competing consolidators, due to product differentiation, certain consolidators would become uniquely important to market participants and such participants would not be able to readily switch to another competing consolidator in the event of a systems issue.[1275] As such, commenters argued that each competing consolidator could become a single point of failure for its customers.[1276] However, in adopting the definition of ''critical SCI systems,'' the Commission explained that the definition is designed to ''identify those SCI systems that are critical to the operation of the markets, including those systems that represent single points of failure in the securities markets,'' and that the systems included in this category are those that, if they were to experience systems issues ''would be the most likely to have a widespread and significant impact on the securities markets.'' [1277] The Commission does not dispute that a systems issue at an individual SCI competing consolidator could have a significant impact on its subscribers, but the Commission does not believe that such a systems issue would have the same type of widespread impact on the national market system that the Commission had contemplated in its definition of ''critical SCI system.'' [1278]

Second, during the one-year SCI CC Phase-In Period and, subsequently, for competing consolidators that are not SCI competing consolidators, the Commission believes that a more tailored approach is appropriate, and is adopting a framework that imposes requirements similar to some of the key provisions of Regulation SCI on these

SCI, its exchange-affiliated competing consolidator would be subject to the requirements of Rule 614(d)(9) of Regulation NMS and not subject to the requirements of Regulation SCI.

[1268] Rule 614(d)(3) requires competing consolidators to make consolidated market data products available to subscribers on a consolidated basis on terms that are not unreasonably discriminatory. *See infra* note 1356 and accompanying text.

[1269] *See infra* Section III.H (discussing the transition period and compliance dates).

[1270] *See* Rule 1000 of Regulation SCI (paragraph (b) of definition of ''SCI competing consolidator'').

[1271] After the SCI CC Phase-In Period discussed above has passed (*i.e.,* after which paragraph (c) of the definition of SCI competing consolidator will no longer apply), any new competing consolidator would have at least ten months, at a minimum, before it would be subject to Regulation SCI, because the time measurement period within paragraph (a) of the definition of SCI competing consolidator (that a competing consolidator will be subject to Regulation SCI only if they meet the numerical threshold ''during at least four of the preceding six calendar months'') would occur prior to the start of the six-month ''grace'' period. For example, if a competing consolidator began operating in January of a year after the initial one-year SCI CC Phase-In Period, the earliest it would satisfy the thresholds in paragraph (a) of the definition of SCI competing consolidator for the first time would be May 1st of that year (*i.e.,* if such competing consolidator satisfied the threshold requirement in each of January, February, March and April). It would then have six months from that time to become fully compliant with Regulation SCI, and thus would have to comply with the requirements of Regulation SCI by November 1st.

[1272] *See* Cboe Letter at 25–26; Nasdaq Letter IV at 35–36; Data Boiler Letter I at 57; STANY Letter II at 6.

[1273] *See* Proposing Release, 85 FR at 16786.

[1274] *Id.* at 16786–87.

[1275] *See* Nasdaq Letter IV at 35–36; Cboe Letter at 25–26. *See also* Nasdaq Letter IV at 8.

[1276] *See* Nasdaq Letter IV at 35–36; Cboe Letter at 25–26; *see, however, e.g.,* Committee on Capital Markets Regulation Letter at 3 (''[W]ith multiple competing consolidators, there will no longer be a single point for failure capable of inducing stock market-wide paralysis, strengthening market resiliency.''). *See also* NYSE Letter II at 24; FINRA Letter at 4.

[1277] SCI Adopting Release at 72277.

[1278] Some commenters also argued that the Commission's proposal not to apply the standards for critical SCI systems to competing consolidators was based on the assumption that there will be multiple competing consolidators that enter the market. These commenters expressed doubt as to whether this would be the case. *See* Nasdaq Letter IV at 35–36; Cboe Letter at 25. *See also* Angel Letter at 20–21. However, the Commission notes that the second prong of the definition of ''critical SCI systems'' provides a catch-all for systems that ''[p]rovide functionality to the securities markets for which the availability of alternatives is significantly limited or nonexistent and without which there would be a material impact on fair and orderly markets.'' *See* Rule 1000 of Regulation SCI (definition of ''critical SCI system''). As discussed above, the competing consolidator model is designed to result in multiple viable sources of consolidated market data, would not be initiated until a transition period is complete, and thus should not result in a single point of failure. However, the second prong of the definition of ''critical SCI systems'' would apply in the event that availability of alternatives were significantly limited or nonexistent in the future.

entities. The Commission believes that this two-pronged approach will help ensure that the automated systems of competing consolidators have adequate levels of capacity, integrity, resiliency, availability, and security to maintain operational capability, while at the same time allowing all competing consolidators to grow their business for an initial transition period and subsequently, affording new entrants a similar opportunity to do so, taking into consideration their functions, potential risks, and the costs and burdens associated with the various requirements of Regulation SCI.[1279]

For those competing consolidators that (i) are newly registered and operating during the initial SCI CC Phase-In Period, or (ii) subsequently, do not satisfy the SCI entity definition because they are below the five percent SCI competing consolidator threshold, new paragraph (d)(9) of Rule 614 will apply. The provisions of Rule 614(d)(9) will subject competing consolidators that are not SCI competing consolidators to certain, but not all, obligations that are similar to those that apply to SCI entities.[1280] Paragraph (d)(9)(i) of Rule 614 contains certain definitions applicable to Rule 614(d)(9), which are discussed below.[1281] Paragraph (d)(9)(ii) of Rule 614 relates to the obligations of competing consolidators with respect to policies and procedures. Specifically, competing consolidators will be required to establish, maintain, and enforce written policies and procedures reasonably designed to ensure: That their systems involved in the collection and consolidation of consolidated market data, and dissemination of consolidated market data products, have levels of capacity, integrity, resiliency, availability, and security adequate to maintain the competing consolidator's operational capability and promote the maintenance of fair and orderly markets; and the prompt, accurate, and reliable dissemination of consolidated market data products.[1282] Paragraph (d)(9)(ii)(A)(*1*) of Rule 614 mirrors the broad policies and procedures obligation relating to capacity, integrity, resiliency, availability, and security in Rule 1001(a)(1) of Regulation SCI, which is core to ensuring the operational capability and resiliency of competing consolidators.[1283]

This rule does not follow the Regulation SCI approach of requiring minimum elements that are required for the operational capability policies and procedures of SCI entities.[1284] For competing consolidators that do not meet the definition of SCI competing consolidator and pose less risk to the markets as discussed above, the Commission believes it is appropriate to take a more flexible approach for the required policies and procedures under 17 CFR 242.614(d)(9)(ii) (Rule 614(d)(9)(ii)). The rule affords these competing consolidators the flexibility to design and tailor their policies and procedures based on their own assessment of their policies and procedures obligations relating to capacity, integrity, resiliency, availability, and security in paragraph (d)(9)(ii)(A)(*1*). Importantly, paragraph (d)(9)(ii)(A)(*1*) of Rule 614 incorporates into the general policies and procedures provision the requirement that a competing consolidator's policies and procedures be reasonably designed to ensure the ''prompt, accurate, and reliable dissemination of consolidated market data products.'' [1285]

Rule 1001(a)(2)(v) of Regulation SCI, which relates to BC/DR plans, specifically requires SCI entities to have BC/DR plans that ''include maintaining backup and recovery capabilities sufficiently resilient and geographically diverse and that are reasonably designed to achieve next business day resumption of trading and two-hour resumption of critical SCI systems following a wide-scale disruption.'' [1286] Like the other minimum elements enumerated in Rule 1001(a)(2) of Regulation SCI, the Commission is not adopting this requirement for competing consolidators who do not meet the thresholds in the definition of SCI competing consolidator.

Some commenters noted the impact that the impairment of a competing consolidator's data could have on its subscribers and stated the importance for subscribers to retain backup competing consolidators.[1287] Competing consolidators that are not SCI entities may choose to adhere voluntarily with the provisions in Regulation SCI related to BC/DR plans. Many market participants that receive consolidated market data products from a competing consolidator, whether an SCI competing consolidator or not, will take steps to assess the reliability and resilience of the competing consolidator, such as understanding the backup capabilities of a competing consolidator, as well as reviewing contract terms, due diligence, and monitoring. After such an assessment and evaluating the needs of their business and their customers, some market participants may choose to maintain connections to backup competing consolidators (*i.e.,* from a secondary source) that would be able to immediately provide such market participants with consolidated market data if their primary competing consolidator was unable to do so.

Paragraph (d)(9)(ii)(A)(*2*) of Rule 614 provides that the policies and procedures under paragraph (d)(9)(ii)(A)(*1*) will be deemed to be reasonably designed if they are consistent with current industry standards, which would be comprised of information technology practices that are widely available to information technology professionals in the financial sector and issued by an authoritative body that is a U.S. governmental entity or agency, association of U.S. governmental entities or agencies, or widely recognized organization. Compliance with such current industry standards, however, will not be the exclusive means to comply with the requirements of paragraph (d)(9)(ii)(A) of Rule 614.[1288] This provision mirrors the safe harbor relating to industry

[1279] *See supra* note 1271 and accompanying text. While one commenter suggested that competing consolidators that do not meet the threshold level should be encouraged to voluntarily adopt SCI as ''best practices,'' *see* Data Boiler Letter I at 56, the Commission believes that because of the importance of ensuring the reliable delivery of core market data to market participants in the securities markets, a more appropriate approach is to include in Rule 614(d)(9) requirements similar to some of the core provisions of Regulation SCI for competing consolidators that are not SCI competing consolidators.

[1280] Although competing consolidators that are not SCI entities would not be subject to the requirements of Regulation SCI, because of the similarities between the provisions of Rule 614(d)(9) and certain parallel provisions in Regulation SCI (as described herein), the Commission notes that competing consolidators can look to the Regulation SCI Adopting Release in certain cases for further explanation and guidance regarding these provisions. *See generally* SCI Adopting Release, *supra* note 1233. *See also* SCI Adopting Release at 72289–92 (for a discussion of 17 CFR 242.1001(a)(1) (Rule 1001(a)(1)) of Regulation SCI).

[1281] *See infra* notes 1295–1297 and accompanying text (discussing the definitions of systems disruption and systems intrusion).

[1282] *See* 17 CFR 242.614(d)(9)(ii)(A)(*1*) (Rule 614(d)(9)(ii)(A)(*1*)) of Regulation NMS.

[1283] In assessing whether its consolidated market data systems meet the security standard of Rule 614(d)(9)(ii)(A)(*1*), a relevant consideration would be whether any other systems provide vulnerable points of entry to a competing consolidator's consolidated market data systems, heightening the risk of a systems intrusion.

[1284] However, as discussed below, the Commission is incorporating into the general policies and procedures requirement the minimum element that relates directly to market data in 17 CFR 242.1001(a)(2)(v) (Rule 1001(a)(2)(v)) of Regulation SCI.

[1285] 17 CFR 242.614(d)(9)(ii)(A)(*1*). *See also* 17 CFR 242.1001(a)(2)(vi) (Rule 1001(a)(2)(vi)) of Regulation SCI.

[1286] Rule 1001(a)(2)(v) of Regulation SCI.

[1287] *See, e.g.,* FINRA Letter at 4.

[1288] *See* 17 CFR 242.614(d)(9)(ii)(A)(*2*) (Rule 614(d)(9)(ii)(A)(*2*)) of Regulation NMS.

standards in 17 CFR 242.1001(a)(4) (Rule 1001(a)(4)) of Regulation SCI.[1289]

Competing consolidators will also be required to review periodically the effectiveness of the policies and procedures required by paragraph (d)(9)(ii)(B) of Rule 614 and take prompt action to remedy deficiencies in such policies and procedures.[1290] This requirement in paragraph (d)(9)(ii)(B) of Rule 614 mirrors the requirement for periodic review found in 17 CFR 242.1001(a)(3) (Rule 1001(a)(3)) of Regulation SCI.[1291]

In addition, competing consolidators will be required to establish, maintain, and enforce reasonably designed written policies and procedures that include the criteria for identifying responsible personnel, the designation and documentation of responsible personnel, and escalation procedures to inform quickly responsible personnel of potential systems disruptions and systems intrusions; and periodically review the effectiveness of the policies and procedures, and take prompt action to remedy deficiencies.[1292] This paragraph (d)(9)(ii)(C) of Rule 614 maintains the framework found in 17 CFR 242.1001(c) (Rule 1001(c)) of Regulation SCI that requires an SCI entity to have policies and procedures, including escalation procedures, for identifying and designating responsible personnel who are responsible for assessing whether systems disruptions or systems intrusions have in fact occurred.[1293]

Paragraph (d)(9)(iii) of Rule 614 relates to the obligations of competing consolidators with respect to systems disruptions and systems intrusions.[1294] These provisions are similar to the SCI event obligations found in 17 CFR 242.1002 (Rule 1002) of Regulation SCI, with certain changes as discussed below. Systems disruption is defined in 17 CFR 242.614(d)(9)(i) (Rule 614(d)(9)(i)) to mean an event in a competing consolidator's systems involved in the collection and consolidation of consolidated market data, and dissemination of consolidated market data products, that disrupts, or significantly degrades, the normal operation of such systems.[1295] Systems intrusion is defined in Rule 614(d)(9)(i) to mean any unauthorized entry into a competing consolidator's systems involved in the collection and consolidation of consolidated market data and dissemination of consolidated market data products.[1296] These definitions mirror the definitions of those terms in Regulation SCI but are narrower in that they only focus on a competing consolidator's consolidated market data systems.[1297]

As a general matter, Rule 614(d)(9)(iii) only covers systems disruptions and systems intrusions and, unlike Rule 1002 of Regulation SCI, does not cover systems compliance issues. The Commission believes that this is appropriate as the regulatory framework for competing consolidators is largely limited to broad operational principles and targeted disclosures. One of the goals of imposing obligations related to systems compliance issues on SCI entities was to address past instances in which self-regulatory rule filings filed by some SCI entities were inconsistent with how their technology systems operated in practice.[1298] Systems compliance issues were included within the scope of Regulation SCI to help ensure an SCI entity's operational compliance with its own rules and governing documents (*i.e.,* to prevent systems from operating in a manner inconsistent with the rules and governing documents of an entity).[1299] In contrast, competing consolidators will not have similar requirements (*e.g.,* to file detailed rule filings) with respect to the operation of their automated systems.

Under paragraph (d)(9)(iii)(A) of Rule 614, competing consolidators will be required to, upon responsible personnel having a reasonable basis to conclude that a systems disruption or systems intrusion of consolidated market data systems has occurred, begin to take appropriate corrective action which must include, at a minimum, mitigating potential harm to investors and market integrity resulting from the event and devoting adequate resources to remedy the event as soon as reasonably practicable.[1300] This provision mirrors the corrective action obligations of SCI entities found in 17 CFR 242.1002(a) (Rule 1002(a)) of Regulation SCI, including the obligations of responsible personnel in assessing whether or not a systems issue has occurred.[1301]

In addition, promptly upon responsible personnel having a reasonable basis to conclude that a systems disruption (other than a system disruption that has had, or the competing consolidator reasonably estimates would have, no or a de minimis impact on the competing consolidator's operations or on market participants) has occurred, a competing consolidator will be required to disseminate publicly information relating to the event (including the system(s) affected and a summary description); and, when known, promptly publicly disseminate additional information relating to the event (including a detailed description, an assessment of those potentially affected, a description of the progress of corrective action, and when the event has been or is expected to be resolved); and until resolved, provide regular updates with respect to such information.[1302] These requirements in paragraph (d)(9)(iii)(B) of Rule 614 are broadly similar to 17 CFR 242.1002(c) (Rule 1002(c))'s information dissemination provisions in Regulation SCI with several important distinctions.[1303] First, unlike in Regulation SCI, the dissemination of information requirement in paragraph (d)(9)(iii)(B) of Rule 614 is not limited to dissemination to ''members or participants,'' as is the case for SCI entities in Rule 1002(c) of Regulation SCI. Instead, competing consolidators are required to disseminate ''publicly'' this information.[1304] The Commission

[1289] *See* SCI Adopting Release at 72298–03 (discussing Rule 1001(a)(4) of Regulation SCI). Concurrent with the adoption of Regulation SCI, Commission staff issued guidance providing examples of industry standards. *See* Staff Guidance on Current SCI Industry Standards (Nov. 19, 2014), *available at http://www.sec.gov/rules/final/2014/staff-guidance-current-sci-industry-standards.pdf.*

[1290] *See* 17 CFR 242.614(d)(9)(ii)(B) (Rule 614(d)(9)(ii)(B)) of Regulation NMS.

[1291] *See* SCI Adopting Release at 72291–92 (discussing Rule 1001(a)(3) of Regulation SCI).

[1292] *See* Rule 614(d)(9)(ii)(B) of Regulation NMS. The Commission notes that Rule 614(d)(9) does not define responsible personnel, as it believes it is likely that a competing consolidator would define this and other key terms in its policies and procedures, which pursuant to paragraph (d)(9)(ii)(A)(*1*) must be reasonably designed. The Commission also notes that competing consolidators may look to the definitions of this and other terms in Rule 1000 of Regulation SCI as guidance in developing their own definitions.

[1293] *See* SCI Adopting Release at 72314–16 (discussing Rule 1001(c) of Regulation SCI).

[1294] *See* Rule 614(d)(9)(iii) of Regulation NMS.

[1295] *See* Rule 614(d)(9)(i) of Regulation NMS.

[1296] *See id.*

[1297] *See* Rule 1000 of Regulation SCI.

[1298] *See* Securities Exchange Act Release No. 69077 (Mar. 8, 2013), 78 FR 18084, 03 (Mar. 25, 2013) (Regulation SCI Proposing Release describing examples of systems compliance issues).

[1299] *See* SCI Adopting Release at 72287 (describing the definition of ''systems compliance issue), 72304 (discussing the requirement to have policies and procedures to achieve systems compliance).

[1300] *See* 17 CFR 242.614(d)(9)(iii)(A) (Rule 614(d)(9)(iii)(A)) of Regulation NMS.

[1301] *See* SCI Adopting Release at 72316–17 (discussing Rule 1002(a) of Regulation SCI). *See also* SCI Adopting Release at 72315–16 (discussing the triggering standard for SCI event obligations).

[1302] *See* 17 CFR 242.614(d)(9)(iii)(B) (Rule 614(d)(9)(iii)(B)) of Regulation NMS.

[1303] *See* SCI Adopting Release at 72331–36 (discussing Rule 1002(c) of Regulation SCI).

[1304] The Commission expects that there are various methods by which a competing consolidator may publicly disseminate this information including, but not limited to, a

Continued

believes this is appropriate because, as discussed above, market participants will be looking to the reliability and resilience of respective competing consolidators in deciding which competing consolidator(s) to use as its source of consolidated market data products. By requiring public dissemination of any systems issues, all market participants, whether or not they are ''members or participants'' of the competing consolidator, will be able to access this information and use it, in combination with the competing consolidators' published performance metrics, in assessing the reliability and resilience of the various competing consolidators they may be considering.

In addition, the public dissemination requirement in paragraph (d)(9)(iii)(B) of Rule 614 contains a simplified framework when compared to Rule 1002(c) of Regulation SCI [1305] and only applies to systems disruptions. The Commission believes that this streamlined approach is appropriate to limit burdens for these competing consolidators (as compared to the parallel requirements for SCI competing consolidators), and the Commission believes that the new requirements for competing consolidators described above that will require public disclosure of metrics and other information—such as information on system availability, network delay statistics, data quality, and systems issues—help to achieve some of the same goals of public transparency and help to ensure the resiliency of competing consolidators' systems as the information dissemination provisions of Regulation SCI.[1306] Similar to Regulation SCI's requirements for systems disruptions, paragraph (d)(9)(iii)(B) of Rule 614 includes a provision that exempts information dissemination for a ''system disruption that has had, or the competing consolidator reasonably estimates would have, no or a de minimis impact on the competing consolidator's operations or on market participants.''

Concurrent with public dissemination of information relating to a systems disruption, competing consolidators will also be required to provide the Commission notification of such event, including the information required to be publicly disseminated.[1307] In addition, competing consolidators will be required to notify the Commission promptly upon responsible personnel having a reasonable basis to conclude that a systems intrusion (other than a system intrusion that has had, or the competing consolidator reasonably estimates would have, no or a de minimis impact on the competing consolidator's operations or on market participants) has occurred. Notifications regarding systems disruptions and systems intrusions that competing consolidators must provide to the Commission under this provision include information relating to the event (including the system(s) affected and a summary description); when known, additional information relating to the event (including a detailed description, an assessment of those potentially affected, a description of the progress of corrective action and when the event has been or is expected to be resolved); and until resolved, regular updates with respect to such information. This is the same information that paragraph (d)(9)(iii)(B) of Rule 614 will require competing consolidators to disseminate publicly for systems disruptions.[1308] Paragraph (d)(9)(iii)(C) of Rule 614 does not require competing consolidators to adhere to the detailed framework for notifying the Commission of SCI events under Regulation SCI.[1309] Rather, the rule requires competing consolidators to provide, concurrent with public dissemination of information relating to a systems disruption, or promptly upon responsible personnel having a reasonable basis to conclude that a non-de minimis systems intrusion has occurred, the Commission notification of such event and, until resolved, updates of such event.

The Commission believes that this streamlined Commission notification requirement via Form CC, in combination with other requirements for competing consolidators that require disclosure of other information on Form CC and through performance metrics,[1310] help to achieve the goal of keeping the Commission informed of the nature and frequency of issues that occur affecting the systems of competing consolidators that are not SCI entities.[1311]

Unlike the information that is filed with the Commission on Form SCI, which is treated as confidential subject to applicable law, Form CC, including any information about systems disruption and systems intrusions, will be publicly available. The Commission recognizes that information regarding systems intrusions may be sensitive, and making such information publicly available could compromise the security of the systems or an investigation into the systems intrusion. Because Rule 614(d)(9) does not otherwise require public dissemination of such events, Form CC will permit competing consolidators to seek confidential treatment of Commission notifications related to systems intrusions. Unlike Rule 614(d)(9), Regulation SCI requires public dissemination of information relating to systems intrusions. However, the Commission similarly recognized the potentially sensitive nature of information relating to systems intrusions and provided a limited exception allowing SCI entities to delay dissemination of any information about a systems intrusion if dissemination would compromise the security of SCI systems or an investigation into the systems intrusion.[1312]

Section 242.614(d)(9)(iv) (Rule 614(d)(9)(iv)) will require competing consolidators to participate in the industry- or sector-wide coordinated testing of BC/DR plans required of SCI entities pursuant to paragraph (c) of 17 CFR 242.1004 (Rule 1004) of Regulation SCI.[1313] Section 242.1004(c) (Rule 1004(c)) of Regulation SCI relates to the

''systems status'' web page of the competing consolidator that is easily and clearly locatable from the competing consolidator's home web page and accessible at no cost to the public, or a messaging service that anyone can subscribe to without cost that will provide, without delay, alerts to subscribers regarding the competing consolidator's systems status.

[1305] For example, paragraph (d)(9)(iii)(B) of Rule 614 requires only ''an assessment of those potentially affected'' by an event, while Rule 1002(c) of Regulation SCI requires an SCI entity's ''current assessment of the types and number of market participants potentially affected by'' an event.

[1306] *See* Proposing Release, 85 FR at 16777, 16781, 16783–84 (explaining that the required information on Form CC and published performance metrics will help the Commission and market participants to evaluate the resiliency and technological reliability of a competing consolidator's systems); *see also supra* Sections III.C.7(c) and (d).

[1307] *See* 17 CFR 242.614(d)(9)(iii)(C) (Rule 614(d)(9)(iii)(C)) of Regulation NMS.

[1308] Rule 614(d)(9)(iii)(B) does not require competing consolidators to publicly disseminate information relating to systems intrusions. However, Rule 614(d)(9)(iii)(C) requires information relating to a system intrusion to be filed with the Commission on Form CC, which will be publicly available, though competing consolidators may seek confidential treatment for such information. *See supra* note 1052 and accompanying text.

[1309] Regulation SCI contains a detailed framework that SCI entities must follow to notify the Commission about SCI events, including prescribed timelines to provide the Commission with initial report, updates, and final reports regarding SCI events. *See* 17 CFR 242.1002 (Rule 1002 of Regulation SCI).

[1310] *See supra* Sections III.C.7(c) and (d).

[1311] As stated in the Proposing Release and discussed above, the requirements to provide information on Form CC and publish performance metrics are designed to facilitate the Commission's oversight of competing consolidators and help ensure the resiliency and technological reliability of a competing consolidator's systems. *See* Proposing Release, 85 FR at 16777, 16781, 16783–84; *see also supra* Sections III.C.7(c) and (d).

[1312] *See* 17 CFR 242.1002(c)(2) (Rule 1002(c)(2)) of Regulation SCI; SCI Adopting Release at 72334.

[1313] *See* Rule 614(d)(9)(iv) of Regulation NMS.

coordination of BC/DR testing required by Rule 1004 of Regulation SCI on an industry- or sector-wide basis with other SCI entities.[1314] Because the consolidated market data, in total, provided by competing consolidators is essential to testing the systems of SCI entities, and because the SCI entities and their members or participants who are designated to participate in the testing required by Rule 1004 of Regulation SCI may rely on different competing consolidators to supply consolidated market data products, the Commission believes that it is appropriate that all competing consolidators be required to participate in the industry- or sector-wide testing required by paragraph (c) or Rule 1004 of Regulation SCI.

Finally, the Commission proposed certain changes to Rule 1000 of Regulation SCI's definition of ''critical SCI system.'' [1315] These changes are being adopted as proposed. First, the Commission proposed to revise the phrase ''the provision of consolidated market data'' in paragraph (1)(v) of the definition of ''critical SCI systems'' to ''the provision of market data by a plan processor.'' In addition, to avoid confusion with the term ''consolidated market data,'' that phrase was replaced with ''market data'' in the definition of ''critical SCI systems.'' The Commission did not receive any comment on the proposed revisions to the definition of ''critical SCI system'' and is adopting these changes to such definition as proposed for the reasons set forth in the proposal.[1316]

G. Effects on the National Market System Plan Governing the Consolidated Audit Trail

In the Proposing Release, the Commission described the anticipated effect on the CAT NMS Plan. Specifically, the CAT NMS Plan requires the Central Repository [1317] to ''collect (from a SIP [1318] or pursuant to an NMS Plan [1319]) and retain on a current and continuing basis . . . all data, including the following (collectively, 'SIP Data').'' [1320] Because consolidated market data includes information beyond what is provided in SIP data—such as orders in new round lot sizes, depth of book data, and auction information—the scope of the consolidated market data collected and retained by the Central Repository would increase. In addition, the Central Repository may have to collect the data from a different source.

The Commission received four comments on the effect of the decentralized consolidation model on the CAT NMS Plan.[1321] One commenter stated that significant changes to the content or source of data collected by CAT, such as those proposed, could impact the CAT implementation timeline, especially if the changes occur while CAT implementation is still in progress.[1322] Therefore, the commenter recommended that the expanded content in consolidated market data and the decentralized consolidation model be implemented after CAT has been fully implemented.[1323] Another commenter suggested that the Commission review the choice of competing consolidator as the Central Repository's source of consolidated market data.[1324]

Additionally, in response to a question raised by the Commission in the Proposing Release asking whether CAT should receive consolidated market data from one, all, or a subset of competing consolidators,[1325] one commenter noted its preliminary belief that the Central Repository should receive only consolidated market data from one competing consolidator with a connection to an additional competing consolidator as a back-up source of data in the event of a systems disruption at the selected competing consolidator.[1326] The commenter also stated that whether CAT uses a single or multiple competing consolidators would raise concerns about increased complexity.[1327] Another commenter expressed concern about conflicting data produced by competing consolidators. Assuming CAT takes in data from every competing consolidator, the commenter asked how CAT would handle conflicting data it received from the competing consolidators and how industry participants would be expected to respond to such conflicting data.[1328]

The Commission does not believe that implementation of the amendments discussed herein should be delayed until CAT has been fully implemented. The systems used by the Central Repository must be adaptable to permit incorporation of improved technologies, additional order data, and changes in regulatory requirements; [1329] therefore, the Central Repository should be capable of incorporating the changes added by the amendments discussed herein. The Commission expects the CAT NMS Plan Operating Committee to develop plans for the necessary changes to the Central Repository. As discussed in the following section, there will be a transition period for switching from the exclusive SIPs to the decentralized consolidation model. During this time, the CAT NMS Plan Operating Committee can integrate the necessary

[1314] *See* SCI Adopting Release at 72354–55 (discussing Rule 1004(c) of Regulation SCI).

[1315] *See* Proposing Release, 85 FR at 16786–87.

[1316] *But see supra* notes 1272–1278 and accompanying text (discussing commenters concerns that competing consolidators would not have critical SCI systems under Regulation SCI, unlike plan processors today).

[1317] The CAT NMS Plan defines ''Central Repository'' as ''the repository responsible for the receipt, consolidation, and retention of all information reported to the CAT pursuant to SEC Rule 613 and this Agreement.'' CAT NMS Plan, *supra* note 1220, at Section 1.1.

[1318] The CAT NMS Plan defines ''Securities Information Processor'' or ''SIP'' as having ''the same meaning provided in Section 3(a)(22)(A) of the Exchange Act.'' *Id.* at Section 1.1.

[1319] The CAT NMS Plan defines ''NMS Plan'' as having ''the same meaning as 'National Market System Plan' provided in SEC Rule 613(a)(1) and SEC Rule 600(b)(43).'' *Id.* at Section 1.1.

[1320] *Id.* at Section 6.5(a)(ii). Section 6.5(a)(ii) specifically enumerates the following ''SIP Data'' elements: ''(A) information, including the size and quote condition, on quotes including the National Best Bid and National Best Offer for each NMS Security; (B) Last Sale Reports and transaction reports reported pursuant to an effective transaction reporting plan filed with the SEC pursuant to, and meeting the requirements of, SEC Rules 601 and 608; (C) trading halts, Limit Up/Limit Down price bands, and Limit Up/Limit Down indicators; and (D) summary data or reports described in the specifications for each of the SIPs and disseminated by the respective SIP.'' *Id.*

[1321] *See* FINRA Letter at 11; TD Ameritrade Letter at 15; Fidelity Letter at 11; Data Boiler Letter I at 64–65.

[1322] *See* FINRA Letter at 12.

[1323] *See id.*

[1324] Fidelity Letter at 11.

[1325] *See* Proposing Release, 85 FR at 16794.

[1326] *See* FINRA Letter at 12.

[1327] *See id.* at n. 50.

[1328] TD Ameritrade at 15. Finally, another commenter suggested that instead of receiving data from competing consolidators, CAT should directly access the ''real-time analytical platform'' of SROs and competing consolidators in order to analyze and monitor trading in real-time, stating that ''CAT's 'T+5 Regulatory Access' is too late. . . .'' Data Boiler Letter I at 64. As described above, Section 6.5(a)(ii) of the CAT NMS Plan requires the Central Repository to collect (from a SIP or pursuant to a NMS plan) all data, including SIP data. This requires the Central Repository to collect consolidated data, not individual SRO feeds for the Central Repository to consolidate. Therefore, the Commission believes this comment is beyond the scope of the present rulemaking.

[1329] 17 CFR 242.613(a)(1)(v) (Rule 613(a)(1)(v)) provides that the CAT NMS Plan must include ''the flexibility and scalability of the systems used by the central repository to collect, consolidate, and store consolidated audit trail data, including the capacity of the consolidated audit trail to efficiently incorporate, in a cost effective manner, improvements in technology, additional capacity, additional order data, information about additional securities or transactions, changes in regulatory requirements, and other developments.'' *See also* CAT NMS Plan, *supra* note 1220, at Appendix D, Section 1.1. (stating ''The Central Repository must be designed and sized to ingest, process, and store large volumes of data. The technical infrastructure needs to be scalable, adaptable to new requirements and operable within a rigorous processing and control environment.'').

changes into the Central Repository requirements in a manner consistent with its change management policies.

With respect to the comment stating that the Central Repository should only receive consolidated market data from a single competing consolidator, with a connection to a back-up competing consolidator in the event of a systems disruption, and the comment asking how CAT would reconcile conflicting data across all of the competing consolidators, the Commission is not requiring the Central Repository to subscribe to multiple competing consolidators. Whether CAT uses a single competing consolidator or multiple competing consolidators to receive all of consolidated market data is a choice that should be made by the CAT NMS Plan Operating Committee in its management of CAT in order to comply with its obligations under the CAT NMS Plan.[1330] In addition, the CAT NMS Plan Operating Committee has the experience and is well positioned to determine the best and most reliable sources of data while at the same time minimizing any costs that may be associated with multiple sources. In response to the commenter suggesting that the Commission review the Operating Committee's selection of a competing consolidator for the Central Repository, the CAT NMS Plan Operating Committee will have to select a competing consolidator that would allow it to comply with its obligations under the CAT NMS Plan, which is subject to Commission oversight.

Notwithstanding the modification to allow competing consolidators to develop consolidated market data products that may not contain all elements of consolidated market data, the Commission believes that because Section 6.5(a)(ii) of the CAT NMS Plan requires the Central Repository to collect and retain ''all data'' from ''a SIP or pursuant to an NMS Plan,'' the Central Repository will be required to collect and retain all elements of consolidated market data. In the Proposing Release, the Commission stated that ''the Central Repository would be required to collect and retain consolidated market data'' and that ''the scope of the consolidated data collected and retained by the CAT Central Repository would be expanded'' as a result of the proposed amendments.[1331] The requirement in Section 6.5(a)(ii) that the Central Repository collect and retain ''all data'' from ''a SIP or pursuant to an NMS Plan'' requires the Central Repository to collect and retain all elements of consolidated market data. Moreover, the Commission is not reducing the scope of information that is required to be collected and retained by the Central Repository. Therefore, the Central Repository must continue to collect and retain ''all data'' that it currently collects and retains, such as information regarding quotations and transactions in OTC equity securities that it collects pursuant to the Nasdaq UTP Plan.[1332]

H. Transition Period and Compliance Dates

1. Proposal

In the Proposing Release, the Commission stated that a transition period would be necessary to implement the decentralized consolidation model. The Commission described the following things that would have to occur to implement the decentralized consolidation model: (1) The SROs may need development time to create new separate data feeds for consolidated market data; [1333] (2) the SROs would need to make adjustments to their data collection and processing systems to integrate regulatory data into their new or existing data feeds; (3) firms intending to act as competing consolidators or self-aggregators would need time to register, develop or modify systems, establish pricing, and make other preparations; and (4) market participants would need some period of time for implementation and testing of any new data feeds, and would need a consistent and reliable source of consolidated market data as these changes are being implemented. The Commission stated that, during the transition period, the exclusive SIPs should continue their operations until such time as the Commission considers and approves an effective national market system plan amendment that would effectuate a cessation of their operations as exclusive SIPs.

The Commission stated that to approve this plan amendment, the Commission would need to consider the operational readiness of competing consolidators and self-aggregators and that sufficient operational readiness would only be achieved once consolidated market data generated under the decentralized consolidation model is demonstrably capable of supporting the various needs of users of consolidated market data, including needs for visual display, trading activities, and compliance with regulatory obligations, such as under Rules 603(c) and Rule 611 under Regulation NMS and best execution. The Commission would also consider the state of the market and the general readiness of the competing consolidator infrastructure. The Commission stated that considerations could include: (1) The status of registration, testing, and operational capabilities of multiple competing consolidators, self-aggregators, and market participants; (2) capabilities of competing consolidators to provide monthly performance metrics and other data required to be published pursuant to proposed Rules 614(d)(5) and (6); and (3) the consolidated market data products offered by competing consolidators.[1334] The Commission requested comment on various aspects of the proposed transition period, including, but not limited to, the time period for SROs to make necessary changes to provide data content necessary for consolidated market data to competing consolidators and self-aggregators, the time period for broker-dealers to make any necessary changes, and how long the transition period should last.

2. Final Rule and Response to Comments

The Commission received several comments on the proposed transition period. One commenter described the proposed transition period as ''undefined and indefinite'' and in violation of the APA and as granting ''unchecked decision-making authority outside the rulemaking process'' to the Commission because market participants would not be able to comment on the Commission's evaluation of whether the decentralized consolidation model is ready to be implemented.[1335] This commenter stated that the Commission failed to define how it would determine ''operational readiness'' necessary to terminate the transition period and did not consider what would happen if no competing consolidators register.[1336] Further, the commenter stated that the Commission did not place specific parameters around the transition period and that potential entrants and market

[1330] *See* CAT NMS Plan, *supra* note 1220, at Article IV.

[1331] Proposing Release, 85 FR at 16794.

[1332] *See supra* Section II.C.2(c). Data about OTC equity securities is not included in consolidated market data. Therefore, as stated in the Proposing Release, the Central Repository may have to obtain this data from a different source. Proposing Release, 85 FR at 16794.

[1333] The Proposing Release described how the SROs may use existing proprietary data feeds to provide consolidated market data but that they also may decide to develop new dedicated data feeds.

[1334] Proposing Release, 85 FR at 16795.

[1335] NYSE Letter II at 15–16.

[1336] *Id.* at 16. The commenter also said that the Commission has not considered what would happen if the initial implementation phase does not create sufficient competition. *Id.* at 13.

participants would incur substantial costs and expenses while the Commission waits to see whether competing consolidators will emerge.[1337] Similarly, another commenter stated that the proposed transition period incorrectly assumes that competing consolidators would form before the Commission approves the NMS plan amendment, explaining that market participants would ''have no incentive to expend the millions of dollars, time, and effort to create a competing consolidator before the Commission approves the NMS plan.'' [1338] This commenter also stated that the lack of a time limit on when the model would be implemented would result in competing consolidators, self-aggregators, and SROs incurring substantial costs to prepare only to be ''left in limbo'' during a potential unlimited delay.[1339] One other commenter requested clarification on the data that exclusive SIPs would be required to produce before competing consolidators have registered, and whether exclusive SIPs would be required to continue operating if they decide not to register as competing consolidators.[1340]

Two commenters offered suggestions for the timing of the implementation of the decentralized consolidation model.[1341] One of the commenters said that the proposal should be implemented in three phases.[1342] The first phase would establish the decentralized consolidation model within one year of the approval of the proposed amendments.[1343] In the second phase, which would be implemented within six months of the implementation of the first phase, core data would be enhanced to include depth of book data, auction information, and aggregated odd-lots. The third phase would address the proposed definitions of round lot and protected quote and would be completed within six months of the completion of the second phase.[1344] Another commenter stated that the proposed changes to the content and speed of consolidated market data should be accomplished closely in time.[1345]

The transition period will be an important phase in the implementation of the decentralized consolidation model and the expansion of NMS information. Several events during the transition period will serve as public benchmarks and provide market participants with information as to the timing of implementation. During this period, there would be at least two effective national market system plan(s) amendments submitted. One is required under Rule 614(e) and must be submitted within 150 days of Rule 614's effectiveness; the other would be filed later to terminate operations of the exclusive SIPs. Each of these amendments will be filed pursuant to Rule 608 and subject to public comment that will inform Commission action.

The Commission, however, is providing additional details regarding the transition to the decentralized consolidation model and the expansion of NMS information, including the sequence of key implementation steps, to provide greater clarity to market participants and respond to certain concerns raised by commenters. Specifically, as discussed further below, the Commission believes today's amendments should be implemented in three phases to facilitate an orderly transition, to avoid unnecessary stress on the functioning of the market, and to avoid unnecessary and duplicative programming and development by the existing exclusive SIPs, SROs, and other market participants. The phased approach also establishes finite time limits for the steps in the transition process based on discrete periods of time from key implementation milestones, which addresses comments regarding the uncertainty around the details of the proposed transition period.[1346]

Phase One. During the first phase of the transition period, the fees for data content underlying consolidated market data will be filed with the Commission, and competing consolidator infrastructure will be developed and tested.

Plan amendments. The first key milestone will be the amendment to the effective national market system plan(s) required under Rule 614(e), which must include the fees proposed by the plan(s) for data underlying consolidated market data.[1347] The proposed amendment must be filed with the Commission within 150 days of the effectiveness of Rule 614. Within 90 days of the date of publication of the proposed amendment, or within such longer period as to which the plan participants consent, the Commission shall, by order, approve or disapprove the amendment, or institute proceedings to determine whether the amendment should be disapproved.[1348] Such proceedings shall include notice of the grounds for disapproval under consideration and opportunity for hearing and shall be concluded within 180 days of the date of publication of notice of the plan or amendment. At the conclusion of such proceedings the Commission shall, by order, approve or disapprove the plan or amendment.[1349] The time for conclusion of such proceedings may be extended for up to 60 days (up to 240 days from the date of notice publication) if the Commission determines that a longer period is appropriate and publishes the reasons for such determination or the plan participants consent to the longer period.[1350] The time for conclusion of proceedings to determine whether a proposed amendment should be disapproved may be extended for an additional period up to 60 days beyond the period set forth in paragraph (b)(2)(i) of Rule 608 (up to 300 days from the date of notice publication) if the Commission determines that a longer period is appropriate and publishes the reasons for such determination or the plan participants consent to the longer period.[1351]

Initial Registration and Review Period. The next step in the first phase of the transition period—the registration of an initial ''first wave'' of competing consolidators—will commence on the date the Commission approves the amendments to the effective national market system plan(s) required under Rule 614(e), including the fees for the SRO data content necessary to generate

[1337] *Id.* at 16. The commenter also stated that the inability to earn returns during the transition period despite the need to make substantial investments to become a competing consolidator or self-aggregator would make the failure of the decentralized consolidation model more likely. *Id.*

[1338] IDS Letter I at 8.

[1339] *Id.* at 9.

[1340] RBC Letter at 7.

[1341] *See* Clearpool Letter at 5; RBC Letter at 2.

[1342] *See* Clearpool Letter at 5.

[1343] *See id.*

[1344] *See id.* at 5–6.

[1345] *See* RBC Letter at 2.

[1346] Section 36(a)(1) of the Exchange Act authorizes the Commission, subject to certain limitations, to conditionally or unconditionally exempt any person, security, or transaction, or any class thereof, from any provision of the Exchange Act or rule thereunder, if necessary or appropriate in the public interest and consistent with the protection of investors. 15 U.S.C. 78mm(a)(1). The Commission will monitor the implementation of these amendments during the transition period and may exercise this exemptive authority, for example, to provide exemptions from the deadlines and compliance dates set forth below.

[1347] *See supra* note 1126 and accompanying text. The Operating Committee could also propose a revised revenue allocation formula for the fees collected for the data content underlying consolidated market data, and exchanges would propose any connectivity fees they intend to charge for the data content underlying consolidated market data during this time period through the Section 19(b) rule filing process.

[1348] *See* 17 CFR 242.608(b)(2)(i) (Rule 608(b)(2)(i)).

[1349] *See id.*

[1350] *See id.*

[1351] *See* 17 CFR 242.608(b)(2)(ii) (Rule 608(b)(2)(ii)).

consolidated market data.[1352] Thus, fees for the SRO data content necessary to generate consolidated market data will be established prior to competing consolidator registration. The Commission believes that sequencing the approval of the amendments to the effective national market system plan(s) to precede competing consolidator registration will address concerns raised by several commenters that understanding the fees for data content underlying consolidated market data is necessary for competing consolidators and self-aggregators to develop business plans and decide whether to enter the market in these capacities. It will also allow competing consolidators to understand plan data costs for customers relative to proprietary data so that they can better assess anticipated market demand.

The registration period for the first wave of competing consolidators will begin on the date that the plan amendments are approved by the Commission and will continue for 90 days. Pursuant to Rule 614(a)(1)(v), the initial Forms CC filed during this period will become effective, unless declared ineffective by the Commission, after the 90 calendar day Commission review period set forth in Rule 614(a)(1)(iii). The Commission believes that establishing a first wave process for the initial competing consolidators will provide incentives for entities to register because only those competing consolidators that register during the first wave will be permitted to participate in the testing period discussed below. All other competing consolidators will have to wait until the Commission approves the second plan amendment to terminate the operation of the exclusive SIPs.[1353] The Commission believes that allowing the entities that register during the first wave to operate during the testing period will help ease the transition to the decentralized consolidation model and limit the potential for systems or other operational problems within the national market system.[1354]

Development period. Starting with the approval of the plan amendments, and simultaneous with the 180 day registration and review period, there will be a development period. During this time, the SROs would develop the capacity to make the data content necessary to generate consolidated market data available from their data centers. SROs will be required to make the data content necessary to generate consolidated market data available to competing consolidators and self-aggregators 180 calendar days after the approval of the plan amendments.[1355] Similarly, competing consolidators and self-aggregators would develop the capacity to receive the SRO data content and generate consolidated market data products during this period.

Testing period. Following the development period, there will be a 90 day testing period. During this time, competing consolidators and self-aggregators will implement the technological changes made during the development period and test capacity with the SROs and potential customers.

Phase One Go-Live. Following the development and testing periods, there will be an initial go-live period where competing consolidators can go live on a rolling basis and begin to provide consolidated market data products to subscribers.[1356]

Phase Two. Initial Parallel Operation Period. Following the phase one go-live, the decentralized consolidation model will run in parallel to the existing exclusive SIP model for an initial parallel operation period of 180 calendar days. During this initial parallel operation period, the exclusive SIPs will continue to provide the market data required under the current effective national market system plan(s). The Commission believes that requiring the existing exclusive SIPs to continue disseminating the same data that they currently do will prevent the imposition of unnecessary costs—namely, any change to the data content the SIPs currently disseminate—on the existing exclusive SIPs immediately prior to their retirement. Nothing in the rules would prevent competing consolidators from providing market data to their subscribers during the initial parallel operation period.[1357] This will enable competing consolidators to earn returns and recoup their development costs during the transition period.

With respect to regulatory data during the initial parallel operation period, the existing SIPs will be required to continue to calculate and generate the regulatory data that they do currently—such as LULD price bands and messages regarding the triggering of a market-wide circuit breaker—and will provide this information to the primary listing exchanges, who will in turn make this information available to competing consolidators and self-aggregators.[1358] Similarly, the primary listing exchanges will continue to calculate and generate regulatory data as currently required—such as messages regarding the triggering of a short sale circuit breaker and trading halt and pause messages—and will make this information available to competing consolidators and self-aggregators. The Commission believes that this approach, which maintains the current status quo regarding the party that calculates and generates regulatory data during the initial parallel operation period, will avoid the potential confusion and market disruption that could result from multiple parties—*i.e.,* the primary listing exchanges and the existing SIPs—generating this information. In addition, it would avoid the imposition of unnecessary costs on the existing SIPs immediately prior to their retirement that would be associated with other approaches, such as shifting the calculation and generation of all regulatory data to the primary listing exchanges at an earlier stage and requiring the existing SIPs to develop the capacity to pass this information through to market participants. Furthermore, the primary listing exchanges would develop and test the capacity to calculate and generate LULD price bands, market-wide circuit breaker trigger messages,

[1352] The compliance date for Rule 614(a), which provides the Form CC registration process requirements for competing consolidators, will thus be the date of the Commission's approval of the amendments to the effective national market system plan(s) required under Rule 614(e).

[1353] *See infra* note 1360 and accompanying text.

[1354] As discussed above, some commenters questioned whether enough competing consolidators would enter the market to make the decentralized consolidation model viable. *See supra* Section III.B.3. The Commission believes that implementing a first wave of registrations to encourage entities that wish to act as competing consolidators will help to ensure that sufficient numbers of entities enter the market. *See infra* notes 2142–2144 and accompanying text.

[1355] The compliance date for the amendments to Rule 603(b), which require SROs to make available all data content necessary to generate consolidated market data to competing consolidators and self-aggregators, will thus be 180 calendar days from the date of the Commission's approval of the amendments to the effective national market system plan(s) required under Rule 614(e).

[1356] The compliance date for Rule 614(d)(3), which requires competing consolidators to make consolidated market data products available to subscribers on a consolidated basis on terms that are not unreasonably discriminatory, will thus be 270 days from the date of the Commission's approval of the amendments to the effective national market system plan(s) required under Rule 614(e).

[1357] As discussed below, the transition to the new round lot sizes would occur later. The consolidated market data products offered by competing consolidators during the initial parallel operation period would be based on the current definition of round lot. In addition, the new revenue allocation formula would be coded and tested during phase two.

[1358] The Proposing Release describes in detail how the various components of regulatory data are currently calculated and disseminated, including the specific obligations of the primary listing exchanges and the existing SIPs, as well as how these processes and responsibilities will be modified under the decentralized consolidation model. *See* Proposing Release, 85 FR at 16732–33, 16759–63. *See also supra* Section II.H.2.

and other regulatory messages currently generated by the existing SIPs—the calculation and generation of which will be shifted to the primary listing exchanges pursuant to these amendments [1359]—during the initial parallel operation period and prior to the retirement of the existing SIPs. After the initial parallel operation period ends, the SIPs and competing consolidators will continue to run in parallel operation as the Operating Committee and the Commission consider the retirement of the exclusive SIPs in the next phase.

Continuing parallel operation and retirement of the exclusive SIPs. At the end of the initial parallel operation period, the Operating Committee of the effective national market system plan(s), in consultation with market participants including SROs, broker-dealers, vendors, and others that consume market data, will evaluate the performance of the decentralized consolidation model during the initial parallel operation period. Within 90 days of the end of the initial parallel operation period, the Operating Committee will make a recommendation to the Commission as to whether the exclusive SIPs should be decommissioned. The Commission will consider an effective national market system plan amendment to effectuate a cessation of the operations of the exclusive SIPs and, if consistent with the requirements of Rule 608 and the Exchange Act, approve such an amendment. Such an approval order will facilitate the final completion of the transition over to the new decentralized consolidation model.

The Commission does not agree with the comment that the proposal failed to define the ''operational readiness'' of the decentralized consolidation model that would be necessary to approve the cessation of operations of the exclusive SIPs or that the Commission has reserved for itself ''unchecked decision-making authority'' over the implementation of the decentralized consolidation model. As discussed above,[1360] the Commission described in the Proposing Release the elements that the Commission would consider that would inform its decision to approve the plan amendment to terminate the centralized consolidation model and operation of the exclusive SIPs and allow the decentralized consolidation model to operate on its own and solicited comment on what additional factors it should consider in reaching this decision. Furthermore, as stated above, the termination of the exclusive SIPs would be effectuated through the plan amendment process under Rule 608 and subject to public comment that will inform Commission action.

Phase Three.

Registration of additional competing consolidators. Following the cessation of the operation of the exclusive SIPs, other entities interested in becoming a competing consolidator but that did not register during the initial ''first wave'' period described above, may register as competing consolidators.[1361]

Round lot testing and implementation. For a period of 90 days starting with the date of the cessation of the operation of the exclusive SIPs, the changes necessary to implement the new round lot sizes will be tested. At the end of the 90 day test period, the new round lot sizes will be implemented. The Commission believes that sequencing this step after the parallel operation period is important to avoid either: (1) Potential confusion and market disruption that could result from two different round lot structures operating at the same time; or (2) imposing reprogramming costs on the exclusive SIPs for a limited time period prior to their retirement.

I. Alternatives to the Centralized Consolidation Model

In the proposal, the Commission identified several alternative approaches to the centralized consolidation model that had been suggested both by Roundtable respondents and by several exchanges. These suggestions include the distributed SIP model, a single SIP for all exchange-listed securities, and a low-latency dedicated connection to existing exclusive SIP feeds.

1. Distributed SIP Alternative

Several commenters suggested that the distributed SIP alternative would address the issues that the Commission was trying to address, while retaining the resiliency of the centralized consolidation model.[1362] One commenter stated that the Commission should implement a distributed SIP model to reduce geographic latency instead of the decentralized consolidation model, which the commenter stated would reduce the resiliency of critical market infrastructure.[1363] Another commenter said that the Commission only considered the distributed SIP using information from the Market Data Roundtable and that market participants had implemented undefined changes that rendered the Commission's consideration outdated.[1364] This commenter also suggested that a distributed SIP model, with competing SIPs, would be subject to the oversight of the effective national market system plan(s).[1365] One commenter described current exclusive SIP latencies and suggested that the introduction of a distributed SIP model would solve geographic latencies by allowing market participants to receive market data from the exclusive SIPs at the location where it is produced.[1366] This commenter stated that competing consolidators would be unlikely to offer improvements in processor latency. This commenter provided statistics that geographic latency accounts for 96% of overall exclusive SIP latency, and therefore, the potential, hypothetical latency reduction from a competing consolidator with the ''best-in-class technology'' would be at most 4%.[1367] Further, the commenter stated that ''it is short sighted to view SIP architecture as purely a latency issue'' as the exclusive SIPs have been ''incredibly resilient and have an uptime of close to 100%.'' [1368] The commenter said that a distributed SIP would provide significant resiliency benefits and would be easier for market participants to implement.[1369] The commenter stated that the distributed SIP would provide the benefits of the competing consolidator model but without adding resilience concerns.[1370]

Other commenters disagreed. One commenter stated that a distributed SIP would not solve the latency issue.[1371] Another commenter stated that it agreed with the Commission that the distributed SIP would increase costs and complexity and would not address

[1359] *See supra* Section II.H (describing the regulatory data elements that primary listing exchanges will be required to provide to competing consolidators and self-aggregators pursuant to these amendments).

[1360] *See supra* note 1334 and accompanying text.

[1361] Aside from the difference in the timing of registration, the registration process and other requirements of Rule 614 will be the same for competing consolidators that do not register during the first wave.

[1362] *See* Cboe Letter at 3; NYSE Letter II at 9–10; Nasdaq Letter II at 35–36, 49; STANY Letter II at 6. Another commenter stated that the existence of multiple consolidators is not a unique solution compared to an exclusive SIP distributing consolidated market data from multiple locations. *See* Citadel Letter at 5.

[1363] *See* Cboe Letter at 3.

[1364] *See* NYSE Letter II at 26.

[1365] *See* NYSE Letter II at 8–9, n. 26.

[1366] *See* Cboe Letter at 23 (stating the competing consolidator model and distributed SIP model could produce the same geographic latency benefits).

[1367] *Id.* at 23.

[1368] *Id.* at 24–25.

[1369] *See id.* at 25 (stating that market participants would have to code and connect to competing consolidators).

[1370] *See id. See also* note 892 and accompanying text.

[1371] *See* Data Boiler Letter I at 66.

content and latency differentials in a competitive manner.[1372]

In the Proposing Release, the Commission explained that a distributed SIP alternative was suggested as one possible means to reduce geographic latency. Under a distributed SIP alternative, each exclusive SIP would place an additional processor in other major data centers, where the additional processor would separately aggregate and disseminate consolidated market data for its respective tape. The SROs would submit their quotations and trade information directly to each instance of the exclusive SIP in each data center, and each exclusive SIP instance would consolidate and disseminate its respective consolidated market data feeds to subscribers at those data centers, thereby eliminating geographic latency. The benefit of the distributed SIP alternative was that consolidated market data would not have to travel multiple locations (from an exchange at one location to an exclusive SIP at a second location for consolidation and dissemination to a subscriber that may be at a third location) before reaching subscribers.

Although the distributed SIP model could reduce the geographic latency inherent in the centralized consolidation model, the Commission believes that this model does not adequately address the problems with the existing model. Specifically, while the plan proposed pursuant to the Governance Order will be required to comply with requirements designed to mitigate conflicts of interest, it will not eliminate them. The SROs will retain sufficient voting power to act jointly on behalf of any new NMS data plan, for regulatory purposes. Further, the exchanges will continue to be permitted to sell proprietary data in a new decentralized consolidation model. Therefore, the Commission believes that the distributed SIP model lacks the incentives offered by the competing consolidator approach. The lack of incentives may prevent the regular upgrade of technology and product offerings and would perpetuate the need for end-users to obtain market data from multiple sources.[1373] The distributed SIP model would continue to allow a single SIP to have exclusive rights to the dissemination of market data for the NMS stocks on a consolidated tape. The Commission does not believe that it is necessary for the exchanges to continue to control the consolidation and dissemination of consolidated market data. Further, because such a model lacks competition, the Commission believes the distributed SIP model would be less likely to incorporate technological enhancements improving latency and to make available more comprehensive and relevant product and service offerings. Furthermore, the end-users would still have to obtain market data from multiple SIPs because, as it is today, the data would not be consolidated across the exclusive SIPs.

One commenter suggested a distributed SIP model that would allow for competition among SIPs subject to the oversight of the effective national market system plan(s). The decentralized consolidation model with competing consolidators is a similar proposal without the direct oversight of competing consolidators by the effective national market system plan(s). The Commission believes that the role and functions of the plans as outlined above is appropriate for the decentralized consolidation model. Further, this model would continue to suffer from conflicts of interest by allowing the effective national market system plan(s) controlled by the exchanges to oversee the dissemination of consolidated market data by competing consolidators.

As to the comment regarding the provision of different market data products offered based on investors' needs, the Commission acknowledged this suggestion in the proposal. Further, the Commission stated that such an idea could be implemented in a decentralized consolidation model. The Commission stated that the Operating Committee could develop different levels of fees for different consolidated market data products based on the needs of investors. The commenter, however, now states that the Commission cannot assume that the Operating Committee would create such a product. The Commission believes that if the commenter and the Operating Committee believe that such products would be useful to investors, then they would consider developing them in the decentralized consolidation model.

2. Single SIP Alternative

The Commission also discussed another suggestion to address latency concerns by combining the exclusive SIPs into a single exclusive SIP for all exchange-listed securities. The Commission stated that this alternative could allow for an upgrade to existing processor technology for the CTA/CQ SIP, which continues to lag the performance of the Nasdaq UTP SIP, and could eliminate certain inefficiencies in having two separate exclusive SIPs for SIP data. The Commission also stated that having a single administrator and exclusive SIP could ease these burdens and introduce benefits such as a less complex infrastructure and greater standardization.

One commenter stated that a single dedicated SIP could satisfy the requirements of the decentralized consolidation model.[1374] However, the commenter acknowledged that the proposal's ''use of competition to maintain fair prices and enhance the quality and speed'' is a reasonable approach.[1375]

In the Proposing Release, the Commission stated that it believed that the single SIP alternative suffered several key shortcomings: (1) It does not attempt to introduce competitive forces and, therefore, as with the distributed SIP alternative, would not necessarily be expected to fully address all forms of latency in a competitive data environment; and (2) it does not attempt to address geographic latency, which, as noted, is believed to be the most significant source of latency undermining the viability of the current centralized exclusive SIP model. The Commission did not receive any comments offering any persuasive reason as to why this conclusion was inadequate. Therefore, the Commission continues to believe that the decentralized consolidation model is an appropriate means to modernize the national market system and address the deficiencies of the current model.

3. Other Alternatives

Several commenters offered views on alternatives to the decentralized consolidation model. One commenter stated that the Proposing Release's consideration of alternatives did not evaluate the ''current state of market data infrastructure.'' [1376] This

[1372] *See* MEMX Letter at 8.

[1373] The Commission notes that the Equity Data Plans started considering the distributed SIP model in early 2018 and have not submitted any recommendations to the Commission for consideration.

[1374] *See* RBC Letter.

[1375] *Id.*

[1376] NYSE Letter II at 26. Despite the changes discussed by the commenter to reduce latency in the transmission and aggregation of SIP data, there is currently no competition in the market for consolidated market data. *See* NYSE Letter II at 10–11. This commenter also stated that the Commission did not consider whether the changes to data content or the creation of a decentralized consolidation model independently would have been sufficient to achieve the Commission's goals. As discussed throughout, the amendments to the content of NMS information and the means by which it is disseminated are designed to better facilitate competition, to help ensure the prompt, accurate, reliable, and fair collection of information and to help ensure the fairness and usefulness of NMS information. The amendments to the content of NMS information and the amendments to adopt

commenter stated that market participants had implemented changes to render the consideration of alternatives outdated.

The commenter stated that the Commission failed to consider whether the changes addressed in the Governance Order, along with discreet changes in the Proposing Release, would be sufficient to achieve the Commission's goals in the Proposing Release.[1377] The commenter stated that the Commission did not explain why the governance changes would be insufficient and how the Commission could come to such a conclusion before the governance changes are implemented.[1378] This commenter stated that the Commission's failure to consider alternatives would violate the APA.[1379] The Governance Order addresses the governance structure of the Equity Data Plans and particularly concerns about conflicts of interest and the allocation of voting power with respect to these Plans. It does not address the content of NMS information and the means by which it is disseminated in the national market system.[1380]

The commenter also stated that the Commission failed to consider an alternative that it had set forth in response to the Governance Order.[1381] Specifically, this commenter stated that it had proposed creating different levels of SIP data products to match the demands of different types of customers.[1382] The Commission believes that the Operating Committee should consider the commenter's proposal for different levels of fees for the data content underlying consolidated market data.[1383]

Finally, one commenter suggested that a single dedicated SIP could also improve core data content and reduce latency but stated that the ''[p]roposal's use of competition to maintain fair prices and enhance quality and speed is an approach that we believe is reasonable.'' [1384] The Commission agrees. The decentralized consolidation model will introduce price and latency competition into the national market system.

IV. Paperwork Reduction Act

Certain provisions of the rules and rule amendments that the Commission is adopting contain ''collections of information requirements'' within the meaning of the Paperwork Reduction Act of 1995 (''PRA'').[1385] The Commission published a notice requesting comment on the collection of information requirements in the Proposing Release and submitted relevant information to the Office of Management and Budget (''OMB'') for review in accordance with the PRA and its implementing regulations.[1386] The title of the new collection of information is ''Market Data Infrastructure and Form CC.'' An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the agency displays a currently valid control number. The Commission has applied for an OMB Control Number for this collection of information.

The Commission requested comment on the collection of information requirements in the Proposing Release. The Commission received comments on the estimates for the collection of information requirements included in the Proposing Release, which are discussed below.

A. Summary of Collection of Information

The rules and rule amendments include collection of information requirements within the meaning of the PRA.

1. Registration Requirements and Form CC

Under Rule 614(a)(1)(i), each competing consolidator is required to register with the Commission by filing Form CC electronically in accordance with the instructions contained on the form.[1387] To file a Form CC, a competing consolidator needs to access the Commission's EFFS and register each individual who will access EFFS on behalf of the competing consolidator. Rule 614(a)(1)(ii) requires any reports required under Rule 614 to be filed electronically on Form CC, include all of the information as prescribed in Form CC, and contain an electronic signature. Rule 614(a)(2)(i) requires competing consolidators to amend an effective Form CC and Rule 614(a)(3) requires a competing consolidator to provide notice of its cessation of operations on Form CC.

2. Competing Consolidators' Public Posting of Form CC

Rule 614(c) requires each competing consolidator to make public on its website a direct URL hyperlink to the Commission's website that contains Form CC.

3. Competing Consolidator Duties and Data Collection

Rule 614(d)(1) through (3) requires competing consolidators to collect from the SROs quotation and transaction information for NMS stocks, calculate and generate a consolidated market data product, and make the consolidated market data product available on terms that are not unreasonably discriminatory to subscribers. Rule 614(d)(4) requires competing consolidators to timestamp the information they collect from the SROs pursuant to Rule 614(d)(1) upon receipt, upon receipt by its aggregation mechanism, and upon dissemination to subscribers.

4. Recordkeeping

Rule 614(d)(7) requires each competing consolidator to keep and preserve at least one copy of all documents, including all correspondence, memoranda, papers, books, notices, accounts, and such other records as shall be made or received by it in the course of its business as such and in the conduct of its business. Rule 614(d)(8) requires each competing consolidator, upon request of any representative of the Commission to furnish promptly to such representative copies of any documents required to be kept and preserved by it.

5. Reports and Reviews

Rule 614(d)(5) requires each competing consolidator, within 15 calendar days after the end of month, to publish prominently on its website monthly performance metrics, as defined by the effective national market system plan(s) for NMS stocks.

Rule 614(d)(6) requires a competing consolidator, within 15 calendar days after the end of each month, to publish prominently on its website certain detailed information about its operations.

6. Amendment to the Effective National Market System Plan(s) for NMS Stocks

Rule 614(e) directs the participants of the effective national market system plan(s) for NMS stocks to file with the

a decentralized consolidation model address different but related issues that together are necessary to update and modernize the national market system.

[1377] *See* NYSE Letter II at 25.

[1378] *See id.*

[1379] *See id.*

[1380] *See supra* Section III.E.2(a).

[1381] *See* NYSE Letter II at 26.

[1382] *See id.* This commenter, however, stated that the Operating Committee may not implement a fee schedule with different consolidated market data products that could meet the demand of investors.

[1383] *See supra* Section III.E.2(c).

[1384] RBC Letter at 5–6.

[1385] 44 U.S.C. 3501 *et seq.*

[1386] 44 U.S.C. 3507; 5 CFR 1320.11.

[1387] As explained above, exchanges that wish to rely upon an exemption from certain exchange provisions for affiliated competing consolidators will be required to register with the Commission on Form CC. *See supra* Section III.C.7(a)(iv).

Commission an amendment to such plan(s) within 150 days of the effectiveness of Rule 614.

7. Collection and Dissemination of Information by National Securities Exchanges and National Securities Associations

Rule 603(b) requires every national securities exchange on which an NMS stock is traded and national securities association to make available to all competing consolidators and self-aggregators all information with respect to quotations for and transactions in NMS stocks, including all data necessary to generate consolidated market data, in the same manner and using the same methods, including all methods of access and using the same format, as such exchange or association makes available any information with respect to quotations for and transactions in NMS stocks to any person. Accordingly, the SROs will be required to collect and make available to competing consolidators and self-aggregators the information necessary to generate consolidated market data. In addition, the primary listing exchanges are required to collect and make available pursuant to Rule 603(b) regulatory data as defined in Rule 600(b)(78).

B. Proposed Use of Information

1. Registration Requirements and Form CC

The information collected under Rule 614(a)(1) and (2) and Form CC are used for purposes of registering competing consolidators. The information collected on Form CC will be used to help ensure that a competing consolidator's disclosures comply with the requirements of Rule 614. The information on Form CC would be publicly available and therefore could be used by market participants to evaluate the services offered by competing consolidators.

2. Competing Consolidators' Public Posting of Form CC

The collection of information under Rule 614(c)—which requires each competing consolidator to make public on its website a direct URL hyperlink to the Commission's website that contains the documents enumerated in paragraphs (b)(2)(ii) through (v), including each effective initial Form CC, each order of ineffective initial Form CC, each Form CC amendment to an effective Form CC, and each notice of cessation (if applicable)—will help to ensure that such information is readily available to the public.

3. Competing Consolidator Duties and Data Collection

The information collected under Rules 614(d)(1) through (3) constitutes the main obligations of competing consolidators: To collect data content underlying consolidated market data and to calculate and disseminate a consolidated market data product, which will be used by market participants for trading. Widespread availability of consolidated market data promotes fair and efficient markets and facilitates the ability of brokers and dealers to trade more effectively and to provide best execution to their customers.

The information collected under Rule 614(d)(4) would help subscribers to determine a competing consolidator's realized latency and would assist subscribers in choosing a competing consolidator or in deciding whether a chosen competing consolidator continues to meet their latency demands.

4. Recordkeeping

The Commission will use the information collected under Rules 614(d)(7) and (8) in its oversight of competing consolidators.

5. Reports and Reviews

The information collected under Rules 614(d)(5) and (6) will provide transparency with respect to the services and performance of a competing consolidator and allow market participants to evaluate the merits of a competing consolidator.

6. Amendment to the Effective National Market System Plan(s) for NMS Stocks

Rule 614(e) requires the participants to the effective national market system plan(s) for NMS stocks to file an amendment with the Commission, pursuant to Rule 608, that includes several provisions. First, Rule 614(e)(1) requires that the amendment conform the plan(s) to reflect the provision of information with respect to quotations for and transactions in NMS stocks by the SROs to competing consolidators and self-aggregators and define the monthly performance metrics that competing consolidators must publish pursuant to Rule 614(d)(5). The information collected pursuant to this Rule 614(e)(1) will help to ensure that the plan(s) accurately reflect the new market data dissemination model and will inform market participants of the operation of the plan(s). In addition, the information that is collected pursuant to Rule 614(e)(1) will facilitate the Commission's oversight of the plan(s). Finally, the information collected will inform competing consolidators of the monthly performance metrics that they are required to develop.

Second, Rule 614(e)(2) requires that the plan(s) be amended to require the application of timestamps by the SROs to all of the information that is necessary to generate consolidated market data, including the time the information was generated by the applicable SRO and the time the SRO made the information available to competing consolidators and self-aggregators. Timestamps help to measure latencies and sequence information. The timestamp information collected will be used by competing consolidators and self-aggregators to sequence information properly and measure latencies relating to the collection, consolidation, and generation of consolidated market data.

Third, Rule 614(e)(3) provides that the plan(s) must be amended to reflect that the plan(s) must conduct an assessment of competing consolidator performance and develop an annual report of such assessment to be provided to the Commission. The information collection will assist the Commission in overseeing the operation of the national market system.

Fourth, Rule 614(e)(4) provides that the plan(s) must be amended to provide for the development, maintenance, and publication of a list that identifies the primary listing exchange for each NMS stock. This information collection will help to identify which primary listing exchange is responsible for making Short Sale Circuit Breaker information available pursuant to Rule 201(b)(3).

Finally, Rule 614(e)(5) provides that the plan(s) must be amended to include a requirement to calculate and publish on a monthly basis the consolidated market data gross revenues for NMS stocks as specified by (1) listed on the New York Stock Exchange (NYSE); (2) listed on Nasdaq; and (3) listed on exchanges other than NYSE or Nasdaq. This information will be used to determine whether a competing consolidator is subject to Regulation SCI.

7. Collection and Dissemination of Information by National Securities Exchanges and National Securities Associations

The information collected pursuant to Rule 603(b) promotes fair and efficient markets and facilitates the ability of brokers and dealers to trade more effectively and to provide best execution to their customers. This information will be used by competing consolidators to develop consolidated market data products for market participants and by

self-aggregators to develop consolidated market data that they need to make trading decisions.

In addition, the primary listing exchanges are required to collect and make available pursuant to Rule 603(b) regulatory data as defined in Rule 600(b)(78). The information collected is necessary for compliance with Federal securities laws.

C. Respondents

The collection of information titled Market Data Infrastructure and Form CC will apply to competing consolidators and the national securities exchanges and national securities associations. The below table summarizes the Commission's initial and adopted estimates of the number of respondents for each collection of information requirement:

Collection of information	Applicable respondents	Initial estimate	Estimate for adopted rules
Registration Requirements and Form CC	Entities that register pursuant to Rule 614 to act as competing consolidators.	8	8
Competing Consolidators' Public Posting of Form CC	Entities that register pursuant to Rule 614 to act as competing consolidators.	12	8
Competing Consolidator Duties and Data Collection	Entities that register pursuant to Rule 614 to act as competing consolidators.	12	8
Recordkeeping	Entities that register pursuant to Rule 614 to act as competing consolidators.	12	8
Reports and Reviews	Entities that register pursuant to Rule 614 to act as competing consolidators.	12	8
Amendment to the Effective National Market System Plan(s) for NMS Stocks.	National securities exchanges and national securities associations that are participants to the effective national market system plan(s) for NMS stocks.	17	19
Collection and Dissemination of Information by National Securities Exchanges and National Securities Associations.	National securities exchanges and national securities associations on which NMS stocks are traded.	17	17

1. Initial Estimate

In the Proposing Release, the Commission estimated that there would be 12 persons who may decide to perform the functions of a competing consolidator and would have to comply with the information collections under Rule 614. In addition, the Commission estimated that the 16 national securities exchanges and one national securities association (the Financial Industry Regulatory Authority, Inc. (''FINRA'')) that are members of the effective national market system plan(s) would have to comply with the information collection under Rule 614(e).[1388] Furthermore, the Commission estimated that the 16 national securities exchanges that trade NMS stocks and one national securities association would have to comply with the information collection under Rule 603(b).

(a) Comments Received on Initial Estimates

Two commenters suggested that the estimated number of competing consolidators was unsupported.[1389] One commenter argued that the different categories of competing consolidators identified by the Commission may not become competing consolidators for varying reasons.[1390] Specifically, this commenter stated that large broker-dealers that currently aggregate proprietary market data would likely become self-aggregators, rather than competing consolidators, due to increased operational costs and regulatory scrutiny.[1391] The commenter stated that the proposal lacked analysis to support the conclusion that existing SROs would become competing consolidators and that existing SROs would be subject to ''substantial infrastructure costs'' and additional regulatory requirements.[1392] Finally, the commenter stated that there was no evidence that the SROs that operate the exclusive SIPs would become competing consolidators because SRO-affiliated competing consolidators would be subject to Section 19(b) of the Exchange Act while other competing consolidators would not.[1393]

[1388] At the time of the Proposing Release, these national securities exchanges were: Cboe BYX Exchange, Inc.; Cboe BZX Exchange, Inc.; Cboe EDGA Exchange, Inc.; Cboe EDGX Exchange, Inc.; Cboe Exchange, Inc.; Investors Exchange LLC; Long-Term Stock Exchange, Inc.; Nasdaq BX, Inc.; Nasdaq ISE, LLC; Nasdaq PHLX LLC; Nasdaq Stock Market LLC; New York Stock Exchange LLC; NYSE American LLC; NYSE Arca, Inc.; NYSE Chicago, Inc.; and NYSE National, Inc. In addition, there will be one primary listing exchange for each NMS stock responsible for making regulatory data available and such primary listing exchange would be identified in the effective national market system plan(s).

[1389] *See* NYSE Letter II at 17; Nasdaq Letter IV at 25.

[1390] *See* NYSE Letter II at 17.

[1391] *Id.*

[1392] *Id.*

[1393] *Id.*

(b) Estimate for the Adopted Rules

The Commission believes that the estimate of 12 persons who could decide to perform the functions of a competing consolidator should be adjusted downwards to eight persons. This revision reflects reductions in (1) the estimated number of competing consolidators associated with SROs from four, as proposed, to one;[1394] and (2) the estimated number of competing consolidators that would be broker-dealers that aggregate market data for internal uses from two, as proposed, to one. While the actual number of entities that decide to register as a competing consolidator is unknown at this time because this is a new type of entity, the Commission believes that for purposes of estimating the paperwork collection costs and burdens that eight is a reasonable number.[1395] Of that number, the Commission estimates that eight of those persons will have to file a Form CC to register with the Commission as a competing consolidator. All competing consolidators will have to comply with the other information collections described above under Rule 614.

The Commission notes that there are 18 national securities exchanges[1396] and one national securities association that are participants in the effective national market system plan(s) for NMS stocks and would have to comply with the information collection under Rule 614(e). The Commission estimates that there are 16 national securities exchanges (the securities exchanges that trade NMS stocks) and one national securities association that would have to comply with the information collection under Rule 603(b).[1397]

D. Total Initial and Annual Reporting and Recordkeeping Burden

1. Registration Requirements and Form CC

Competing consolidators are required to register pursuant to Rule 614 and Form CC. In addition, competing consolidators are required to file amendments to Form CC pursuant to Rule 614(a)(2).

(a) Initial Burden and Costs

The Commission's adopted estimates for initial burdens and costs have been slightly revised from the proposal. The tables below summarize these changes.

	Proposed estimates	Adopted estimates
Completion of the Initial Form CC: Number of Respondents:		
Number of Respondents Subject to the Registration Requirements of Rule 614 and Form CC.	8 [1398]	8.
Completion of the Initial Form CC: Number of Hours:		
Number of Hours Needed for Each Respondents to complete an Initial Form CC	200 [1399]	200.
Number of Hours Needed for Each CC to Access EFFS	0.3 [1400]	0.3.
Total Number of Hours for Each Respondent to Complete Form CC and Access EFFS.	200.3 [1401]	200.3.
Completion of the Initial Form CC: Total One-Time Initial Registration Burden:		
Total Burden Hours (Number of Respondents × Number of Hours to Complete Form CC and Access EFFS).	8 Respondents × 200.3 Hours = 1,602.4.	8 Respondents × 200.3 Hours = 1,602.4.
Total Cost to Register All Respondents (Total Number of Hours × Hourly Rate) [1402]	1,602.4 Hours × $467 = $748,320.80.	1,602.4 Hours × $467 = $748,320.80.
Completion of the Initial Form CC: Digital Signing of Form CC:		
Number of Individuals from Each Respondent Signing Form CC	2	2.
Cost of Obtaining a Digital ID	$25	$25.
Total Cost of Digitally Signing Form CC for All Respondents (Number of Signers × Cost of Digital ID × Number of Respondents).	2 Signers × $25 × 8 Respondents = $400.	2 Signers × $25 × 8 Respondents = $400.
Completion of the Amendments to Form CC:		
Number of Amendments Expected to be Filed During First Year of Form CC Effectiveness [1403].	2	2.
Total Estimated Number of Burden Hours per Amendment per Respondent	6.0	6.0.
Total Cost Associated with Amendments During First Year of Form CC Effectiveness (Number of Amendments × Number of Hours per Amendment × Number of Respondents × Attorney Hourly Rate).	2 Amendments × 6 Hours × 8 Respondents × $467 = $44,832.	2 Amendments × 6 Hours × 8 Respondents × $467 = $44,832.

(i) Proposed Estimates—Initial Burden and Costs

In the Proposing Release, the Commission preliminarily estimated the

[1394] In the Proposing Release, the Commission described potential competing consolidators associated with SROs. As discussed above, the Commission is exempting exchanges from certain provisions of the Exchange Act related to the operation of affiliated competing consolidators. *See supra* Section III.C.7(a)(iv). One condition of the exemption is a requirement that such exchange affiliated competing consolidator file a Form CC. Accordingly, the adopted PRA includes paperwork collection estimates for the filing of Form CC by exchange affiliated competing consolidators.

[1395] The Commission estimated this number based on its knowledge of the different types of entities that currently collect and disseminate NMS information as well as from information received at the Roundtable and the comment file.

[1396] Currently, these national securities exchanges are: Cboe BYX Exchange, Inc.; Cboe BZX Exchange, Inc.; Cboe EDGA Exchange, Inc.; Cboe EDGX Exchange, Inc.; Cboe Exchange, Inc.; Investors Exchange LLC; Long-Term Stock Exchange, Inc.; MEMX LLC; MIAX Pearl, LLC; Nasdaq BX, Inc.; Nasdaq ISE, LLC; Nasdaq PHLX LLC; Nasdaq Stock Market LLC; New York Stock Exchange LLC; NYSE American LLC; NYSE Arca, Inc.; NYSE Chicago, Inc.; and NYSE National, Inc.

[1397] As noted above, the primary listing exchange for each NMS stock responsible for making regulatory data available would be identified in the effective national market system plan(s).

[1398] In the Proposing Release, the Commission preliminarily estimated that 12 respondents would decide to perform the functions of a competing consolidator, which included four SROs that would not be required to file Form CC. Therefore, the Commission estimated that eight respondents would be subject to the registration requirements of Rule 614 and Form CC.

[1399] The Commission based this estimate on the number of hours necessary to complete Form SIP because Form CC was generally based on Form SIP and incorporated many of the provisions of Form

number of respondents who would be subject to the registration requirements of Rule 614 and Form CC (8), the number of hours for each to complete Form CC (200) and the number of hours for each to access EFFS (0.3). Based on these, the Commission estimated a one-time initial registration burden for all competing consolidators is approximately 1,602.4 burden hours and a total cost to register all competing consolidators would be $748,320.80.

In addition to this, the Commission estimated the total cost for respondents to obtain digital IDs to access EFFS for the purposes of signing the Form CC at approximately $400 for all respondents.

Finally, the Commission estimated the total burden of filing amending Form CC in the first year after effectiveness at a total of 96 hours (for a total cost of $44,832).

(ii) Comments/Responses on Initial Burden and Costs

One commenter stated that the ''legal requirements would be overly burdensome and have little impact on the utility of . . . service to the marketplace'' and requested the Commission to reduce the legal cost burdens by adopting a formal regulated entity lite regime limited to 10 hours of legal work.[1404]

The Commission is not imposing a minimum level of costs, legal or otherwise, on competing consolidators. The estimates are those costs that the Commission believes that an entity may bear when registering as a competing consolidator. The Commission acknowledges that competing consolidators will have to bear certain regulatory and legal costs to be registered.

(iii) Adopted Estimates—Initial Burden and Costs

The Commission believes that, for reasons discussed above, the initial burden hour estimate included in the Proposing Release continues to be an appropriate estimate. The number of competing consolidators and the estimates do not need to be modified because the Commission is adjusting the total number of competing consolidators down from 12 to eight.[1405] Therefore, the initial burden hour estimates, which were calculated using eight competing consolidators, remains the same.

(b) Ongoing Burden and Costs

(i) Proposed Estimates—Ongoing Burden and Costs

Rule 614(a)(2) requires competing consolidators to amend Form CC prior to the implementation of material changes to pricing, connectivity, or products offered as well as annually to correct information that has become inaccurate or incomplete for any reason. These amendments represent the ongoing annual burdens of Form CC and proposed Rule 614(a)(2).[1406] The Commission estimated that the ongoing annual burden for complying with the amendment requirements would be approximately 6.15 burden hours for each competing consolidator per amendment [1407] (for a total of $2,872.05), and approximately 49.2 burden hours for all competing consolidators per amendment (for a total of $22,976.40).[1408]

The Commission estimated that competing consolidators would have one Material Amendment per year and together with the Annual Report, the Commission estimated that respondents would be required to file on average a total of two amendments per year. The Commission estimated that each respondent would have an average annual burden of 12.3 hours (for a total of $5,744.10) for a total estimated average annual burden for all competing consolidators of 98.4 hours (for a total of $45,952.80).[1409] In addition, the Commission estimated that obtaining a digital ID for an individual who signs the Form CC would cost approximately $25 each year or approximately $200 for all respondents. The Commission estimated that each respondent will have an average annual cost of $5,769.10 ($5,744.10 + $25), and for all respondents, a total estimated annual cost of $46,152.80 ($5,769.10 * 8).

Rule 614(a)(3) would require a competing consolidator that ceases to act as such to file an amendment to Form CC 90 calendar days prior to cessation of operations. The Commission described a competing consolidator's notice of cessation of acting as a competing consolidator on Form CC as substantially similar to its most recently filed Form CC, and therefore, since the form would already be complete, the burden would not be as great as the burden of filing an application for registration on Form CC. The Commission based its estimates for a notice of cessation on the estimates for filing an amendment on Form CC. The Commission estimated that the one-time burden of filing a Form CC notice of cessation would be approximately 2 burden hours (for a total of $934).[1410]

(ii) Comments/Responses on Ongoing Burden and Costs

One commenter stated that competing consolidators would amend their fees

SIP. The Commission estimated that completing Form SIP, which includes 20 exhibits, would take 400 hours. *See* Securities Exchange Act Release No. 63347 (Nov. 19, 2010), 75 FR 77306 (Dec. 10, 2010) (''The Commission calculated in 2008 that Form SIP takes 400 hours to complete.''). Form CC includes nine exhibits, and the Commission estimates that completing proposed Form CC would take 200 hours, which is half the time for Form SIP.

[1400] The Commission estimated that each competing consolidator would initially designate two individuals to access EFFS, with each application to access EFFS taking 0.15 hours for a total of 0.3 hours per competing consolidator.

[1401] 200 hours to complete an initial form CC + 0.3 hours to access EFFS = 200.3 hours.

[1402] The Commission estimated that competing consolidators would, as a general matter, prepare Form CC internally and not use external service providers to complete the form. The Commission also stated that Form CC would likely be prepared by an attorney. The Commission based this estimate on the $467 hourly rate as of May 2019 for an assistant general counsel × 200.3 hours × 8 respondents. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead. Burden estimates may vary to the extent that competing consolidators utilize external service providers or outside counsel. The Commission preliminarily believed that competing consolidators would use in-house counsel and not use external service providers or outside counsel to file the Form CC.

[1403] The Commission preliminarily estimated that competing consolidators would file two amendments—one Material Amendment and one Annual Report—during its first year after the effectiveness of its Form CC.

[1404] *See* ACTIV Financial Letter.

[1405] *See supra* note 1394.

[1406] In addition, on an ongoing basis, each competing consolidator may add one individual to access EFFS. For example, a competing consolidator may have to add an individual to access EFFS to account for staffing changes. The Commission estimated that the ongoing burden would be 0.15 hours per competing consolidator.

[1407] The Commission considered the hour burden estimates for Form SDR when estimating the hour burdens for amendments to Form CC. As noted in the Proposing Release, when Form SDR was adopted in 2015, the Commission estimated the hour burden for amendments to be roughly 3% of the initial burden. Securities Exchange Act Release No. 74246, *supra* note 1038, at 14522. In that release, the initial burden was calculated to be 400 hours per respondent and 12 hours per respondent for amendments. The Commission used a similar ratio to estimate the burdens for filers of Form CC because filers of Form SDR, like filers of Form CC, are required to file amendments annually as well as when certain information on Form SDR becomes inaccurate. Form SDR: General Instructions for Preparing and Filing Form SDR, *available at https://www.sec.gov/about/forms/formsdr.pdf* (last accessed Nov. 27, 2020). Thus, the Commission estimated that the annual burden of filing one amendment on Form CC will be 3% of the 200 hour initial burden, or 6 hours.

[1408] *See supra* note 1402. As with the initial Form CC, the Commission believed the competing consolidators would conduct this work internally.

[1409] *See id.*

[1410] *See id.* The Commission estimated that no competing consolidators would cease operations in the first three years of the rule's effectiveness.

more than once a year.[1411] An amendment to competing consolidator fees would require an amendment to a competing consolidator's Form CC. The Commission has considered this comment and is amending its ongoing estimate that a competing consolidator will file five amendments a year, plus the annual report, for a total of six amendments per year. The Commission believes this estimate is reasonable based upon a review of amendments of the fee schedules of the SROs.

(iii) Adopted Estimates—Ongoing Burden and Costs

The Commission is amending its ongoing burden hour estimate that a competing consolidator will file two amendments per year. Based on the comments received, the Commission now estimates that a competing consolidator will file six amendments per year.

The Commission preliminarily estimated that the annual burden of filing one amendment on Form CC would be six hours per competing consolidator. Since the Commission now estimates that a competing consolidator will file six amendments in a year, the Commission estimates that the annual burden hours incurred per competing consolidator to file six amendments per year would be 36 hours,[1412] for a total estimated average annual burden for all competing consolidators of 288 hours.[1413] The Commission is adopting its annual external cost estimates as proposed.[1414] Finally, the Commission is adopting the ongoing burden estimate for filing a notice of cessation on Form CC as proposed.

2. Competing Consolidators' Public Posting of Form CC

Rule 614(c) requires each competing consolidator to make public on its website a direct URL hyperlink to the Commission's website that contains each effective initial Form CC, order of ineffective initial Form CC, amendments to effective Form CCs, and notice of cessation (if applicable).

(a) Initial Burden and Costs

(i) Proposed Estimates—Initial Burden and Costs

In the Proposing Release, the Commission estimated an initial burden of 0.5 hours per competing consolidator to publicly post the Commission's direct URL hyperlink to its website upon filing of the initial Form CC,[1415] for an aggregate initial burden of approximately six hours for the competing consolidators to post publicly the direct URL hyperlink to the Commission's website on their own respective websites.[1416]

(ii) Comments/Responses on Initial Burden and Costs

The Commission did not receive any comments on its initial burden hour estimate for the competing consolidators to publicly post the direct URL hyperlink to the Commission's website on their own respective websites.

(iii) Adopted Estimates—Initial Burden and Costs

The Commission is adopting the initial burden hour per competing consolidator estimate as proposed without any changes. However, the Commission is revising its aggregate initial burden hour estimate. As discussed above, eight competing consolidators would be required to file amendments to effective Form CCs. The Commission now estimates an aggregate initial burden of approximately four hours for the competing consolidators to publicly post the direct URL hyperlink to the Commission's website on their own respective websites.[1417]

(b) Ongoing Burden and Costs

(i) Proposed Estimates—Ongoing Burden and Costs

For the ongoing burden and costs, the Commission estimated that each competing consolidator would check the Commission's website whenever it files amendments to effective Form CCs to ensure that the Commission's direct URL hyperlink that the competing consolidator has posted to its own website remains valid. Further, the Commission estimated that a competing consolidator will file two amendments per year, which would result in each competing consolidator incurring an ongoing burden of 0.25 hours per amendment, or 0.5 hours per year, to ensure that it has posted the correct direct URL hyperlink to the Commission's website on its own website,[1418] for an aggregate annual burden of approximately six hours for

[1411] *See* IDS Letter I at 15 (''In a truly competitive market, competing consolidators would amend their fees more often than once a year, as they responded to market forces.'').

[1412] 36 annual burden hours = [(6 annual burden hours per amendment) × (6 amendments per year)]. The Commission monetized this amount to be $16,812. The Commission based this estimate on the $467 hourly rate as of May 2019 for an assistant general counsel × 36 hours. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1413] 288 annual burden hours = [(6 annual burden hours per amendment) × (6 amendments per year) × (8 competing consolidators)]. The Commission monetized this amount to be $133,632. The Commission based this estimate on the $467 hourly rate as of May 2019 for an assistant general counsel × 36 hours × 8 competing consolidators. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1414] *See supra* note 1394.

[1415] The Commission based this estimate on a full-time Programmer Analyst spending approximately 0.5 hours to publicly post the URL hyperlink per competing consolidator. The Commission estimated the monetized initial burden for this requirement to be $120.50. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: Programmer Analyst at $241 for 0.5 hours = 0.5 initial burden hours per competing consolidator and $120.50.

[1416] The Commission estimated the monetized initial aggregate burden for this requirement to be $1,446. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Programmer Analyst at $241 for 0.5 hours) × (12 competing consolidators)] = 6 initial burden hours across the competing consolidators and $1,446.

[1417] The Commission estimated the monetized initial aggregate burden for this requirement to be $964. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Programmer Analyst at $241 for 0.5 hours) × (8 competing consolidators)] = 4 initial burden hours across the competing consolidators and $964.

[1418] The Commission based this estimate on a full-time Programmer Analyst spending approximately 0.25 hours to check the Commission's website when the competing consolidator submits an amendment to effective Form CCs to ensure that the Commission's direct URL hyperlink that the competing consolidator has posted to its own website remains valid. Since the Commission estimated that a competing consolidator would file two amendments per year, the Commission estimated that each competing consolidator would incur a burden of 0.5 hours per year. [(0.25 hours) × (2 amendments per year)] = 0.5 hours per year to check the URL hyperlink. The Commission estimated the monetized annual burden for this requirement to be $120.50. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: Programmer Analyst at $241 for 0.5 hours = 0.5 annual burden hours per competing consolidator and $120.50.

the competing consolidators to do so.[1419]

(ii) Comments/Responses on Ongoing Burden and Costs

As discussed above, one commenter stated that competing consolidators would amend their fees more than once a year.[1420] An amendment to fees would require an amendment to a competing consolidator's Form CC. The Commission has considered this comment and is amending its ongoing estimate after a review of amendments of the fee schedules of the SROs.

(iii) Adopted Estimates—Ongoing Burden and Costs

As described above,[1421] the Commission is amending its ongoing estimate that a competing consolidator will file two amendments per year. The Commission now estimates that a competing consolidator will file six amendments per year. The Commission believes a competing consolidator will file five amendments a year, plus the annual report, for a total of six amendments per year. The Commission believes this estimate is reasonable based upon a review of amendments of the fee schedules of the SROs. Because the Commission believes that a competing consolidator will incur an ongoing burden of 0.25 hours per amendment to ensure that it has posted the correct direct URL hyperlink to the Commission's website on its own website,[1422] the Commission now estimates that a competing consolidator will incur a total of 1.5 hours per year to ensure that it has posted the correct direct URL hyperlink to the Commission's website,[1423] for an aggregate annual burden of approximately 12 hours for all competing consolidators to do so.[1424] The Commission is adopting the ongoing burden estimate as amended.

3. Competing Consolidator Duties and Data Collection

Rules 614(d)(1) through (3) require competing consolidators to collect from the SROs quotation and transaction information for NMS stocks, calculate and generate a consolidated market data product, and make the consolidated market data product available to subscribers on a consolidated basis on terms that are not unreasonably discriminatory. Rule 614(d)(4) requires competing consolidators to timestamp the information with respect to quotations and transactions in NMS stocks that they collect from the SROs pursuant to Rule 614(d)(1) upon receipt, upon receipt by the aggregation mechanism, and upon dissemination to subscribers. The Commission estimated that five types of entities would register to become competing consolidators and would have to build systems, or modify existing systems, to comply with Rules 614(d)(1) through (4): (1) Market data aggregation firms, (2) broker-dealers that currently aggregate market data for internal uses, (3) the existing exclusive SIPs (CTA/CQ and Nasdaq UTP SIPs), (4) entities that would be entering the market data aggregation business for the first time (''new entrants''), and (5) SROs. The Commission estimated that, apart from the SRO category, two respondents from each category would register to become a competing consolidator; the Commission estimated that four SROs would register to become competing consolidators.

(a) Comments on Initial Burden and Costs and Annual Burden and Costs Generally

The Commission received two comments that believed the Commission's initial or ongoing burdens and costs associated with the operation of competing consolidators were too low.[1425] One commenter said the Commission's estimated initial and ongoing costs associated with competing consolidators should be comparable to those of the CAT.[1426] The Commission considered this comment and disagrees with its assessment because the CAT is a different system in function and differs greatly in scope than the systems to be used by competing consolidators. Unlike the systems to be operated by competing consolidators, which would collect trade and quote information in NMS stocks from the SROs, and consolidate and disseminate such information to subscribers, the CAT must collect information for the entire lifecycle of an order (receipt/origination, routing, receipt of a routed order, modification or cancellation, and execution), in both NMS stocks and options from SROs as well as broker-dealers, and consolidate and store such information in a queryable database made available to regulators.

The other commenter stated that the cost that NYSE incurred to build its ''NMS network'' inside one data center to provide access to SIAC's NMS feeds ''was substantially greater than the Commission's estimation for networks that would extend to four data centers.'' [1427] The commenter said that NYSE's capital expenditure costs to build the NMS network were estimated to be $3.8 million, with ongoing costs of $215,000 per year.[1428] The Commission considered this comment and believes the NMS network costs are informative but are not directly applicable to the costs to be incurred by competing consolidators to build or upgrade systems to comply with Rules 614(d)(1) through (4) because the NMS network is not a system that consolidates market data and its costs include the transmission of options information, which competing consolidators would not be collecting, consolidating, or disseminating. However, upon further consideration, the Commission believes that it is likely that competing consolidators would incur higher

[1419] The Commission estimated the monetized aggregate annual burden for this requirement to be $1,446.00. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Programmer Analyst at $241 for 0.5 hours) × (12 competing consolidators)] = 6 annual burden hours across the competing consolidators and $1,446.00.

[1420] Specifically, the commenter stated, ''In a truly competitive market, competing consolidators would amend their fees more often than once a year, as they responded to market forces.'' IDS Letter I at 15.

[1421] *See supra* Section IV.D.1(b)(iii).

[1422] *See supra* note 1418.

[1423] The Commission bases this estimate on a full-time Programmer Analyst spending approximately 0.25 hours to check the Commission's website when the competing consolidator submits an amendment to effective Form CCs to ensure that the Commission's direct URL hyperlink that the competing consolidator has posted to its own website remains valid. Since the Commission estimates that a competing consolidator would file six amendments per year, the Commission estimates that each competing consolidator would incur a burden of 1.5 hours per year. (0.25 hours) × (6 amendments per year) = 1.5 hours per year to check the URL hyperlink. The Commission estimated the monetized annual burden for this requirement to be $361.50. The Commission derives this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: Programmer Analyst at $241 for 1.5 hours = 1.5 annual burden hours per competing consolidator and $361.50.

[1424] The Commission estimates the monetized aggregate annual burden for this requirement to be $2,892. The Commission derives this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Programmer Analyst at $241 for 1.5 hours) × (8 competing consolidators)] = 12 annual burden hours across the competing consolidators and $2,892.

[1425] Data Boiler Letter I at 46; Data Boiler Letter II at 1; IDS Letter I at 13.

[1426] Data Boiler Letter I at 46; Data Boiler Letter II at 1.

[1427] IDS Letter I at 13, n. 38.

[1428] *Id.*

technology-related burden hours and external costs associated with building as well as operating systems to collect, consolidate, and disseminate consolidated market data than the Commission estimated in the proposal. The Commission is increasing its estimates accordingly.

As adopted, Rules 614(d)(1) through (3) does not require competing consolidators to sell a full consolidated market data product.[1429] Competing consolidators that decide to offer a limited consolidated market data product may incur fewer burden hours and costs to build and maintain a system that does not have to aggregate and disseminate a full consolidated market data product. However, the Commission believes that there will continue to be demand for a full consolidated market data product, which will incentivize some competing consolidators to meet this demand.[1430] Therefore, the Commission is not reducing its estimated burden hours and external costs for competing consolidators to implement and maintain systems to comply with Rules 614(d)(1) through (4) to reflect this change to the data they must make available. The Commission acknowledges that these burden hours and external costs reflect an upper bound and as incurred may be lower than these estimates for those competing consolidators that sell a limited consolidated market data product.

(b) Initial Burden and Costs for Market Data Aggregation Firms

(i) Proposed Estimates—Initial Burden and Costs

In the Proposing Release, the Commission estimated that each market data aggregation firm would incur 900 initial burden hours [1431] and $206,250 in external costs [1432] to modify its systems to comply with Rules 614(d)(1) through (4). Additionally, the Commission estimated that an existing market data aggregator would incur initial external costs of $14,000 to purchase market data from the SROs,[1433] and an additional initial external cost of $194,000 to co-locate at four exchange data centers,[1434] for a total initial external cost of $414,250 per existing market data aggregator,[1435] and an aggregate estimate for two market data aggregators of 1,800 initial burden hours [1436] and $828,500 in initial external costs.[1437]

(ii) Comments/Responses on Initial Burden and Costs

In response to the commenter that believed that the estimated costs incurred by potential competing consolidators to build or upgrade systems to comply with proposed Rules 614(d)(1) through (4) should be increased,[1438] the Commission is modifying its initial burden and cost estimates for market data aggregators, as discussed below.

(iii) Adopted Estimates—Initial Burden and Costs

The Commission is increasing its estimated initial costs and associated burden hours for market data aggregators to modify their systems to comply with Rules 614(d)(1) through (4). The Commission preliminarily believed that market data aggregators would not have to extensively modify their systems to comply with Rules 614(d)(1) through (4) because the systems used by these firms already collect, consolidate, and disseminate more extensive proprietary market data than the data that is provided by the exclusive SIPs. However, the Commission now understands that these are small firms for which scaling out their hardware and personnel needs will be a significant undertaking. Most of these firms would have to spend substantial time coding for the new technical changes and would likely not have all of the components required to comply with Rules 614(d)(1) through (4). Additionally, the Commission initially believed that competing consolidators would build aggregation systems in a single data center; however, the Commission now believes that competing consolidators may build systems for aggregating data in more than one data center. The Commission believes market data aggregators would likely incur external costs greater than the Commission's estimate to buy new technology (for example, hardware and network infrastructure).

The Commission is increasing its estimated burden hours for Sr. Programmers and Sr. Systems Analysts employed by market data aggregation firms by three times. The Commission initially believed that competing consolidators would build aggregation systems in a single data center; however, the Commission now believes that competing consolidators may build systems for aggregating data in more than one data center, so the Commission is increasing the hours for these technical job categories by three times because competing consolidators may potentially build aggregation systems in three data centers. The Commission is also increasing its estimated external costs to be incurred by market data aggregation firms to purchase new technology to upgrade their systems to comply with Rules 614(d)(1) through (4) by three times for the same reason. The Commission estimates that each market data aggregation firm would incur 2,200 initial burden hours to modify its systems to comply with Rules 614(d)(1) through (4),[1439] and initial external

[1429] *See supra* Section III.C.8(a)(ii). *See also supra* Sections II.B.2; III.C.1(b).

[1430] *See supra* notes 878–880 and accompanying text. *See also infra* Section V.C.1(c).

[1431] The Commission estimated the monetized initial burden for this requirement to be $293,750. Based on discussions with a market participant, the Commission reached the following estimates: [(Sr. Programmer at $332/hour for 350 hours) + (Sr. Systems Analyst at $285/hour for 300 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] = 6 months (900 burden hours) to upgrade existing systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1432] This estimate was based on discussions with a market participant and the Commission's understanding of hardware costs.

[1433] The Commission used the monthly market data access and redistribution fees currently charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000).

[1434] This estimate was based on an estimated $48,500 in initial co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers. The Commission described that the market data aggregators would already be co-located at the four exchange data centers, which could lower the estimate. *See* NYSE Price List 2020, *available at https://www.nyse.com/publicdocs/nyse/markets/nyse/NYSE_Price_List.pdf* (last accessed Nov. 27, 2020).

[1435] $414,250 = [($206,250 in initial external costs to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 for the first month of market data costs) + ($194,000 in initial co-location costs at four exchange data centers)].

[1436] The Commission estimated the monetized initial burden for this requirement to be $587,500. Based on discussions with a market participant, the Commission reached the following estimates: [(Sr. Programmer at $332/hour for 350 hours) + (Sr. Systems Analyst at $285/hour for 300 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] × [(2 market data aggregation firms)] = 1,800 initial burden hours across the market data aggregation firms.

[1437] The Commission estimated that the market data aggregation firms would incur the following initial external costs: [($206,250 to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to co-locate within four exchange data centers)] × [(2 market data aggregation firms)] = $828,500.

[1438] IDS Letter I at 13, n. 38.

[1439] The Commission estimated the monetized initial burden for this requirement to be $697,150. These estimates were initially based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 1,050 hours) + (Sr. Systems Analyst at $285/hour for 900

costs of $618,750 to purchase the necessary technology to effect such modifications,[1440] $194,000 to establish co-location connectivity to the exchange data centers,[1441] and $14,000 to purchase market data from the exchanges,[1442] for a total external cost to each market data aggregator of $826,750.[1443] The Commission estimates that the total initial burden hours for two market data aggregators would be 4,400 burden hours,[1444] and that total initial external costs would be $1,653,500 for two market data aggregators to modify their systems to comply with Rules 614(d)(1) through (4).[1445]

(c) Initial Burden and Costs for Broker-Dealers That Aggregate Market Data

(i) Proposed Estimates—Initial Burden and Costs

In the Proposing Release, the Commission estimated that each broker-dealer that aggregates market data for internal uses that chooses to become a competing consolidator would incur burden hours to upgrade its systems to comply with Rules 614(d)(1) through (4) as well as external costs associated with such upgrades, including co-location fees at the exchange data centers and the cost of market data. Specifically, the Commission estimated that each broker-dealer would incur 900 initial burden hours[1446] and $206,250 in external costs[1447] to modify its systems to comply with Rules 614(d)(1) through (4). Additionally, the Commission estimated that a broker-dealer would incur initial external costs of $14,000 to purchase market data from the SROs,[1448] and an additional initial external cost of $194,000 to co-locate itself at four exchange data centers,[1449] for a total initial external cost of $414,250 per broker-dealer,[1450] and an aggregate estimate of 1,800 initial burden hours[1451] and $828,500 in initial external costs.[1452]

(ii) Comments/Responses on Initial Burden and Costs

In response to the commenter that believed that the estimated costs incurred by potential competing consolidators to build or upgrade systems to comply with proposed Rules 614(d)(1) through (4) should be increased,[1453] the Commission is modifying its initial burden and cost estimates for broker-dealers that aggregate market data, as discussed below.

(iii) Adopted Estimates—Initial Burden and Costs

The Commission is increasing its estimated initial costs and associated burden hours for broker-dealers that aggregate market data for internal use to modify their systems comply with Rules 614(d)(1) through (4). The Commission preliminarily believed that the initial burden hour and external cost estimates for these broker-dealers to modify their systems to comply with Rules 614(d)(1) through (4) would be similar to market data aggregation firms because, for both types of respondents, the scope of the systems changes and costs associated with becoming competing consolidators would be comparable. The Commission continues to believe this assumption is valid and is increasing its estimates for these broker-dealers as it is doing for market data aggregation firms. Most of these firms would have to spend substantial time coding for the new technical changes and would likely not have all of the components required to comply with Rules 614(d)(1) through (4). Additionally, the Commission initially believed that competing consolidators would build aggregation systems in a single data center; however, the Commission now believes that competing consolidators may build systems for aggregating data in more than one data center. The Commission

hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] = 2,200 initial burden hours to upgrade existing systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1440] This estimate was originally based on discussions with a market participant and the Commission's understanding of hardware costs. The Commission has increased this estimated cost by three times because the Commission believes competing consolidators may potentially build aggregation systems in three data centers.

[1441] This estimate is based on an estimated $48,500 in initial co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers. The Commission believes that the market data aggregators would already be co-located at the four exchange data centers, which may lower this estimate. *See* NYSE Price List 2020, *supra* note 1434.

[1442] As it did in the Proposing Release, the Commission is using the monthly market data access and redistribution fees charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000).

[1443] The Commission estimated that each market data aggregation firm would incur the following initial external costs: [($618,750 to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to establish co-location connectivity within four exchange data centers)] = $826,750.

[1444] The Commission estimated the monetized initial burden for this requirement to be $1,394,300. These estimates were initially based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 1,050 hours) + (Sr. Systems Analyst at $285/hour for 900 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] × [(2 market data aggregation firms)] = 4,400 initial burden hours across the market data aggregation firms.

[1445] The Commission estimated that market data aggregation firms would incur the following initial external costs: [($618,750) to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to establish co-location connectivity within four exchange data centers)] × [(2 market data aggregation firms)] = $1,653,500.

[1446] The Commission estimated the monetized initial burden for this requirement to be $293,750. The Commission reached the following hourly estimates: [(Sr. Programmer at $332/hour for 350 hours) + (Sr. Systems Analyst at $285/hour for 300 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] = 6 months (900 burden hours) to upgrade existing systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on discussions with a market participant and per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for a 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1447] This estimate was based on discussions with a market participant and the Commission's understanding of hardware costs.

[1448] The Commission used the monthly market data access and redistribution fees currently charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000).

[1449] This estimate was based on an estimated $48,500 in initial co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers. *See* NYSE Price List 2020, *supra* note 1434.

[1450] $414,250 = [($206,250 in initial external costs to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 for the first month of market data costs) + ($194,000 in initial co-location costs at four exchange data centers)].

[1451] The Commission estimates the monetized initial burden for this requirement to be $587,500. Based on discussions with a market participant, the Commission reached the following estimates: [(Sr. Programmer at $332/hour for 350 hours) + (Sr. Systems Analyst at $285/hour for 300 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] × [(2 broker-dealers)] = 1,800 initial burden hours across the broker-dealers.

[1452] The Commission preliminarily estimates that broker-dealers would incur the following initial external costs: [($206,250 to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to co-locate within four exchange data centers) × (2 broker-dealers)] = $828,500.

[1453] IDS Letter I at 13, n. 38.

believes broker-dealers that aggregate market data would likely incur external costs greater than the Commission's estimate to buy new technology (for example, hardware and network infrastructure). The Commission is also revising its total initial burden hour and external cost estimates across all broker-dealers that aggregate market data to reflect a reduction in the number of potential competing consolidators that are broker-dealers that aggregate market data.

As it did for its market data aggregation firm estimates, the Commission is increasing its estimated burden hours for Sr. Programmers and Sr. Systems Analysts by three times as well as its estimated external costs to be incurred by broker-dealers that aggregate market data to purchase new technology to upgrade their systems to comply with Rules 614(d)(1) through (4). The Commission estimates that each broker-dealer that aggregates market data would incur 2,200 initial burden hours to modify its systems to comply with Rules 614(d)(1) through (4),[1454] and initial external costs of $618,750 to purchase the necessary technology to effect such modifications,[1455] $194,000 to establish co-location connectivity to the exchange data centers,[1456] and $14,000 to purchase market data from the exchanges,[1457] for a total external cost to each broker-dealer that aggregates market data of $826,750.[1458] The Commission estimates that the total initial burden hours for one broker-dealers that aggregates market data would be 2,200 burden hours,[1459] and that total initial external costs would be $826,750 for one broker-dealer that aggregates market data to modify its systems to comply with Rules 614(d)(1) through (4).[1460]

(d) Initial Burden and Costs for Exclusive SIPs

(i) Proposed Estimates—Initial Burden and Costs

In the Proposing Release, the Commission estimated that the exclusive SIPs may have to make a greater scope of changes to become competing consolidators than market data aggregation firms. For this reason, the Commission estimated initial burden hour and external cost estimates that were higher than those estimated for market data aggregation firms.[1461] Specifically, the Commission estimated that each exclusive SIP would incur 1,800 initial burden hours [1462] and $412,500 in external costs [1463] to modify its systems to comply with Rules 614(d)(1) through (4). Additionally, the Commission estimated that an exclusive SIP would incur initial external costs of $14,000 to purchase market data from the SROs,[1464] and an additional initial external cost of $194,000 to co-locate itself at four exchange data centers,[1465] for a total initial external cost of $620,500 per existing exclusive SIP,[1466] and an aggregate estimate of 3,600 initial burden hours [1467] and $1,241,000 in initial external costs.[1468]

(ii) Comments/Responses on Initial Burden and Costs

In response to the commenter that believed that the estimated costs incurred by potential competing consolidators to build or upgrade systems to comply with proposed Rules 614(d)(1) through (4) should be increased,[1469] the Commission is

[1454] The Commission estimated the monetized initial burden for this requirement to be $697,150. These estimates were initially based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 1,050 hours) + (Sr. Systems Analyst at $285/hour for 900 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] = 2,200 initial burden hours to upgrade existing systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1455] This estimate was originally based on discussions with a market participant and the Commission's understanding of hardware costs. The Commission has increased this estimated cost by three times because the Commission believes competing consolidators may potentially build aggregation systems in three data centers.

[1456] This estimate is based on an estimated $48,500 in initial co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers. *See* NYSE Price List 2020, *supra* note 1434.

[1457] As it did in the Proposing Release, the Commission is using the monthly market data access and redistribution fees charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000).

[1458] The Commission estimated that a broker-dealer that aggregates market data would incur the following initial external costs: [($618,750 to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to establish co-location connectivity within four exchange data centers)] = $826,750.

[1459] The Commission estimated the monetized initial burden for this requirement to be $697,150. These estimates were initially based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 1,050 hours) + (Sr. Systems Analyst at $285/hour for 900 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] × [(1 broker-dealer that aggregates market data)] = 2,200 total initial burden hours.

[1460] The Commission estimated that broker-dealers that aggregate market data would incur the following total initial external costs: [($618,750) to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to establish co-location connectivity within four exchange data centers)] × [(1 broker-dealer that aggregates market data)] = $826,750.

[1461] In the Proposing Release, the Commission doubled its initial burden hour and external cost estimates for a market data aggregation firm to reach its initial burden hour and external cost estimates for an exclusive SIP.

[1462] Based on discussions with a market participant, the Commission reached the following estimates for a market data aggregation firm: [(Sr. Programmer at $332/hour for 350 hours) + (Sr. Systems Analyst at $285/hour for 300 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] = 6 months (900 burden hours) to upgrade existing systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for a 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead. As noted above, the Commission increased this initial burden hour estimate for the exclusive SIPs. Therefore, the Commission estimated that each exclusive SIP will incur 1,800 initial burden hours to upgrade its existing systems to comply with Rules 614(d)(1) through (4) (or $587,500, as monetized).

[1463] As noted above, the Commission estimated the initial external cost estimates to comply with Rules 614(d)(1) through (4) to be higher for exclusive SIPs than for market data aggregation firms. The Commission estimated that each exclusive SIP will incur $412,500 in initial external costs to modify its systems to comply with Rules 614(d)(1) through (4).

[1464] The Commission used the monthly market data access and redistribution fees currently charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000).

[1465] This estimate was based on an estimated $48,500 in initial co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers. *See* NYSE Price List 2020, *supra* note 1434.

[1466] The Commission estimated that each exclusive SIP would incur the following initial external costs: [($412,500 to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to co-locate within four exchange data centers)] = $620,500.

[1467] Based on discussions with a market participant, the Commission reached the following estimates for a market data aggregation firm: [(Sr. Programmer at $332/hour for 350 hours) + (Sr. Systems Analyst at $285/hour for 300 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] = 900 initial burden hours across the market data aggregation firms. As noted above, the Commission increased this initial burden hour estimate to apply to the exclusive SIPs. Therefore, the Commission preliminarily estimated that each exclusive SIP will incur 1,800 initial burden hours to upgrade its existing systems to comply with Rules 614(d)(1) through (4) (or $587,500, as monetized). The aggregate initial burden hour estimate for two exclusive SIPs would be [(1,800 initial burden hours) × (2 exclusive SIPs)] = 3,600 initial burden hours.

[1468] The Commission preliminarily estimated that the exclusive SIPs would incur the following initial external costs: [($412,500 to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to co-locate within four exchange data centers)] × [(2 exclusive SIPs)] = $1,241,000.

[1469] IDS Letter I at 13, n. 38.

modifying its initial burden and cost estimates for the exclusive SIPs, as discussed below.

(iii) Adopted Estimates—Initial Burden and Costs

The Commission is increasing its estimated initial costs and associated burden hours for exclusive SIPs that choose to become competing consolidators to upgrade their systems to comply with Rules 614(d)(1) through (4). The Commission preliminarily believed that the exclusive SIPs would have to make a greater scope of changes to become competing consolidators than market data aggregation firms. For this reason, the Commission preliminarily estimated initial burden hour and external cost estimates that were higher than those estimated for market data aggregation firms.[1470] The Commission continues to believe that exclusive SIPs will have to make greater changes to their systems than market data aggregation firms to comply with Rules 614(d)(1) through (4). However, like market data aggregation firms, exclusive SIPs will have to spend substantial time coding for the new technical changes and would likely not have all of the components required to comply with Rules 614(d)(1) through (4). Additionally, the Commission initially believed that competing consolidators would build aggregation systems in a single data center; however, the Commission now believes that competing consolidators may build systems for aggregating data in more than one data center. The Commission believes exclusive SIPs would likely incur external costs greater than the Commission's estimate to buy new technology (for example, hardware and network infrastructure).

As it did for its market data aggregation firm estimates, the Commission is increasing its estimated burden hours for Sr. Programmers and Sr. Systems Analysts employed by each exclusive SIP by three times, as well as its estimated external costs to be incurred by the exclusive SIPs to purchase new technology to upgrade their systems to comply with Rules 614(d)(1) through (4). The Commission estimates that each exclusive SIP would incur 4,400 initial burden hours to modify its systems to comply with Rules 614(d)(1) through (4),[1471] and initial external costs of $1,237,500 to purchase the necessary technology to effect such modifications,[1472] $194,000 to establish co-location connectivity to the exchange data centers,[1473] and $14,000 to purchase market data from the exchanges,[1474] for a total external cost to each exclusive SIP of $1,445,500.[1475] The Commission estimates that the total initial burden hours for two exclusive SIPs would be 8,800 burden hours,[1476] and that total initial external costs would be $2,891,000 for two exclusive SIPs to modify their systems to comply with Rules 614(d)(1) through (4).[1477]

(e) Initial Burden and Costs for New Entrants

(i) Proposed Estimates—Initial Burden and Costs

In the Proposing Release, the Commission estimated that each new entrant would incur 3,600 initial burden hours[1478] and $825,000 in external costs[1479] to build systems to comply with Rules 614(d)(1) through (4). Additionally, the Commission estimated that a new entrant would incur initial external costs of $14,000 to purchase market data from the SROs,[1480] and an additional initial external cost of $194,000 to co-locate itself at four exchange data centers,[1481] for a total initial external cost of $1,033,000 per new entrant,[1482] and an aggregate estimate of 7,200 initial burden

[1470] *See supra* note 1461.

[1471] The Commission estimated the monetized initial burden for this requirement to be $1,394,300. These estimates were initially based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 2,100 hours) + (Sr. Systems Analyst at $285/hour for 1,800 hours) + (Compliance Manager at $310/hour for 200 hours) + (Director of Compliance at $489/hour for 100 hours) + (Compliance Attorney at $366/hour for 200 hours)] = 4,400 initial burden hours to upgrade existing systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1472] This estimate was originally based on discussions with a market participant and the Commission's understanding of hardware costs. The Commission has increased this estimated cost by three times because the Commission believes competing consolidators may potentially build aggregation systems in three data centers.

[1473] This estimate is based on an estimated $48,500 in initial co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers. *See* NYSE Price List 2020, *supra* note 1434.

[1474] As it did in the Proposing Release, the Commission is using the monthly market data access and redistribution fees charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000).

[1475] The Commission estimated that each exclusive SIP would incur the following initial external costs: [($1,237,500 to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to establish co-location connectivity within four exchange data centers)] = $1,445,500.

[1476] The Commission estimated the monetized initial burden for this requirement to be $1,394,300. These estimates were initially based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 2,100 hours) + (Sr. Systems Analyst at $285/hour for 1,800 hours) + (Compliance Manager at $310/hour for 200 hours) + (Director of Compliance at $489/hour for 100 hours) + (Compliance Attorney at $366/hour for 200 hours)] × [(2 exclusive SIPs)] = 8,800 initial burden hours across the exclusive SIPs.

[1477] The Commission estimated that the exclusive SIPs would incur the following initial external costs: [($1,237,500 to modify systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to establish co-location connectivity within four exchange data centers)] × [(2 exclusive SIPs)] = $2,891,000.

[1478] Based on discussions with a market participant, the Commission reached the following estimates for a market data aggregation firm: [(Sr. Programmer at $332/hour for 350 hours) + (Sr. Systems Analyst at $285/hour for 300 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] = 6 months (900 burden hours) to upgrade existing systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead. As noted above, the Commission increased this initial burden hour estimate to apply to the new entrants. Therefore, the Commission estimated that each new entrant would incur 3,600 initial burden hours to build systems to comply with Rules 614(d)(1) through (4) (or $1,175,000, as monetized).

[1479] As noted above, the Commission increased its initial external cost estimates for market data aggregation firms to apply to new entrants. In particular, the Commission estimated that each new entrant will incur $825,000 in initial external costs to build systems to comply with Rules 614(d)(1) through (4).

[1480] The Commission used the monthly market data access and redistribution fees currently charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000).

[1481] This estimate was based on an estimated $48,500 in initial co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers. *See* NYSE Price List 2020, *supra* note 1434.

[1482] The Commission estimated that each new entrant would incur the following initial external costs: [($825,000 to build systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to co-locate within four exchange data centers)] = $1,033,000.

hours [1483] and $2,066,000 in initial external costs.[1484]

(ii) Comments/Responses on Initial Burden and Costs

In response to the commenter that believed that the estimated costs incurred by potential competing consolidators to build or upgrade systems to comply with proposed Rules 614(d)(1) through (4) should be increased,[1485] the Commission is modifying its initial burden and cost estimates for new entrants, as discussed below.

(iii) Adopted Estimates—Initial Burden and Costs

The Commission is increasing its estimated initial costs and associated burden hours for new entrants that choose to become competing consolidators to build systems to comply with Rules 614(d)(1) through (4). The Commission preliminarily estimated initial burden hour and external cost estimates for new entrants that are higher than those estimated for the potential entities, other than SROs, that may choose to become competing consolidators. Because new entrants would be wholly new to the business of consolidating market data, the Commission continues to believe that new entrants would incur substantially higher burden hours and external costs to build new systems to comply with Rules 614(d)(1) through (4) than potential competing consolidators that already collect and aggregate market data.[1486] Additionally, the Commission initially believed that competing consolidators would build aggregation systems in a single data center; however, the Commission now believes that competing consolidators may build systems for aggregating data in more than one data center. The Commission is increasing its estimated initial burden hours for new entrants to build systems to comply with Rules 614(d)(1) through (4). The Commission also believes new entrants would likely incur external costs greater than the Commission's estimate to buy new technology (for example, hardware and network infrastructure).

As it did for its market data aggregation firm estimates, the Commission is increasing its estimated burden hours for Sr. Programmers and Sr. Systems Analysts by three times for new entrants, as well as its estimated external costs to be incurred by new entrants to purchase new technology to upgrade their systems to comply with Rules 614(d)(1) through (4). The Commission estimates that each new entrant would incur 8,800 initial burden hours to build systems to comply with Rules 614(d)(1) through (4),[1487] and initial external costs of $2,475,000 to purchase the necessary technology to build such systems,[1488] $194,000 to establish co-location connectivity to the exchange data centers,[1489] and $14,000 to purchase market data from the exchanges,[1490] for a total external cost to each new entrant of $2,683,000.[1491] The Commission estimates that the total initial burden hours for two new entrants would be 17,600 burden hours,[1492] and that total initial external costs would be $5,366,000 for two new entrants to build systems to comply with Rules 614(d)(1) through (4).[1493]

(f) Initial Burden and Costs for SROs [1494]

(i) Proposed Estimates—Initial Burden and Costs

In the Proposing Release, the Commission estimated that each SRO would incur 3,600 initial burden hours [1495] and $825,000 in external costs [1496] to build systems to comply with Rules 614(d)(1) through (4). Additionally, the Commission estimated

[1483] Based on discussions with a market participant, the Commission reached the following estimates for a market data aggregation firm: [(Sr. Programmer at $332/hour for 350 hours) + (Sr. Systems Analyst at $285/hour for 300 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] = 900 initial burden hours. As noted above, the Commission increased the per market data aggregation firm initial burden hour estimate to apply to the new entrants. The Commission estimated that each new entrant would incur 3,600 initial burden hours to build systems to comply with Rules 614(d)(1) through (4) (or $1,175,000, as monetized). [(3,600 burden hours) × (2 new entrants] = 7,200 hours (or $2,350,000 as monetized).

[1484] The Commission estimated that each new entrant would incur the following initial external costs: [($825,000 to build systems to comply with Rules 614(d)(1) through (d)(4)) + ($14,000 to purchase market data) + ($194,000 to co-locate within four exchange data centers) × (2 new entrants)] = $1,033,000. [($1,033,000 in initial external costs) × (2 new entrants)] = $2,066,000.

[1485] IDS Letter I at 13, n. 38.

[1486] The Commission's assumption is supported by a commenter, which stated, ''The incumbent SIPs, the Securities Industry Automation Corporation ('SIAC') and Nasdaq UTP, will have a significant competitive advantage over new entrants should they chose [sic] to transition to Competing Consolidators. For example, the incumbent SIPs will benefit from utilizing the existing infrastructure, which was funded by industry participants, to transform to a Competing Consolidator.'' MIAX Letter p. 2–3.

[1487] The Commission estimated the monetized initial burden for this requirement to be $2,788,600. These estimates were initially based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 4,200 hours) + (Sr. Systems Analyst at $285/hour for 3,600 hours) + (Compliance Manager at $310/hour for 400 hours) + (Director of Compliance at $489/hour for 200 hours) + (Compliance Attorney at $366/hour for 400 hours)] = 8,800 initial burden hours to build systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1488] This estimate was originally based on discussions with a market participant and the Commission's understanding of hardware costs. The Commission has increased this estimated cost by three times because the Commission believes competing consolidators may potentially build aggregation systems in three data centers.

[1489] This estimate is based on an estimated $48,500 in initial co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers. *See* NYSE Price List 2020, *supra* note 1434.

[1490] As it did in the Proposing Release, the Commission is using the monthly market data access and redistribution fees charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000).

[1491] The Commission estimated that each new entrant would incur the following initial external costs: [($2,475,000 to build systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to establish co-location connectivity within four exchange data centers)] = $2,683,000.

[1492] The Commission estimated the monetized initial burden for this requirement to be $5,577,200. These estimates were initially based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 4,200 hours) + (Sr. Systems Analyst at $285/hour for 3,600 hours) + (Compliance Manager at $310/hour for 400 hours) + (Director of Compliance at $489/hour for 200 hours) + (Compliance Attorney at $366/hour for 200 hours)] × [(2 new entrants)] = 17,600 initial burden hours across the new entrants.

[1493] The Commission estimated that the new entrants would incur the following initial external costs: [($2,475,000 to build systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to establish co-location connectivity within four exchange data centers)] × [(2 new entrants)] = $5,366,000.

[1494] *See supra* note 1394.

[1495] Based on discussions with a market participant, the Commission reached the following estimates for a market data aggregation firm: [(Sr. Programmer at $332/hour for 350 hours) + (Sr. Systems Analyst at $285/hour for 300 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] = 6 months (900 burden hours) to upgrade existing systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead. As it did for its new entrant estimates, the Commission increased this initial burden hour estimate to apply to the SROs. Therefore, the Commission estimated that each SRO will incur 3,600 initial burden hours to build systems to comply with Rules 614(d)(1) through (4) (or $1,175,000, as monetized).

[1496] As it did for its new entrant estimates, the Commission increased its initial external cost estimates for market data aggregation firms to apply to the SROs. Therefore, the Commission estimated that each SRO will incur $825,000 in initial external costs to build systems to comply with Rules 614(d)(1) through (4).

that an SRO would incur initial external costs of $14,000 to purchase market data from the SROs,[1497] and an additional initial external cost of $194,000 to co-locate itself at four exchange data centers,[1498] for a total initial external cost of $1,033,000 per SRO,[1499] and an aggregate estimate of 14,400 initial burden hours [1500] and $4,132,000 in initial external costs.[1501]

(ii) Comments/Responses on Initial Burden and Costs

In response to the commenter that believed that the estimated costs incurred by potential competing consolidators to build or upgrade systems to comply with proposed Rules 614(d)(1) through (4) should be increased,[1502] the Commission is modifying its initial burden and cost estimates for SROs, as discussed below.

(iii) Adopted Estimates—Initial Burden and Costs

The Commission is increasing its estimated initial costs and associated burden hours for SROs that choose to become competing consolidators to build systems to comply with Rules 614(d)(1) through (4).[1503] The Commission initially believed and continues to believe that these entities would have to build new systems to comply with Rules 614(d)(1) through (4) and thus would incur initial burden hours that are similar to new entrants. Because SROs that do not operate exclusive SIPs would be wholly new to the business of consolidating market data, these entities would likely incur substantially higher burden hours and external costs to build new systems to comply with Rules 614(d)(1) through (4) than potential competing consolidators that already collect and aggregate market data. Additionally, the Commission initially believed that competing consolidators would build aggregation systems in a single data center; however, the Commission now believes that competing consolidators may build systems for aggregating data in more than one data center. The Commission is increasing its estimated initial burden hours for SROs to build systems to comply with Rules 614(d)(1) through (4). The Commission also believes that SROs would likely incur external costs greater than the Commission's estimate to buy new technology (for example, hardware and network infrastructure). The Commission is also revising its total initial burden hour and external cost estimates across these entities to reflect a reduction in the number of such competing consolidators.

As it did for its market data aggregation firm estimates, the Commission is increasing its estimated burden hours for Sr. Programmers and Sr. Systems Analysts by three times for SROs, as well as its estimated external costs to be incurred by SROs to purchase new technology to build systems to comply with Rules 614(d)(1) through (4). The Commission estimates that each SRO would incur 8,800 initial burden hours to build systems to comply with Rules 614(d)(1) through (4),[1504] and initial external costs of $2,475,000 to purchase the necessary technology to build such systems,[1505] $194,000 to establish co-location connectivity to the exchange data centers,[1506] and $14,000 to purchase market data from the exchanges,[1507] for a total external cost to each SRO of $2,683,000.[1508] The Commission estimates that the total initial burden hours for one SRO would be 8,800 burden hours [1509] and that total initial external costs would be $2,683,000 for one SRO to build systems to comply with Rules 614(d)(1) through (4).[1510]

(g) Ongoing Burden and Costs for Competing Consolidators

(i) Proposed Estimates—Ongoing Burden and Costs

In the Proposing Release, the Commission estimated that once a competing consolidator's system had been built, all types of entities that could become a competing consolidators (*i.e.,* existing market data aggregation firms, broker-dealers that aggregate market data, exclusive SIPs, new entrants, and SROs) would incur annual ongoing burden hours and external costs to operate and maintain their systems to comply with Rules 614(d)(1) through (4) and that the annual ongoing burdens would be similar for all types of competing consolidators because such systems would likely be similar in nature. Therefore, the Commission estimated the same annual ongoing burden hours

[1497] The Commission used the monthly market data access and redistribution fees currently charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000).

[1498] This estimate was based on an estimated $48,500 in initial co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers. *See* NYSE Price List 2020, *supra* note 1434.

[1499] The Commission estimated that each SRO would incur the following initial external costs: [($825,000 to build systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to co-locate within four exchange data centers)] = $1,033,000.

[1500] Based on discussions with a market participant, the Commission reached the following estimates for a market data aggregation firm: [(Sr. Programmer at $332/hour for 350 hours) + (Sr. Systems Analyst at $285/hour for 300 hours) + (Compliance Manager at $310/hour for 100 hours) + (Director of Compliance at $489/hour for 50 hours) + (Compliance Attorney at $366/hour for 100 hours)] = 900 initial burden hours. As it did for its new entrant estimates, the Commission increased the per market data aggregation firm initial burden hour estimate to apply to the SROs. Therefore, the Commission estimated that each SRO would incur 3,600 initial burden hours to upgrade its existing systems to comply with Rules 614(d)(1) through (4) (or $1,175,000, as monetized). [(3,600 burden hours) × (4 SROs)] = 14,400 hours (or $4,700,000 as monetized).

[1501] The Commission estimated that each SRO would incur the following initial external costs: [($825,000 to build systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to co-locate within four exchange data centers)] = $1,033,000. [($1,033,000 in initial external costs) × (4 SROs)] = $4,132,000.

[1502] IDS Letter I at 13.

[1503] *See supra* note 1394.

[1504] The Commission estimates the monetized initial burden for this requirement to be $2,788,600. These estimates were initially based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 4,200 hours) + (Sr. Systems Analyst at $285/hour for 3,600 hours) + (Compliance Manager at $310/hour for 400 hours) + (Director of Compliance at $489/hour for 200 hours) + (Compliance Attorney at $366/hour for 400 hours)] = 8,800 initial burden hours to build systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1505] This estimate was originally based on discussions with a market participant and the Commission's understanding of hardware costs. The Commission has increased this estimated cost by three times because the Commission believes competing consolidators may potentially build aggregation systems in three data centers.

[1506] This estimate is based on an estimated $48,500 in initial co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers. *See* NYSE Price List 2020, *supra* note 1434.

[1507] As it did in the Proposing Release, the Commission is using the monthly market data access and redistribution fees charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000).

[1508] The Commission estimates that each SRO would incur the following initial external costs: [($2,475,000 to build systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to establish co-location connectivity within four exchange data centers)] = $2,683,000.

[1509] The Commission estimates the total monetized initial burden for this requirement to be $2,788,600. These estimates were initially based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 4,200 hours) + (Sr. Systems Analyst at $285/hour for 3,600 hours) + (Compliance Manager at $310/hour for 400 hours) + (Director of Compliance at $489/hour for 200 hours) + (Compliance Attorney at $366/hour for 400 hours)] × [(1 SRO)] = 8,800 total initial burden hours.

[1510] The Commission estimates that SROs would incur the following total initial external costs: [($2,475,000 to build systems to comply with Rules 614(d)(1) through (4)) + ($14,000 to purchase market data) + ($194,000 to establish co-location connectivity within four exchange data centers)] × [(1 SRO)] = $2,683,000.

and external costs for the five types of entities that the Commission anticipated may choose to become competing consolidators.

Competing consolidators would incur annual ongoing burden hours and external costs to operate and maintain their modified systems to comply with Rules 614(d)(1) through (4). Specifically, the Commission estimated that each entity would incur 540 annual ongoing burden hours [1511] and $123,725 in annual ongoing external costs [1512] to operate and maintain its systems to comply with Rules 614(d)(1) through (4).

Further, the Commission estimated that each competing consolidator would incur annual ongoing external costs of $168,000 to purchase market data from the SROs,[1513] and an additional annual ongoing external cost of $4,602,720 to co-locate itself at four exchange data centers,[1514] for a total annual ongoing external cost of $4,894,445 per entity.[1515] In the Proposing Release, the Commission estimated that there would be two entities per category of potential competing consolidators for existing market data aggregators, broker-dealers that currently aggregate market data, exclusive SIPs, and new entrants, and that for each of these categories, the aggregate estimates would amount to estimate of 1,080 annual ongoing burden hours [1516] and $9,797,530 in annual ongoing external costs.[1517] In addition, the Commission estimated that there would be four SROs that would become a competing consolidator and that the SROs would incur an aggregate estimate of 2,160 annual ongoing burden hours [1518] and $19,577,780 in annual ongoing external costs.[1519]

(ii) Comments/Responses on Ongoing Burden and Costs [1520]

No commenters suggested changes to the Commission's estimated ongoing burden hours and external costs that competing consolidators would incur in maintaining and operating their systems to comply with Rules 614(d)(1) through (4). However, one commenter noted that the NYSE's ongoing costs associated with the NMS network are $215,000 per year,[1521] which is less than the burden hours and external costs the Commission preliminarily estimated a competing consolidator would incur for operating and maintaining a system to comply with Rules 614(d)(1) through (4). As noted earlier, the Commission does not believe that the NMS network costs are directly applicable to the burden hour and cost estimates applicable to competing consolidators to build and operate systems to comply with Rules 614(d)(1) through (4). However, the Commission believes it is reasonable to increase its ongoing burden hour and external cost estimates to operate systems to collect, consolidate, and disseminate consolidated market data. As it did for its initial burden hour and external cost estimates, the Commission is increasing its estimated ongoing burden hours for Sr. Programmers and Sr. Systems Analysts by three times because competing consolidators may potentially build aggregation systems in three data centers, so they consequently must maintain these systems, as well as its estimated external costs associated with operating and maintaining systems by three times, for the same reason.

(iii) Adopted Estimates—Annual Ongoing and Costs

The Commission continues to believe that all types of competing consolidators would incur similar ongoing, annual burdens once their systems have been built because such systems would likely be similar in nature. As it did for its revised initial burden hour and external cost estimates, the Commission is increasing by three times its estimated ongoing burden hours for Sr. Programmers and Sr. Systems Analysts and external ongoing technology cost estimates because competing consolidators may potentially build aggregation systems in three data centers, and would have to maintain these systems. The Commission is also revising its total ongoing burden hour and external cost estimates to reflect a reduction in the number of potential broker-dealers that aggregate market data for internal uses and SRO competing consolidators.

The Commission estimates that each competing consolidator would incur 1,320 ongoing, annual burden hours [1522]

[1511] The Commission estimated that once a competing consolidator's infrastructure was in place, the burden of operating and maintaining the infrastructure would be less than the burdens associated with establishing the infrastructure. The Commission estimated the monetized initial burden for this requirement to be $176,250. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Programmer at $332 for 210 hours) + (Sr. Systems Analyst at $285 for 180 hours) + (Compliance Manager at $310 for 60 hours) + (Director of Compliance at $489 for 30 hours) + (Compliance Attorney at $366 for 60 hours)] = 540 burden hours per entity and $176,250.

[1512] This estimate was based on the initial external cost estimate for a market data aggregation firm to modify its systems to comply with Rules 614(d)(1) through (4), but reduced because the Commission estimated that once a competing consolidator's infrastructure was in place, the burden of operating and maintaining the infrastructure would be less than the burdens associated with establishing the infrastructure.

[1513] The Commission used the monthly market data access and redistribution fees currently charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000), multiplied by 12 months.

[1514] This estimate was based on an estimated $95,890 in monthly co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers over 12 months. The Commission estimated that the market data aggregators would already be co-located at the four exchange data centers, which may lower this estimate for this category of respondent. *See* NYSE Price List 2020, *supra* note 1434.

[1515] $4,894,445 = [($123,725 to operate and maintain systems to comply with Rules 614(d)(1) through (4)) + ($168,000 in monthly market data fees over 12 months) + ($4,602,720 to co-locate within four exchange data centers over 12 months)].

[1516] The Commission estimated the monetized annual ongoing burden for this requirement to be $352,500. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Programmer at $332 for 210 hours) + (Sr. Systems Analyst at $285 for 180 hours) + (Compliance Manager at $310 for 60 hours) + (Director of Compliance at $489 for 30 hours) + (Compliance Attorney at $366 for 60 hours)] × [(2 market data aggregation firms/broker-dealers that currently aggregate market data/exclusive SIPs/new entrants)] = 1,080 annual ongoing burden hours and $352,500.

[1517] The Commission estimated that the market data aggregation firms/broker-dealers that currently aggregate market data for their own usage/exclusive SIPs/new entrants would incur the following aggregate annual ongoing external costs: [($123,725 to operate and maintain systems to comply with Rules 614(d)(1) through (4)) + ($168,000 in monthly market data fees over 12 months) + ($4,602,720 to co-locate within four exchange data centers over 12 months)] × [(2 entities)] = $9,788,890.

[1518] The Commission estimated the monetized initial burden for this requirement to be $353,500. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Programmer at $332 for 210 hours) + (Sr. Systems Analyst at $285 for 180 hours) + (Compliance Manager at $310 for 60 hours) + (Director of Compliance at $489 for 30 hours) + (Compliance Attorney at $366 for 60 hours)] × [(4 SROs)] = 2,160 annual ongoing burden hours across the SROs and $705,000.

[1519] The Commission estimated that the SROs would incur the following initial external costs: [($123,725 to operate and maintain systems to comply with Rules 614(d)(1) through (4)) + ($168,000 in monthly market data fees over 12 months) + ($4,602,720 to co-locate within four exchange data centers over 12 months)] × [(4 SROs)] = $19,577,780 across the SROs.

[1520] One commenter stated that the costs to the industry may be significantly higher than the ongoing annual costs incurred by each competing consolidator because the proposal did not explain the fees the competing consolidators would charge investors. *See* Cboe Letter at 24.

[1521] IDS Letter I at 13, n. 38.

[1522] The Commission estimates the monetized annual ongoing burden for this requirement to be $418,290. These estimates were based on

and external costs of $371,175 to operate and maintain its systems to comply with Rules 614(d)(1) through (4),[1523] as well as external ongoing, annual external costs of $4,602,720 for co-location connectivity to the exchange data centers,[1524] and $168,000 to purchase market data from the exchanges,[1525] for a total ongoing, annual external cost to each competing consolidator of $5,141,895.[1526]

The Commission estimates that the total ongoing, annual external burden hours to be incurred by market data aggregation firms, exclusive SIPs and new entrants would be 2,640 burden hours,[1527] for each of these categories of competing consolidator, as well as total ongoing, annual external costs of $10,283,790,[1528] for each of these categories of competing consolidator.

The Commission estimates that the total ongoing, annual external burden hours to be incurred by broker-dealers that aggregate market data and SROs would be 1,320 burden hours,[1529] for each of these categories of competing consolidator, as well as total ongoing, annual external costs of $5,141,885,[1530] for each of these categories of competing consolidator.

4. Recordkeeping

Rule 614(d)(7) requires each competing consolidator to keep and preserve at least one copy of all documents made or received by it in the course of its business and in the conduct of its business. These documents must be kept for a period of no less than five years, the first two years in an easily accessible place. Rule 614(d)(8) requires each competing consolidator to furnish promptly these documents to any representative of the Commission upon request.

(a) Initial Burden and Costs

(i) Proposed Estimates—Initial Burden and Costs

In the Proposing Release, the Commission estimated that these requirements would create an initial burden of 40 hours (for a total cost of $8,720),[1531] for a total initial burden of 480 hours for all respondents (for a total cost of $104,640). These estimates were based on the Commission's experience with recordkeeping costs and consistent with prior burden estimates for similar provisions.[1532]

(ii) Comments/Responses on Initial Burden and Costs

The Commission did not receive any comments on the estimated initial burdens and costs of Rules 614(d)(7) and (8).

(iii) Adopted Estimates—Initial Burden and Costs

The Commission is revising its preliminary estimates to account for the downward estimate from 12 competing consolidators to 8 competing consolidators. The Commission estimates that the initial burden of 40 hours (for a total cost of $8,720) for a total initial burden of 320 hours for all respondents (for a total cost of $69,760) is reasonable based upon the Commission's experiences with estimating similar provisions.

(b) Ongoing Burden and Costs

(i) Proposed Estimates—Ongoing Burden and Costs

The Commission estimated that the ongoing annual burden of recordkeeping in accordance with Rules 614(d)(7) and (8) would be 20 hours per respondent (for a total cost of $4,360) and a total ongoing annual burden of 240 hours for all respondents (for a total cost of $52,320).

(ii) Comments/Responses on Ongoing Burden and Costs

The Commission did not receive any comments on the estimated ongoing burdens and costs of Rules 614(d)(7) and (8).

discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 630 hours) + (Sr. Systems Analyst at $285/hour for 540 hours) + (Compliance Manager at $310/hour for 60 hours) + (Director of Compliance at $489/hour for 30 hours) + (Compliance Attorney at $366/hour for 60 hours)] = 1,320 ongoing, annual burden hours per competing consolidator to operate and maintain systems to comply with Rules 614(d)(1) through (4). The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1523] This estimate was originally based on discussions with a market participant and the Commission's understanding of hardware costs. The Commission has increased this estimated cost by three times because the Commission believes that competing consolidators would have to maintain aggregation systems in three data centers.

[1524] This estimate was based on an estimated $95,890 in monthly co-location fees as calculated from NYSE Price List 2020, multiplied by four exchange data centers over 12 months.

[1525] As it did in the Proposing Release, the Commission used the monthly market data access and redistribution fees currently charged by the CTA/CQ SIP and Nasdaq UTP SIP as the basis of this estimate ($14,000), multiplied by 12 months.

[1526] The Commission estimates that each market data aggregation firm/broker-dealer that aggregates market data/exclusive SIP/new entrant/SRO would incur the following ongoing, annual external costs: [($371,175 to operate and maintain systems to comply with Rules 614(d)(1) through (4)) + ($168,000 to purchase market data) + ($4,602,720 for co-location connectivity within four exchange data centers)] = $5,141,895.

[1527] The Commission estimates the total monetized annual ongoing burden for this requirement to be $836,580. These estimates were based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 630 hours) + (Sr. Systems Analyst at $285/hour for 540 hours) + (Compliance Manager at $310/hour for 60 hours) + (Director of Compliance at $489/hour for 30 hours) + (Compliance Attorney at $366/hour for 60 hours)] × [(2 market data aggregation firms/exclusive SIPs/new entrants] = 2,640 total ongoing, annual burden hours to operate and maintain systems to comply with Rules 614(d)(1) through (4) for each of these categories of competing consolidator. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1528] The Commission estimates the total annual ongoing external cost for market data aggregation firms/exclusive SIPs/new entrants would be: [($371,175 to operate and maintain systems to comply with Rules 614(d)(1) through (4)) + ($168,000 to purchase market data) + ($4,602,720 for co-location connectivity within four exchange data centers)] × [(2 market data aggregation firms/exclusive SIPs/new entrants)] = $10,283,790 for each of these categories of competing consolidator.

[1529] The Commission estimates the total monetized annual ongoing burden for this requirement to be $418,290. These estimates were based on discussions with a market participant, modified as discussed above: [(Sr. Programmer at $332/hour for 630 hours) + (Sr. Systems Analyst at $285/hour for 540 hours) + (Compliance Manager at $310/hour for 60 hours) + (Director of Compliance at $489/hour for 30 hours) + (Compliance Attorney at $366/hour for 60 hours)] × [(1 broker-dealer that aggregates market data/SRO)] = 1,320 total ongoing, annual burden hours to operate and maintain systems to comply with Rules 614(d)(1) through (4) for each of these categories of competing consolidator. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1530] The Commission estimates the total annual ongoing external cost for broker-dealers that aggregate market data/SROs would be: [($371,175 to operate and maintain systems to comply with Rules 614(d)(1) through (4)) + ($168,000 to purchase market data) + ($4,602,720 for co-location connectivity within four exchange data centers)] × [(1 broker-dealer that aggregates market data/SRO)] = $5,141,885 for each of these categories of competing consolidator.

[1531] The Commission based this estimate on the $218 hourly rate as of May 2019 for a paralegal × 40 hours. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead.

[1532] *See* Security Based Swap Data Repository Registration, Duties, and Core Principles, Securities Exchange Act Release No. 74246 (Feb. 11, 2015), 80 FR 14438 (Mar. 19, 2015) at 14541.

(iii) Adopted Estimates—Ongoing Burden and Costs

The Commission is revising its preliminary estimates to account for the downward estimate from 12 competing consolidators to eight competing consolidators. The Commission estimates that the ongoing burden of 20 hours (for a total cost of $4,360) for a total initial burden of 160 hours for all respondents (for a total cost of $34,880) is reasonable based upon the Commission's experiences with estimating similar provisions.

5. Reports and Reviews

Rules 614(d)(5) and (6) requires competing consolidators to produce monthly reports on performance metrics and systems issues.

(a) Initial Burden and Costs

(i) Proposed Estimates—Initial Burden and Costs

The Commission estimated that the average one-time, initial burden to program systems to produce the monthly reports required by Rules 614(d)(5) and (6), including keeping the information publicly posted and free and accessible (in downloadable files under Rule 614(d)(5)), would be 246 hours per competing consolidator (for a total cost of $80,507) [1533] and $800 in external costs.[1534] The Commission estimated that the total initial burden would be 2,952 hours (for a total cost of $966,804) [1535] and a total initial external cost of $9,600.[1536]

(ii) Comments/Responses on Initial Burden and Costs

The Commission did not receive any comments on the estimated initial burdens and costs of Rules 614(d)(5) and (6).

(iii) Adopted Estimates—Initial Burden and Costs

The Commission is revising its preliminary estimates to account for the downward estimate from 12 competing consolidators to eight competing consolidators. The Commission estimates that the initial burden of 246 hours per competing consolidator (for a total cost of $80,507) [1537] and $800 in external costs.[1538] The Commission estimates that the total initial burden would be 1,968 hours (for a total cost of $644,056) [1539] and a total initial external cost of $6,400.[1540]

(b) Ongoing Burden and Costs

(i) Proposed Estimates—Ongoing Burden and Costs

The Commission estimated that each competing consolidator would incur an average burden of 11 hours to prepare and make publicly available a monthly report in the format required by Rules 614(d)(5) and (6) (for a total cost of $3,768.50), or a burden of 132 hours per year (for a total cost of $45,222).[1541] Once a report is posted on an internet website, the Commission estimated that there would not be an additional burden to allow the report to remain posted for the period of time specified in the rules. The Commission estimated the total burden per year for all competing consolidators to comply with the monthly reporting requirement in Rules

[1533] This figure was based on the estimated initial paperwork burden for 17 CFR 242.606(a) (Rule 606(a)), which requires each broker or dealer to make publicly available on a website a quarterly report on its routing of non-directed orders in NMS stocks that are submitted on a held basis and of non-directed orders that are customer orders in NMS securities. *See* Securities Exchange Act Release No. 84528 (Nov. 2, 2018), 83 FR 58338 (Nov. 19, 2018) (''Order Handling Disclosure Release''). In the Proposing Release, the Commission converted the 10 hour estimate for a quarterly report to an estimate for a monthly report. In addition, the Commission added the burden of posting the required information to the website. The Commission estimated the monetized initial burden for this requirement to be $80,507. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Programmer at $332 per hour for 160 hours) + (Sr. Database Administrator at $342 per hour for 20 hours) + (Sr. Business Analyst at $275 per hour for 20 hours) + (Attorney at $417 per hour for 4 hours) + (Sr. Operations Manager at $366 per hour for 20 hours) + (Systems Analyst at $263 per hour for 16 hours) + ($308.50 blended rate for Sr. Systems Analyst and Sr. Programmer for 6 hours)] = 246 initial burden hours per competing consolidator and $80,507.

[1534] The Commission estimated that each competing consolidator would incur an initial external cost of $800 for an external website developer to create the website.

[1535] The Commission estimated the monetized initial aggregate burden for this requirement to be $966,804. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Programmer at $332 per hour for 160 hours) + (Sr. Database Administrator at $342 per hour for 20 hours) + (Sr. Business Analyst at $275 per hour for 20 hours) + (Attorney at $417 per hour for 4 hours) + (Sr. Operations Manager at $366 per hour for 20 hours) + (Systems Analyst at $263 per hour for 16 hours) + ($308.50 blended rate for Sr. Systems Analyst and Sr. Programmer for 6 hours)] × [(12 competing consolidators)] = 2,952 initial aggregate burden hours across the competing consolidators and $966,804.

[1536] $9,600 = ($800 for an external website developer to create the website) × (12 competing consolidators).

[1537] This figure was based on the estimated initial paperwork burden for Rule 606(a), which requires each broker or dealer to make publicly available on a website a quarterly report on its routing of non-directed orders in NMS stocks that are submitted on a held basis and of non-directed orders that are customer orders in NMS securities. *See* Order Handling Disclosure Release, *supra* note 1533. In the Proposing Release, the Commission converted the 10 hour estimate for a quarterly report to an estimate for a monthly report. In addition, the Commission added the burden of posting the required information to the website. The Commission estimated the monetized initial burden for this requirement to be $80,507. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Programmer at $332 per hour for 160 hours) + (Sr. Database Administrator at $342 per hour for 20 hours) + (Sr. Business Analyst at $275 per hour for 20 hours) + (Attorney at $417 per hour for 4 hours) + (Sr. Operations Manager at $366 per hour for 20 hours) + (Systems Analyst at $263 per hour for 16 hours) + ($308.50 blended rate for Sr. Systems Analyst and Sr. Programmer for 6 hours)] = 246 initial burden hours per competing consolidator and $80,507.

[1538] The Commission estimated that each competing consolidator would incur an initial external cost of $800 for an external website developer to create the website.

[1539] The Commission estimates the monetized initial aggregate burden for this requirement to be $644,056. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Programmer at $332 per hour for 160 hours) + (Sr. Database Administrator at $342 per hour for 20 hours) + (Sr. Business Analyst at $275 per hour for 20 hours) + (Attorney at $417 per hour for 4 hours) + (Sr. Operations Manager at $366 per hour for 20 hours) + (Systems Analyst at $263 per hour for 16 hours) + ($308.50 blended rate for Sr. Systems Analyst and Sr. Programmer for 6 hours)] × [(8 competing consolidators)] = 1,968 initial aggregate burden hours across the competing consolidators and $644,056.

[1540] $6,400 = ($800 for an external website developer to create the website) × (8 competing consolidators).

[1541] This figure was based on the estimated ongoing paperwork burden for Rule 606(a), which requires each broker or dealer to make publicly available on a website a report on a quarterly basis. In the Paperwork Reduction Act discussion for Rule 606(a), the Commission established that the average annual burden for a broker-dealer to comply with Rules 606(a)(1)(i) through (iii) would be 10 hours. *See* Order Handling Disclosure Release, *supra* note 1533. In the Proposing Release, the Commission converted the 10 hour estimate for a quarterly report to an estimate for a monthly report. In addition, the Commission added the burden of updating the website. The Commission estimated the monetized annual burden for this requirement to be $3,768.50. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Business Analyst at $275 per hour for 5 hours) + (Attorney at $417 per hour for 5 hours) + ($308.50 blended rate for Sr. Systems Analyst and Sr. Programmer for 1 hour)] × [(12 months)] = 132 initial burden hours per competing consolidator and $45,222.

614(d)(5) and (6) to be 1,584 hours (for a total cost of $542,664).[1542]

(ii) Comments/Responses on Ongoing Burden and Costs

The Commission did not receive any comments on the estimated ongoing burdens and costs of Rules 614(d)(5) and (6).

(iii) Adopted Estimates—Ongoing Burden and Costs

The Commission is revising its preliminary estimates to account for the downward estimate from 12 competing consolidators to eight competing consolidators. The Commission estimates that each competing consolidator would incur an average burden of 11 hours to prepare and make publicly available a monthly report in the format required by Rules 614(d)(5) and (6) (for a total cost of $3,768.50), or a burden of 132 hours per year (for a total cost of $45,222).[1543] Once a report is posted on an internet website, the Commission estimates that there would not be an additional burden to allow the report to remain posted for the period of time specified in the rules. The Commission estimates the total burden per year for all competing consolidators to comply with the monthly reporting requirement in Rules 614(d)(5) and (6) to be 1,056 hours (for a total cost of $361,776).[1544]

6. Amendment to the Effective National Market System Plan(s) for NMS Stocks

Rule 614(e) requires the participants to the effective national market system plan(s) for NMS stocks to file an amendment with the Commission, pursuant to Rule 608, that includes several specified provisions, including an amendment that conforms the plan(s) to reflect the provision of information necessary to generate consolidated market data by the SROs to competing consolidators, the application of certain timestamps by the SROs, assessment of competing consolidator performance and the provision of an annual report, the development of a list that identifies the primary listing exchange for each NMS stock and the calculation and publication of gross revenues.

(a) Proposed Estimates—Initial Burden and Costs

In the Proposing Release, the Commission estimated that the amendment to the effective national market system plan(s) would impose a one-time burden and cost. Specifically, the Commission estimated that it would take the participants to the effective national market system plan(s) approximately 420 hours to prepare the amendment. The preliminary estimate included 210 hours for an SRO to comply with the timestamps requirement, including a review and any applicable change to technical systems and rules. Each SRO already employs some form of timestamping, and the Commission did not necessarily expect that the burden to comply with the timestamp requirement would be particularly burdensome.[1545] The preliminary estimate also included 105 hours for the participants to compose the form of annual report on competing consolidator performance. Finally, the preliminary estimate includes 20 hours for the participants to compile and confirm the primary listing exchange for each NMS stock. The initial burden hours for all respondents would be 420 hours × 17 (for a total cost of $2,977,380).[1546]

(b) Comments/Responses on Initial Burden and Costs

One commenter stated that the SROs would continue to incur costs associated with the effective national market system plan, such as implementing the application of timestamps and assessing competing consolidators and developing an annual report.[1547] This commenter, however, did not provide comment on the Commission's preliminary estimates.

(c) Adopted Estimates

The Commission is modifying the estimates for the initial burden and costs to the SROs to file the amendment required pursuant to Rule 614(e) to eliminate the multiplication of the burden by each SRO because the respondents would file this amendment jointly, rather than individually, in connection with their status as participants in the effective national market system plan(s). Hence, the initial burden hours for all respondents would be 420 hours (for a total cost of $175,140).

In addition, the Commission now believes that there would be ongoing burden and costs related to the amendment, including 245 hours for maintaining the required timestamps, conducting assessments of competing consolidators, preparing an annual report, maintaining the list of the primary listing exchange for each NMS stock, and calculating gross revenues. For the required timestamps, the Commission believes that the ongoing burden for such requirement to be minimal once the initial timestamping process is established. The Commission estimates that the ongoing burden for timestamping to be 50 hours.[1548] The Commission estimates the ongoing burden for reviewing competing

[1542] The Commission estimated the monetized annual aggregate burden for this requirement to be $542,664. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Business Analyst at $275 per hour for 5 hours) + (Attorney at $417 per hour for 5 hours) + ($308.50 blended rate for Sr. Systems Analyst and Sr. Programmer for 1 hour)] × [(12 competing consolidators)] × [(12 months)] = 1,584 aggregate burden hours across the competing consolidators and $542,664.

[1543] This figure was based on the estimated ongoing paperwork burden for Rule 606(a), which requires each broker or dealer to make publicly available on a website a report on a quarterly basis. In the Paperwork Reduction Act discussion for Rule 606(a), the Commission established that the average annual burden for a broker-dealer to comply with Rules 606(a)(1)(i) through (iii) would be 10 hours. *See* Order Handling Disclosure Release, *supra* note 1533, at 58388. In the Proposing Release, the Commission converted the 10 hour estimate for a quarterly report to an estimate for a monthly report. In addition, the Commission added the burden of updating the website. The Commission estimated the monetized annual burden for this requirement to be $3,768.50. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Business Analyst at $275 per hour for 5 hours) + (Attorney at $417 per hour for 5 hours) + ($308.50 blended rate for Sr. Systems Analyst and Sr. Programmer for 1 hour)] × [(12 months)] = 132 initial burden hours per competing consolidator and $45,222.

[1544] The Commission estimates the monetized annual aggregate burden for this requirement to be $361,776. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Sr. Business Analyst at $275 per hour for 5 hours) + (Attorney at $417 per hour for 5 hours) + ($308.50 blended rate for Sr. Systems Analyst and Sr. Programmer for 1 hour)] × [(8 competing consolidators)] × [(12 months)] = 1,056 aggregate burden hours across the competing consolidators and $361,776.

[1545] Currently, under the Equity Data Plans, the SROs attach timestamps to quotation information and transaction information provided to the exclusive SIPs. *See, e.g.,* Nasdaq UTP Plan, *supra* note 10, at Section VIII; CQ Plan, *supra* note 10, at Section VI; CTA Plan, *supra* note 10, at Section VI.

[1546] The Commission estimated the monetized burden for this requirement to be $130,860. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Attorney at $417 for (420 × 17) hours)].

[1547] *See* NYSE Letter II at 28.

[1548] The Commission reduced the initial burden hours by three-fourths to develop this estimate.

consolidator performance and developing the annual report to be 105 hours.[1549] The Commission estimates the ongoing burden for maintaining the list of the primary listing exchange for each NMS stock to be 10 hours annually.[1550] Finally, the Commission estimates the ongoing burden for calculating gross plan revenues to be minimal. The Equity Data Plans already calculate and publish revenue figures so the Commission believes that establishing a new calculation and publication process to be 80 hours.

7. Collection and Dissemination of Information by National Securities Exchanges and National Securities Associations

Rule 603(b) requires every national securities exchange on which an NMS stock is traded and national securities association to make available to all competing consolidators and self-aggregators all information with respect to quotations for and transactions in NMS stocks, including all data necessary to generate consolidated market data, in the same manner and using the same methods, including all methods of access and using the same formats, as such exchange or association makes available any information with respect to quotations for and transactions in NMS stocks to any person. Accordingly, the SROs would be required to collect the information necessary to generate proposed consolidated market data, which would be required to be made available under proposed Rule 603(b). The respondents to this collection of information are the 16 national securities exchanges on which NMS stocks are traded and the one national securities association. The new data elements of consolidated market data that the national securities exchanges and national securities associations collect and must make available include auction information, depth of book data, round lot data, regulatory data (including LULD price bands), and administrative data. The national securities exchanges and national securities associations currently collect and/or calculate all data necessary to generate consolidated market data and provide such data necessary to the exclusive SIPs and to subscribers of the proprietary data feeds.[1551] Therefore, as discussed below, the Commission believes that the amendments to 603(b) impose minimal initial and ongoing burdens on these respondents, including any changes to their systems, because they already collect such data.

(a) Initial Burden and Costs

(i) Proposed Estimates—Initial Burden and Costs

The Commission estimated that a national securities exchange on which an NMS stock is traded or national securities association will require an average of 220 [1552] initial burden hours of legal, compliance, information technology, and business operations personnel time to prepare and implement a system to collect the information necessary to generate consolidated market data (for a total cost per exchange or association of $70,865).[1553]

(ii) Comments/Responses on Initial Burden and Costs

One commenter noted that SROs could incur ''significant cost increases'' to connect and transmit data to competing consolidators and self-aggregators but did not provide specific comment on the Commission's proposed estimates.[1554] Another commenter argued that the Commission did not consider how primary listing exchanges responsible for calculating and disseminating certain regulatory data (such as LULD bands) would obtain from the other exchanges the information needed to perform these calculations, including failing to consider the added costs to the exchanges.[1555]

(iii) Adopted Estimates—Initial Burden and Costs

The Commission continues to believe the initial burden and costs it estimated in the Proposing Release are accurate based on the information it has. First, the Commission does not agree that the costs of transmitting data to competing consolidators and self-aggregators that the SROs already generate and provide to proprietary subscribers would be significant. Specifically, as explained above, the Commission does not believe that the cost to provide connectivity to the ADF would be significant because there is a low volume of trades and no quotes reported to the ADF meaning the connectivity options would not need to support much data capacity. Additionally, FINRA could seek to recoup costs for connectivity by proposing connectivity fees pursuant to Section 19(b) of the Exchange Act.[1556] Furthermore, the Commission's modification of certain elements of the definition of consolidated market data,[1557] the data necessary for the generation of which each national securities exchange and national securities association will need to make available to competing consolidators and self-aggregators, will not increase costs because the national securities exchanges and national securities association already collect and/or calculate all data necessary to create the adopted definition of consolidated market data. Therefore, the Commission is adopting the estimates for the initial burden and costs as proposed.

Additionally, as explained in detail above,[1558] the Commission does not believe that collecting, calculating, or providing regulatory data will impose significant burdens or costs on primary listing exchanges, since primary listing exchanges already obtain the necessary data from other exchanges and generate and provide certain regulatory information today. In addition, they can be reimbursed for the costs of providing regulatory data through fees established by the effective national market system plan(s). Therefore, the Commission is

[1549] The Commission estimates that the ongoing burden for developing the annual report will be the same as the initial burden.

[1550] The Commission reduced the initial burden estimate by half because the primary listing exchange for an NMS stock does not typically change. Accordingly, the Commission believes that the ongoing burden of monitoring and updating the list to be minimal.

[1551] For example, the primary listing exchanges currently calculate LULD price bands and related information to generate synthetic LULD price bands. *See* Nasdaq, Equity Trader Alert #2016–79: NASDAQ Announces Improved Protections for Equity Markets Coming Out of Halts (''Leaky Bands'') (Apr. 12, 2016), *available at https://www.nasdaqtrader.com/TraderNews.aspx?id=ETA2016-79*; NYSE, Trader Update: NYSE and NYSE MKT: Enhanced Limit Up Limit Down Procedures (Aug. 1, 2016), *available at https://www.nyse.com/trader-update/history#110000029205*; Securities Exchange Act Release No. 34–78435 (July 28, 2016), 81 FR 51239 (Aug. 3, 2016) (SR–FINRA–2016–028).

[1552] The Commission based its estimate on the burden hour estimate provided in connection with the adoption of Regulation SHO because the requirements are similar to what a national securities exchange or national securities association would need to do to comply with proposed Rule 603(b). *See* Commission, Supporting Statement for the Paperwork Reduction Act Information Collection Submission for Rule 201 and Rule 200(g) of Regulation SHO (Sept. 5, 2019).

[1553] The Commission estimated the monetized initial burden for this requirement to be $70,865. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Compliance Manager at $310 for 105 hours) + (Attorney at $417 for 70 hours) + (Sr. Systems Analyst at $285 for 20 hours) + (Operations Specialist at $137 for 25 hours)] = 220 initial burden hours and $70,865.

[1554] *See* FINRA Letter at 3–4.

[1555] *See* NYSE Letter II at 20–21.

[1556] *See supra* note 826 and accompanying text.

[1557] *See supra* Section II.B.

[1558] *See supra* Section II.H.2(a).

adopting the estimates for the initial burden and costs as proposed.

(b) Ongoing Burden and Costs

(i) Proposed Estimates—Ongoing Burden and Costs

The Commission estimated that each national securities exchange on which an NMS stock is traded and national securities association would incur an annual average burden on an ongoing basis of 396 hours to collect the information necessary to generate consolidated market data required by Rule 603(b) (for a total cost per exchange or association of $128,064).[1559]

(ii) Comments/Responses on Ongoing Burden and Costs

One commenter noted that SROs could incur ''significant cost increases'' to maintain connectivity to competing consolidators and self-aggregators but did not provided specific comment on the Commission's proposed estimates.[1560] Another commenter argued that the Commission did not consider how primary listing exchanges responsible for calculating and disseminating certain regulatory data (such as LULD bands) would obtain from the other exchanges the information needed to perform these calculations, including failing to consider the added costs to the exchanges.[1561]

(iii) Adopted Estimates—Ongoing Burden and Costs

Similar to the initial burden and costs, the Commission continues to believe the ongoing burden and costs are accurate based on the information it has. First, the Commission does not agree that the costs of maintaining connectivity to transmit data to competing consolidators and self-aggregators that the SROs already generate and provide to proprietary subscribers would be significant because the Commission believes that many competing consolidators and self-aggregators will be firms that already subscribe to SRO proprietary feeds, and thus, the SROs will likely not have a large amount of new data connections to service.[1562] Specifically, as explained above, the Commission does not believe that the cost to maintain connectivity to the ADF would be significant because there is a low volume of trades and no quotes reported to the ADF meaning the connectivity options would not need to support much data capacity. Additionally, FINRA could seek to recoup costs for maintaining connectivity by proposing connectivity fees pursuant to Section 19(b) of the Exchange Act.[1563] Furthermore, the Commission's modification of certain elements of the definition of consolidated market data,[1564] the data necessary for the generation of which each national securities exchange and national securities association will need to make available to competing consolidators and self-aggregators, will not increase ongoing costs because the national securities exchanges and national securities association already collect and/or calculate all data necessary to create the adopted definition of consolidated market data. Therefore, the Commission is adopting the estimates for the initial burden and costs as proposed.

Additionally, as explained in detail above,[1565] the Commission does not believe that collecting, calculating, or providing regulatory data will impose significant ongoing burdens or costs on primary listing exchanges, since primary listing exchanges already obtain the necessary data from other exchanges and generate and provide certain regulatory information today. In addition, they can be reimbursed for the costs of providing regulatory data through fees established by the effective national market system plan(s). Therefore, the Commission is adopting the estimates for the ongoing burden and costs as proposed.

E. Collection of Information Is Mandatory

The collection of information discussed above is a mandatory collection of information.

F. Confidentiality

1. Registration Requirements and Form CC

Pursuant to Rule 614(b)(2), the Commission would make public via posting on the Commission's website each: (i) Effective initial Form CC, as amended; (ii) order of ineffectiveness of a Form CC; (iii) filed Form CC Amendment; and (iv) notice of cessation.

2. Competing Consolidator Duties and Data Collection and Maintenance

The collection of information under Rules 614(d)(1) through (3) would be public.

3. Competing Consolidators' Public Posting of Form CC

The collection of information under Rule 614(c) would be available to the public.

4. Recordkeeping

The collection of information relating to recordkeeping would be available to the Commission and its staff and to other regulators.

5. Reports and Reviews

The collection of information regarding reports and reviews under Rules 614(d)(5) and (6) relates to information that would be published on competing consolidator websites.

6. Amendment to the Effective National Market System Plan(s) for NMS Stocks

The amendment to the effective national market system plan(s) for NMS stocks would be required to be filed with the Commission pursuant to Rule 608. Once filed, the Commission will publish the amendment for public comment. The timestamps applied by the SROs would be made available to competing consolidators and their subscribers. The annual report of competing consolidator performance would be submitted to the Commission. The list of the primary listing market for each NMS stock would be available to the public.

7. Collection and Dissemination of Information by National Securities Exchanges and National Securities Associations

Rule 603(b) would require national securities exchanges and national securities associations to collect and provide information to the competing consolidators and self-aggregators, not to the Commission. Therefore, no assurances of confidentiality are necessary because the information will be made available to the public for a fee from the competing consolidators.

G. Revisions to Current Regulation SCI Burden Estimates and Adoption of Rule 614(d)(9)

1. Proposed Estimates—Burden and Costs

The Commission proposed to expand the definition of ''SCI entities'' under

[1559] The Commission estimated the monetized ongoing, annual burden for this requirement to be $128,064. The Commission derived this estimate based on per hour figures from SIFMA's Management & Professional Earnings in the Securities Industry 2013, modified by Commission staff to account for an 1,800-hour work-year and inflation, and multiplied by 5.35 to account for bonuses, firm size, employee benefits, and overhead: [(Compliance Manager at $310 for 192 hours) + (Attorney at $417 for 48 hours) + (Sr. Systems Analyst at $285 for 96 hours)] = 336 initial burden hours and $128,064.

[1560] *See* FINRA Letter at 3–4.

[1561] *See* NYSE Letter II at 20–21.

[1562] *See infra* Section V.C.1(c)(iv).

[1563] *See supra* note 826 and accompanying text.

[1564] *See supra* Section II.B.

[1565] *See supra* Section II.H.2(a).

Regulation SCI[1566] to include competing consolidators, which would subject them to the requirements of Regulation SCI. The rules under Regulation SCI impose ''collection of information'' requirements within the meaning of the PRA.[1567]

In 2018, there were an estimated 42 entities that met the definition of SCI entity and were subject to the collection of information requirements of Regulation SCI (''respondents'').[1568] At that time, an estimate of approximately two entities would become SCI entities each year, one of which would be an SRO. Accordingly, under these estimates, over the following three years, there would be an average of approximately 44 SCI entities each year.[1569]

In the Proposing Release, the Commission estimated that there would be 12 competing consolidators that would be subject to Regulation SCI as SCI entities.[1570] The Commission noted that some of these entities may already be SCI entities and subject to the requirements of Regulation SCI. While the Commission estimated that the number of respondents would increase as a result of the proposal, the Commission estimated that its prior paperwork burden estimates per entity under Regulation SCI generally would be applicable to the new competing consolidators because they would be subject to the same requirements and burdens as other SCI entities.[1571] At the same time, the Commission acknowledged that burden estimates also should take into account the extent to which the entities that may register to become competing consolidators already comply with the requirements of Regulation SCI.

In particular, the Commission estimated that two of the estimated 12 competing consolidators may be the existing exclusive SIPs, which are currently subject to Regulation SCI as plan processors. Because these entities are responsible for collecting, consolidating, and disseminating proposed consolidated market data products to market participants and thus would be operating a substantially similar business and performing a similar function in their role as competing consolidators, the Commission estimated that the current ongoing burden estimates for existing SCI entities would be applicable and there would be no material change in the estimated paperwork burdens for these entities under Regulation SCI.[1572]

The Commission also estimated that four of the entities that may register to become competing consolidators may be either: (i) An SRO currently subject to Regulation SCI; or (ii) an entity affiliated with an SCI SRO, formerly subject to Regulation SCI. The burden estimates for SCI entity respondents include both initial burdens for new SCI entities and ongoing burdens for all SCI entities.[1573] Because the SRO entities that would become competing consolidators are current SCI entities and are already required to implement the requirements of Regulation SCI with regard to SCI systems that they operate in their role as SCI SROs, the Commission estimated that these entities would not have initial burdens equivalent to those estimated for new SCI entities. At the same time, the Commission estimated that these SROs may be a national securities association and/or equities national securities exchanges that do not currently operate an exclusive SIP. Because these entities would be entering an entirely new business and performing a new function with new SCI systems, unlike the current exclusive SIPs who may register to become competing consolidators, the Commission estimated that the SRO entities would have some initial burden that would be a percentage of that which entirely new SCI entities would have. In particular, the Commission estimated that the initial burdens for existing SCI SROs who register as competing consolidators would be 50 percent of the estimated initial burdens for entirely new SCI entities. The Commission also estimated that the ongoing paperwork burden estimates for all SCI entities would be applicable to these entities as well.[1574]

The Commission estimated that the remaining six estimated competing consolidators may be entities that are not currently subject to Regulation SCI, such as market data aggregation firms, broker-dealers that currently aggregate market data for internal uses, and entities that would be entering the market data aggregation business for the first time.[1575] The Commission estimated that these entities would have the same estimated initial paperwork burdens as those estimated for new SCI entities and the same ongoing paperwork burdens as all other SCI entities.[1576]

2. Comments/Responses on Burden and Costs

Two commenters stated that the Commission underestimated the costs of compliance with Regulation SCI.[1577] One commenter stated that such compliance would require the development of technology environments for production, disaster recovery, development/quality assurance, and customer testing, and as such, the initial costs would greatly exceed the Commission's estimates, possibly by three to four times the amount.[1578] Competing consolidators

[1566] *See* Rule 1000 of Regulation SCI.

[1567] Rule 1001(a) of Regulation SCI requires each SCI entity to establish, maintain, and enforce written policies and procedures for systems capacity, integrity, resiliency, availability, and security. 17 CFR 242.1001(b) (Rule 1001(b)) requires each SCI entity to establish, maintain, and enforce written policies and procedures to ensure that its SCI systems operate in a manner that complies with the Exchange Act, the rules and regulations thereunder, and the SCI entity's rules and governing documents, as applicable. Rule 1001(c) requires each SCI entity to establish, maintain, and enforce written policies and procedures for the identification, designation, and documentation of responsible SCI personnel and escalation procedures. Rule 1002(a) requires each SCI entity to begin to take appropriate corrective action upon any responsible SCI personnel having a reasonable basis to conclude that an SCI event has occurred. 17 CFR 242.1002(b) (Rule 1002(b)) requires each SCI entity to notify the Commission of certain SCI events. Rule 1002(c) requires each SCI entity, with certain exceptions, to disseminate information about SCI events to affected members or participants and disseminate information about major SCI events to all members or participants. 17 CFR 242.1003(a) (Rule 1003(a)) requires each SCI entity to notify the Commission of material systems changes quarterly. 17 CFR 242.1003(b) (Rule 1003(b)) requires each SCI entity to conduct annual SCI reviews. Rule 1004 requires each SCI entity to designate certain members or participants for participation in functional and performance testing of the SCI entity's business continuity and disaster recovery plans and to coordinate such testing with other SCI entities. Rules 1005 and 1007 set forth recordkeeping requirements for SCI entities. Rule 1006 requires, with certain exceptions, that each SCI entity electronically file required notifications, reviews, descriptions, analysis, or reports to the Commission on Form SCI. For a complete analysis of Regulation SCI under the PRA, *see* SCI Adopting Release, *supra* note 1037, at 18141; Proposed Collection; Comment Request; Extension: Regulation SCI, Form SCI; SEC File No. 270–653, OMB Control No. 3235–0703, 83 FR 34179 (''2018 PRA Extension''). For further details regarding the requirements of Regulation SCI, *see* SCI Adopting Release, *supra* note 1233.

[1568] *See* 2018 PRA Extension, *supra* note 1567, at 34180.

[1569] *Id.*

[1570] *See* Proposing Release, 85 FR at 16808.

[1571] *See* 2018 PRA Extension, *supra* note 1567. The Commission estimated that six of the 12 entities that may register as competing consolidators were already SCI entities. Thus, the Commission estimated that there would be an average of approximately 50 SCI entities each year.

[1572] *Id.* The burden estimates for SCI entity respondents included initial burdens for new SCI entities and ongoing burdens for all SCI entities.

[1573] *Id.*

[1574] The ongoing paperwork burden estimates in the PRA Extension do not distinguish between different categories of SCI entities but rather provide an average for all SCI entities.

[1575] *See* Proposing Release, 85 FR at 16809.

[1576] *See* 2018 PRA Extension, *supra* note 1567.

[1577] *See* IDS Letter I at 13 and STANY Letter II at 6–7. *See supra* note 1572.

[1578] IDS Letter I at 13.

may choose to develop four separate environments in the interest of resiliency and redundancy as suggested by this commenter, however, Regulation SCI does not prescribe this approach. While Regulation SCI does require SCI entities to maintain business continuity and disaster recovery plans which would include the development of technology environments for disaster recovery, the Commission included paperwork burdens related to this requirement in its estimates. In contrast, non-production systems are excluded from the scope of Regulation SCI[1579] and as such, burden estimates related to such systems are excluded from the Commission's burden estimates. Further, as discussed in the Proposing Release, the Commission believes that the burdens for competing consolidators that are subject to Regulation SCI would be the same as those the Commission has previously estimated for other SCI entities (or a percentage thereof if already an SCI entity or an affiliate thereof as described above), as the requirements are the same for all SCI entities. The Commission's 2018 burden estimates were based on the Commission's experience over three years subsequent to Regulation SCI's adoption in 2014 including, for example, Commission staff's experience in conducting examinations of SCI entities and receiving and reviewing notifications and reports required by Regulation SCI. For these reasons, the Commission does not agree with the assertions of this commenter that the estimates of initial burdens were underestimated.

Another commenter stated that the Commission underestimated the ongoing cost of compliance with Regulation SCI, citing a reference to $68,710 of initial costs and $21,810 of ongoing costs.[1580] These estimates, however, were of non-paperwork related costs and were given in regard to a potential alternative that the Commission had considered of *not* extending all of the requirements of Regulation SCI to competing consolidators, but instead only imposing a broad policies and procedures requirement.

3. Adopted Estimates—Burden and Costs

As described above, while the Commission had proposed to apply the requirements of Regulation SCI to all competing consolidators, it has determined to adopt a two-pronged approach and, following the SCI CC Phase-In Period, will apply the requirements of Regulation SCI to those competing consolidators that meet the 5% gross revenue threshold (''SCI competing consolidators'').[1581] During the SCI CC Phase-In Period, and subsequently, for those competing consolidators that do not meet the 5% revenue threshold, a more tailored set of resiliency requirements substantially similar to certain of the key provisions in Regulation SCI will apply.

As discussed above, the Commission now estimates that there would be eight persons who could decide to perform the functions of a competing consolidator. In the Proposing Release, the Commission estimated that all 12 of the estimated competing consolidators would subject to Regulation SCI as SCI entities.[1582] However, in light of the reduction of the estimated competing consolidators to eight and the 5% revenue threshold that the Commission is adopting in the definition of ''SCI competing consolidator,'' the Commission now estimates that seven competing consolidators will meet this definition and be subject to the requirements of Regulation SCI. The Commission estimates that one competing consolidator will not meet the 5% revenue threshold test in the definition and will instead be subject to the streamlined requirements of Rule 619(d)(9). Of the seven competing consolidators subject to the requirements of Regulation SCI, the Commission believes: Two may be the existing exclusive SIPs, which are currently subject to Regulation SCI as plan processors; one may be an existing SCI SRO or entity affiliated with an SCI SRO that is subject to Regulation SCI; and four may be entities not currently subject to Regulation SCI, such as market data aggregation firms, broker-dealers that currently aggregate market data for internal uses, and entities that would be entering the market data aggregation business for the first time. The Commission is adopting the burden estimates as proposed for the seven competing consolidators in these categories that will be subject to the requirements of Regulation SCI.[1583]

The Commission estimates that one of the eight competing consolidators will not meet the definition of ''SCI competing consolidator'' and will be subject to the requirements of paragraph (d)(9) of Rule 619.

(a) Summary of Collection of Information

The provisions under Rule 619(d)(9) impose ''collection of information'' requirements within the meaning of the PRA. Paragraph (d)(9)(ii) of Rule 614 requires competing consolidators to establish, maintain, and enforce written policies and procedures reasonably designed to ensure: That their systems involved in the collection, consolidation, and dissemination of consolidated market data have levels of capacity, integrity, resiliency, availability, and security adequate to maintain the competing consolidator's operational capability and promote the maintenance of fair and orderly markets; and the prompt, accurate, and reliable dissemination of consolidated market data.[1584] Competing consolidators will also be required to periodically review the effectiveness of the policies and procedures required by paragraph (d)(9)(ii)(B) of Rule 614, and take prompt action to remedy deficiencies in such policies and procedures. Paragraph (d)(9)(ii)(C) of Rule 614 will require competing consolidators to establish, maintain, and enforce reasonably designed written policies and procedures that include the criteria for identifying responsible personnel, the designation and documentation of responsible personnel, and escalation procedures to quickly inform responsible personnel of potential systems disruptions and systems intrusions; and periodically review the effectiveness of the policies and procedures, and take prompt action to remedy deficiencies.[1585] Under paragraph (d)(9)(iii)(A) of Rule 614, competing consolidators will be required to, upon responsible personnel having a reasonable basis to conclude that a systems disruption or systems intrusion of systems involved in the collection, consolidation, and dissemination of consolidated market data has occurred, begin to take

[1579] *See* SCI Adopting Release at 72273.

[1580] *See* STANY Letter II at 6–7.

[1581] As described in detail above, an ''SCI competing consolidator'' means any competing consolidator, as defined in § 242.600 which, during at least four of the preceding six calendar months, accounted for five percent (5%) or more of consolidated market data gross revenue paid to the effective national market system plan or plans required under § 242.603(b), for NMS stocks (1) listed on the NYSE, (2) listed on Nasdaq, or (3) listed on national securities exchanges other than the NYSE or Nasdaq.

[1582] *See supra* note 1570.

[1583] While the burden estimates are not being revised, the Commission notes that it has revised the number of entities that may become competing consolidators that are not currently subject to Regulation SCI. Specifically, the Commission estimates that there will be 4 entities not currently subject to Regulation SCI that will meet the definition of ''SCI competing consolidator'' and become subject to Regulation SCI, as compared to the 6 that the Commission estimated would become subject to Regulation SCI previously.

[1584] *See* Rule 614(d)(9)(ii)(A)(*1*) of Regulation NMS.

[1585] *See* Rule 614(d)(9)(ii)(B) of Regulation NMS.

appropriate corrective action.[1586] The Commission believes that competing consolidators will likely work to develop a written process for ensuring they are prepared to comply with the corrective action requirement and are likely also to periodically review this process. Rule 614(d)(9)(iii)(B) will require that promptly upon responsible personnel having a reasonable basis to conclude that a systems disruption (other than a de minimis system disruption) has occurred, a competing consolidator will be required to publicly disseminate information relating to the event; when known, promptly publicly disseminate additional information relating to the event; and until resolved, provide regular updates with respect to such information.[1587] Concurrent with public dissemination of information relating to a systems disruption, competing consolidators will also be required to provide the Commission notification of such event, including the information required to be publicly disseminated.[1588] In addition, competing consolidators will be required to notify the Commission upon responsible personnel having a reasonable basis to conclude that a systems intrusion (other than a de minimis system intrusion) has occurred. Notifications regarding systems disruptions and systems intrusions that competing consolidators must provide to the Commission under this provision include information relating to the event; when known, additional information relating to the event; and until resolved, regular updates with respect to such information. Rule 614(d)(9)(iv) will require competing consolidators to participate in the industry- or sector-wide coordinated testing of BC/DR plans required of SCI entities pursuant to paragraph (c) of Rule 1004 of Regulation SCI. The Commission believes this requirement will involve notifying market participants and scheduling the coordinated testing.

(b) Use of Information

Paragraph (d)(9)(ii) of Rule 614 should help to advance the goal of promoting Commission review and oversight of market data infrastructure by requiring a competing consolidator to have policies and procedures that are reasonably designed to ensure its operational capability, including the ability to maintain effective operations; minimize or eliminate the effect of performance degradations; and help ensure the prompt, accurate, and reliable dissemination of consolidated market data. Because a competing consolidator's operational capability can have the potential to impact market participants who rely on such competing consolidators for market data, the Commission believes that these policies and procedures will help promote the maintenance of fair and orderly markets.

The requirement in paragraph (d)(9)(ii)(C) of Rule 614 to establish policies and procedures that include the designation and documentation of responsible personnel should help make it clear to all employees of the competing consolidator who the designated responsible personnel are for purposes of the escalation procedures and so that Commission staff can easily identify such responsible personnel in the course of its inspections and examinations and other interactions with competing consolidators. The Commission also believes that escalation procedures to quickly inform responsible personnel of potential systems disruptions and systems intrusions helps ensure that the appropriate person(s) are provided notice of potential systems issues so that any appropriate actions can be taken in accordance with the requirements of Rule 614(d)(9) without unnecessary delay.

Rule 614(d)(9)(iii)(A) should help facilitate competing consolidators' responses to systems disruptions and systems intrusions, including taking appropriate steps necessary to remedy the problem or problems causing such event and mitigate the negative effects of the event, if any, on market participants and the securities markets more broadly.

Rule 614(d)(9)(iii)(B) should help to advance the Commission's goal of promoting fair and orderly markets by publicly disseminating information about systems disruptions, allowing market participants to use such information to evaluate the event's impact on their trading and other activities and develop an appropriate response, as well as to evaluate the performance of various competing consolidators.

Rule 614(d)(9)(iii)(C) provides for a framework for reporting of systems disruptions and systems intrusions, which ensures the Commission's review and oversight of market data infrastructure and fosters cooperation between the Commission and competing consolidators in responding to such events. The Commission also believes that the aggregated data from the reporting of systems disruptions and systems intrusions, in combination with filings from SCI competing consolidators under Regulation SCI, enhances its ability to comprehensively analyze the nature and types of various systems issues and identify more effectively areas of persistent or recurring problems across the systems of all competing consolidators.

Rule 614(d)(9)(iv) should assist the Commission in maintaining fair and orderly markets in a BC/DR scenario following a wide-scale disruption.

(c) Collection of Information Is Mandatory

The collection of information discussed above is a mandatory collection of information.

(d) Confidentiality

The Commission expects that the written policies and procedures, processes, criteria, standards, or other written documents developed or revised by competing consolidators pursuant to Rule 614(d)(9) will be retained by competing consolidators in accordance with, and for the periods specified in, applicable recordkeeping requirements. Should such documents be made available for examination or inspection by the Commission and its representatives, they would be kept confidential subject to the provisions of applicable law. In addition, the information submitted to the Commission that is filed on Form CC is public, as discussed in detail above. The information publicly disseminated by competing consolidators pursuant to Rule 614(d)(9)(iii)(B) is not confidential.

(e) Respondents

As described above, the Commission estimates that, following the SCI CC Phase-In Period, one of the eight competing consolidators will not meet the definition of ''SCI competing consolidator'' and will be subject to the requirements of paragraph (d)(9) of Rule 619.

(f) Total Initial and Annual Reporting and Recordkeeping Burden

As described in detail above, the requirements under Rule 614(d)(9) are substantially similar to a subset of the requirements of Regulation SCI. In particular, these provisions largely mirror the requirements of Regulation SCI Rules 1001(a)(1), (a)(2)(vi), (a)(3) and (4), and (c), 1002(a) and (c), and 1004(c). Accordingly, the Commission believes that its 2018 burden estimates for these rules would be applicable to the corresponding requirements under Rule 619(d)(9). With regard to the Commission notification provision in

[1586] *See* Rule 614(d)(9)(iii)(A) of Regulation NMS.

[1587] *See* Rule 614(d)(9)(iii)(B) of Regulation NMS.

[1588] *See* Rule 614(d)(9)(iii)(C) of Regulation NMS.

paragraph (d)(9)(ii)(C), as described above, the Commission believes that this provision is significantly more streamlined than the requirements under Rule 1002(b), and therefore competing consolidators would incur only a small portion of the estimated burdens for Rule 1002(b). Considering its prior burden estimates for the Regulation SCI rules, the Commission estimates that the one competing consolidator subject to the requirements of Rule 619(d)(9) following the SCI CC Phase-In Period will have initial and ongoing burdens that are approximately 33% of the burdens estimated for compliance with all of the provisions of Regulation SCI.[1589] This estimate of 33% includes the paperwork burdens estimated for Rules 1001(a)(1), (a)(2)(vi), (a)(3) and (4), and (c), 1002(a) and (c), and 1004(c) of Regulation SCI, with the addition of an incremental burden associated with notifying the Commission of systems disruptions and systems intrusions on Form CC, as compared to the burden estimates for all of the requirements of Regulation SCI that will be applicable to SCI competing consolidators.

V. Economic Analysis

A. Introduction and Market Failures

1. Introduction

Section 3(f) of the Exchange Act requires the Commission, whenever it engages in rulemaking and is required to consider or determine whether an action is necessary or appropriate in the public interest, to consider, in addition to the protection of investors, whether the action would promote efficiency, competition, and capital formation.[1590] In addition, Section 23(a)(2) of the Exchange Act requires the Commission, when making rules under the Exchange Act, to consider the impact such rules would have on competition.[1591] Exchange Act Section 23(a)(2) prohibits the Commission from adopting any rule that would impose a burden on competition not necessary or appropriate in furtherance of the purposes of the Exchange Act.

The Commission believes that the economic benefits of the amendments justify the costs. The amendments will generally enhance the consolidated market data content, reduce the latency of consolidated market data, and improve the dissemination of consolidated market data. This will reduce information asymmetries that exist between market participants who subscribe to proprietary DOB and other proprietary products and market participants who only subscribe to SIP data, and may allow some market participants who subscribe to proprietary DOB products to replace them with potentially cheaper consolidated market data feeds. Improvements to the content and latency of consolidated market data from the amendments may also help market participants that currently rely on SIP data to make more informed trading decisions, which will facilitate their ability to trade competitively and improve their execution quality, and will facilitate best execution.

The Commission perceives three main benefits from the new round lot definition and the expanded content of consolidated market data, which as noted above includes ''core data.'' First, the expanded content of consolidated market data will enable market participants [1592] that currently only subscribe to SIP data to get additional content from expanded consolidated market data and to experience increased gains from trade by allowing them to take advantage of trading opportunities they may not have been aware of due to the lack of information in existing SIP data.[1593] Second, the expanded content of consolidated market data may also allow these market participants to make more informed trading decisions and improve their order routing and order execution capabilities, potentially lowering investor transaction costs. Finally, the changes in the definition of the round lot will result in a narrower NBBO in some higher priced stocks, which may improve execution quality. A narrower NBBO could also affect the amount of price improvement that trading venues, including ATSs, exchanges, and internalizers could offer. Changes in the NBBO could also affect other Commission and SRO rules. Market participants should benefit from these changes independently of any benefits from the decentralized consolidation model.

The Commission recognizes that there are costs to expanding the content of consolidated market data. They include costs to new competing consolidators related to upgrading existing infrastructure in order to handle the dissemination of the increased message traffic; costs relating to upgrading software and trading systems that consume consolidated market data; costs relating to market participants receiving consolidated market data from technological investments required to handle increased content and message traffic.[1594] Expanding consolidated market data will also result in transfers among various market participants, including transfers from the current beneficiaries of asymmetric information associated with the uneven distribution of market data to market participants who currently do not have access to the additional information contained in proprietary DOB products and other proprietary products. SROs will have costs associated with the dissemination of data content underlying consolidated market data.

With respect to the introduction of the decentralized consolidation model, the Commission believes that the risk of too few competing consolidators operating in the market and precluding any of the potential benefits from materializing is low, and in any event, certain benefits from opening up the market to competitive forces will materialize even with few competing consolidators because the market will now be open to new entrants, *i.e.,* benefits from the threat of entry. The potential economic benefits of the decentralized consolidation model will include a reduction in the latency (as measured at the location of market participants using the data) and content differential that exists between SIP data and proprietary data feeds, improvements in innovation and efficiency in the consolidated market data delivery space, and an increase in market resiliency. Moreover, because today's market participants need to subscribe to both the exclusive SIPs and proprietary data feeds to receive the same content that will be included in consolidated market data, the Commission expects the fees for consolidated market data will likely be lower than fees that market participants pay for equivalent data today.[1595] Finally, subscribers choosing to receive a subset of consolidated market data

[1589] *See* 2018 PRA Extension, *supra* note 1567.

[1590] 15 U.S.C. 78c(f).

[1591] 15 U.S.C. 78w(a)(2).

[1592] Here, market participants may include investors, including retail investors. Market participants that do not receive the additional content from expanded consolidated market data may benefit indirectly if the broker-dealers that handle their orders subscribe to the expanded content. The extent to which particular kinds of market participants will incur benefits or costs from these final rules is discussed more fully in the relevant parts of Section V.C.

[1593] Here and throughout, the phrase ''gains from trade'' refers to a situation in which two market participants would each be better off if they exchanged their respective property. It captures the idea of a potential welfare benefit that could be realized if trade was allowed and possible. Generally, in this release the relevant property will be securities and cash. Market participants that post the orders that are traded against would also benefit from realizing additional gains from trade.

[1594] *See infra* Section V.C.1 for a complete discussion of related costs.

[1595] *See infra* Section V.C.2(b) for an analysis of the impact on data fees.

will likely pay the same or lower fees than they do today for equivalent data, depending on the fee schedule of the effective market system plan(s).

At the same time, the introduction of the decentralized consolidation model will impose direct costs on potential competing consolidators and SROs.[1596] Potential competing consolidators (such as SROs, exclusive SIPs, and current market data aggregators) will incur registration and compliance costs and implementation and incremental infrastructure costs.[1597] SROs will incur costs as part of their SRO functions, which include costs to file amendments to the effective national market system plan(s) and to collect and disseminate the data content underlying new elements of consolidated market data to competing consolidators.

The final rule will also impose indirect costs on the existing exclusive SIPs, certain market participants and investors, and on SROs.[1598] The existing exclusive SIPs will incur a loss in revenue as they lose their role as the exclusive distributors of consolidated market data. The SROs might incur indirect costs depending on how they choose to provide the data content underlying consolidated market data. Finally, certain market participants will incur direct or indirect implementation costs and switching costs to use the consolidated market data products.

The Commission believes that the interaction of expanding consolidated market data and implementing a decentralized consolidation model together should produce some benefits, including less expensive alternatives to proprietary DOB products for market participants; potential new entrants into the broker-dealer, market making, and other latency sensitive trading businesses;[1599] expansion of business opportunities for market data aggregators; improved regulatory oversight from the Consolidated Audit Trail;[1600] and enhancements to the quality of service provided by data vendors. Further, as noted above, the Commission believes that the adopted rule will facilitate best execution and reduce information asymmetries. These changes might impose certain costs, such as potentially lower revenues for SROs; potentially higher costs for the implementation of the Consolidated Audit Trail; potentially higher costs for certain market data vendors.[1601] Some of these benefits and costs will result from transfers among various market participants.

On balance, the amendments are necessary and appropriate in the public interest and do not impose a burden on competition not necessary or appropriate in furtherance of the purposes of the Exchange Act.

Wherever possible, the Commission has quantified the likely economic effects of the adopted rules. The Commission is providing both a qualitative assessment and quantified estimates of the economic effects of the adopted rule where feasible. The Commission has incorporated data and other information provided by commenters to assist it in the analysis of the economic effects of the adopted rules.[1602]

2. Market Failures

The Commission is amending Rules 600 and 603 and adopting new Rule 614 of Regulation NMS under the Exchange Act to increase the availability and improve the dissemination of information regarding quotations for and transactions in NMS stocks to market participants. First, the Commission is defining the terms ''consolidated market data,'' ''consolidated market data product,'' ''core data,'' ''regulatory data,'' ''administrative data,'' and ''self-regulatory organization-specific program data,'' and enhancing the content of core data to include certain odd-lot quote information, certain depth of book data, and information on orders participating in auctions.[1603] Second, the Commission is introducing a decentralized consolidation model whereby competing consolidators will assume responsibility for the collection, consolidation, and dissemination functions currently performed by the exclusive SIPs,[1604] and self-aggregators will be able to generate consolidated market data for their own use, and the use of their broker-dealer and registered investment advisor affiliates.

The Commission understands that there is an inherent conflict of interest in that the exchanges, as voting members of the Equity Data Plan Operating Committees, may not be incentivized to improve the content or latency of SIP data.[1605] For example, certain exchanges have developed proprietary data products with reduced latency and expanded content (*i.e.,* proprietary DOB products), while not taking similar action on these committees to enhance the data products offered by the Equity Data Plans.[1606] These proprietary DOB products have evolved to be considered competitive necessities by many market participants and are offered at premiums to exclusive SIP products.[1607] Similarly, some exchanges have developed limited TOB data products, offering them at a discount compared to the SIP data, while the exclusive SIPs have not developed less expensive SIP products.[1608] The exchanges have continued to develop and enhance their proprietary market data businesses—which generate revenue that, unlike SIP data revenues, do not have to be shared with the other SROs—while remaining responsible for the governance and operation of the Equity Data Plans, including content, infrastructure, and pricing, as well as data consolidation and dissemination.[1609]

The Commission believes that there are two additional factors related to the Equity Data Plan processors that may impede improvements to the

[1596] *See infra* Section V.C.2(d).

[1597] Many of the potential competing consolidators have already invested in this infrastructure for the existing business services that they provide (*e.g.,* proprietary data aggregation services), which may reduce their implementation costs.

[1598] *See infra* Section V.C.2(d) for a discussion of the related costs.

[1599] This includes the indirect benefits of improved competition in the executing broker-dealer business and potential increases in market liquidity from additional market makers.

[1600] The expanded content of core data will improve the completeness and accessibility of Consolidated Audit Trail Data, which will facilitate more efficient regulatory activities using Consolidated Audit Trail Data. *See infra* Section V.C.4(c)(ii).

[1601] *See infra* Section V.C.4 for additional discussion of the related costs.

[1602] As explained in more detail below, because in certain circumstances the Commission may not have, and in certain cases cannot reasonably obtain, data that may inform the Commission on certain economic effects, the Commission is unable to quantify certain economic effects. Further, in certain circumstances, it may not be practicable to quantify the economic effects due to the number and type of assumptions necessary, which render any such quantification unreliable.

[1603] *See supra* Section II.

[1604] *See supra* Section III.

[1605] A number of commenters agreed that the SROs have a conflict of interest. *See, e.g.,* Wellington Letter at 1; IEX Letter at 2; Fidelity Letter at 3. *See also* Proposing Release, 85 FR at Section III.A. and n. 267 (describing an exchange-led initiative to enhance the SIPs). While the new Equity Data Plan, required to be filed pursuant to the Governance Order, is required to be designed to address these conflicts of interest, it would not eliminate them.

[1606] *See* Governance Order, *supra* note 1128 at Section II.B.1. Commenters agreed that the improvements to the SIPs have not kept pace with the improvements in proprietary feeds. *See, e.g.,* State Street Letter at 2 (''Over time, improvements have been made to the SIPs, but those improvements have not kept pace with the alternative data feeds that the industry can and is often required to access''); Wellington Letter at 1.

[1607] *See id.*

[1608] *See id.; see also* Proposing Release, 85 FR at n. 25. The Commission did not receive comments disagreeing with this characterization of the relationship between the exclusive SIPs and TOB feeds.

[1609] *See* Governance Order, *supra* note 1128, at Section II.B.1.

dissemination of SIP data. First, pursuant to Regulation NMS, each exclusive SIP has exclusive rights to collect trade and quotation data related to NMS stocks from multiple SROs and then aggregate and disseminate market data to market participants.[1610] This structure may further impede improvements in the dissemination of SIP data [1611] because Equity Data Plan participants that govern exclusive SIPs do not have incentives to innovate due to the lack of competition in dissemination of SIP data.

Second, the exclusive SIPs are either SROs themselves or affiliates of SROs.[1612] This gives the SROs a dual role in that they serve as both existing plan processors and as entities selling directly their own proprietary market data products that can reach market participants faster than SIP data, or as affiliates of entities that do so. As discussed in the Proposing Release, this may create an additional conflict of interest that could provide incentives making the Equity Data Plan participants that oversee the Equity Data Plans reluctant to improve the content and latency of the SIP data, because a divergence in the usefulness of SIP data provided by the exclusive SIPs as compared to the proprietary data feeds increases the value of the proprietary market data products.[1613]

The Commission is concerned that Regulation NMS and the Equity Data Plans have not kept pace with the needs of market participants as markets, trading systems, and technologies have changed dramatically. While the exchanges have developed individual proprietary data products to meet the needs of some market participants, the Commission believes that there should be improvement to, and modernization of, the national market system to fulfill the goals of Section 11A of the Exchange Act and to meet the current core data needs of all market participants. The Commission is concerned that the lack of modernization to the content and dissemination of SIP data compared to proprietary data feeds has contributed to the development of a two-tiered system in which certain market participants who are able to afford, and choose to pay for, the exchanges' relatively more expensive proprietary DOB data feeds and associated connectivity and transmission offerings receive more content-rich data faster than those who do not receive these data feeds.[1614]

Some market participants are unable to rely solely on SIP data to trade competitively and execute investor orders in today's markets.[1615] SIP data currently does not include some important data elements such as odd-lot quotations (except to the extent that odd-lot quotations are aggregated into round lots pursuant to exchange rules),[1616] depth of book data, and information about orders participating in auctions.[1617] Moreover, there is a substantial latency differential between market data provided via the exclusive SIPs and proprietary data products delivered by the exchanges directly to market participants or to market data aggregators as part of exchange proprietary data feeds.[1618] The latency and content disparity between SIP data feeds and proprietary DOB data products has the effect of increasing the market participants' demand for proprietary products to the extent that some brokers-dealers stated they view acquiring such products as a competitive necessity.[1619] Additionally, market participants have stated that the higher prices charged for some exchange proprietary DOB feeds and associated connectivity and transmission limits the number of broker-dealers accessing these feeds and places those that do not subscribe at a competitive disadvantage relative to other market participants willing and able to spend the money to access these feeds.[1620]

One commenter stated that all of the additional information provided by the proprietary feeds is already available to everyone who needs it.[1621] While the Commission acknowledges that the option to subscribe to proprietary market data is available to all market participants, the Commission is concerned that the national market system needs improvement to fulfill the goals of Section 11A of the Exchange Act and to meet the current core data needs, including data content and latency, of all market participants. The Commission is concerned a two-tiered system has developed in which market participants that do not receive proprietary DOB feeds may be affected in their efforts to seek best execution and otherwise effectively compete with market participants that receive proprietary DOB data feeds. The Commission believes that consolidated market data must reflect all information that is important for a broad cross section of investors and market participants and must do so in a manner that is latency-sensitive.

B. Baseline

The Commission has assessed the likely economic effects of the final amendments, including benefits, costs, and effects on efficiency, competition, and capital formation, against a baseline that consists of the existing regulatory process for collecting, consolidating, and disseminating market data, and the structure of the markets for SIP data products and for connectivity and trading services.

1. Current Regulatory Process for Equity Data Plans and SIP Data

The current regulatory framework for SIP data relies upon a centralized consolidation model, whereby the SROs provide certain quotation and transaction information for each NMS stock to a single exclusive SIP, which then consolidates this data and makes it

[1610] *See* Proposing Release, 85 FR at n. 21 and accompanying text.

[1611] *See infra* Section V.B.2(b).

[1612] *See* Proposing Release, 85 FR at n. 42.

[1613] Commenters agreed with this assessment. *See, e.g.,* BestEx Research Letter at 1 (''SIP operators have little incentive to provide better content at more competitive prices with lower latency because it may cannibalize their own direct feed business'') and 4 (''The bigger the differences in content between direct data feeds and SIP, the more power exchanges have in setting their own prices for market data.'').

[1614] *See supra* Sections I.A and I.B.

[1615] *See supra* Section II.C.2(c); *see also id.*; Proposing Release, 85 FR at Section III.C.1(a); *infra* Section V.B.2(c). A number of commenters agreed that market participants may not be able to rely on the SIP to trade competitively. *See, e.g.,* DOJ Letter at 2 (''[P]articipants that rely solely on SIP Data could be at a competitive disadvantage to those that rely on multiple sources of market information, including Prop Data''); MFA Letter at 2; BlackRock Letter at 2; Wellington Letter at 1; IntelligentCross Letter at 4.

[1616] *See supra* Section II.C.2(b); *see also* Proposing Release, 85 FR at Section III.C.1(a).

[1617] Only limited auction-related information is currently included in SIP data. *See supra* Section II.G; *see also* Proposing Release, 85 FR at Section III.C.3(a).

[1618] *See infra* Section V.B.2(b).

[1619] A number of commenters agreed that broker-dealers need to purchase proprietary DOB feeds in order to trade competitively. *See, e.g.,* Clearpool Letter at 2 (''[B]roker-dealers are compelled to purchase the exchanges' proprietary data feeds both to provide competitive execution services to clients and to meet best execution obligations due to the content of the information contained in proprietary data feeds, as well as the lack of latency in those feeds, both important considerations for brokers''); State Street Letter at 2; Better Markets Letter at 1; T. Rowe Price Letter at 1. Commenters also agreed that there is a disparity between the content and latency of the SIP data feeds and proprietary market data. *See, e.g.,* Committee on Capital Markets Regulation Letter at 2.

[1620] *See supra* notes 26–28 and accompanying text; *infra* Sections V.B.3(e), V.B.2(f). For example, one commenter stated ''[w]e observe increasing concentration in the financial industry—in the asset manager space, the broker/dealer community, and in the liquidity provider/market maker space. There are barriers to entry based on necessary scale to be able to absorb the fixed costs of infrastructure, market data and connectivity,'' and that ''algorithmic executions by broker/dealers cannot in general be competitive if they do not use direct feeds.'' *See* NBIM Letter at 3. Additionally, there are indicia that exchanges may not be subject to robust competition with respect to market data. *See infra* Section V.B.3(b).

[1621] *See* Nasdaq Letter IV at 34.

available to market participants.[1622] This SIP data includes what historically has commonly been referred to as core data, as well as certain regulatory data related to Commission and SRO rules and NMS plan requirements.[1623]

As discussed in more detail below,[1624] SIP data currently includes transaction information for both round lot and odd-lot-sized transactions as well as quotation information for round lot top of book quotes for each SRO. Additionally, several exchanges, pursuant to their own rules, aggregate odd-lot orders into round lots and report such aggregated odd-lot orders as quotation information to the exclusive SIPs.[1625] Thus, SIP data lacks information on odd-lot quotations at prices better than the best bid and offer and on depth of book quotations (*i.e.,* limit orders resting at exchanges at prices outside of the bid and offer). Additionally, only limited auction-related information is included in SIP data.[1626]

Currently, the Operating Committees of the Equity Data Plans, which are governed exclusively by the SROs,[1627] select the exclusive SIPs to consolidate and disseminate market data to market participants. The selection process for the exclusive SIPs is organized through a bidding process, and once selected, an exclusive SIP has exclusive rights to consolidate and disseminate market data for a given Equity Data Plan.[1628] Currently, SIAC (a NYSE affiliate) is the exclusive SIP for the CTA and CQ Plans, and Nasdaq Stock Market LLC is the exclusive SIP for the UTP Plan.

Each exclusive SIP is physically located in a different data center.[1629] The exchanges' and FINRA's primary data centers are also located in different locations. Each exchange and FINRA must transmit its quotation and transaction information from its own data center to the appropriate exclusive SIP's data center for consolidation, at which point SIP data is then further transmitted to market data end-users, which are often located in other data centers. The exclusive SIPs do not compete with each other in the collection, consolidation, or dissemination of SIP data.

2. Current Process for Collecting, Consolidating, and Disseminating Market Data

In addition to the provision of SIP data pursuant to the Equity Data Plans, the national securities exchanges separately sell their individual proprietary market data products directly to market participants via proprietary data feeds.[1630] Proprietary data feeds may include SIP data elements and a variety of additional data elements and can vary in content from proprietary TOB products to proprietary DOB products.[1631] In addition, in connection with proprietary data feed products, the exchanges offer various connectivity services (*e.g.,* co-location at primary data centers, fiber optic connectivity, wireless connectivity, and point-of-presence connectivity at third-party data centers), which may result in higher speed transmissions.[1632] Typically, proprietary data is transmitted directly from each exchange to the data center of the subscriber, where the subscriber's broker-dealer or vendor (or the subscriber itself) privately consolidates such data with the proprietary data of the other exchanges. This section describes the current content of SIP data and proprietary data feeds, current process of data dissemination, and current process for costs of generating SIP data and proprietary data feeds.

(a) Current Content of SIP Data and Proprietary Data Feeds

As discussed in the Proposing Release,[1633] today SIP data does not include some of the content that certain market participants rely on when handling customer orders and trading.[1634] This difference in content creates significant information asymmetries between market participants who rely solely on SIP data and market participants who also rely on proprietary data feeds.[1635]

A certain portion of market participants do not rely solely on SIP data to trade competitively in today's markets and instead purchase proprietary data from SROs to supplement or even replace SIP data.[1636] In particular, the Commission understands that approximately 50 to 100 firms purchase all of the proprietary DOB feeds from the exchanges and do not rely on the SIP data for their trading.[1637] Conversely, the number of users of the SIP data is much larger (in the millions),[1638] suggesting that many users rely on the exclusive SIPs alone. The Commission believes that a large portion of retail investors rely solely on SIP data for trading decisions.[1639] However, some retail investors may use data derived from proprietary feeds from one or more exchanges in order to obtain additional data beyond the NBBO.[1640]

[1622] *See* Proposing Release, 85 FR at Section II.A.

[1623] *Id.*

[1624] *See infra* Section V.B.2(a). *See also* Proposing Release, 85 FR at Section II.C.1.

[1625] *See* Proposing Release, 85 FR at Section II.A.

[1626] *See* Proposing Release, 85 FR at Section III.C.2.

[1627] Under the Governance Order, the Operating Committee of the New Consolidated Data Plan would include non-SRO members. *See* Governance Order, *supra* note 1128.

[1628] The Nasdaq UTP Plan contains the description of its approach to the selection and evaluation of the processor. *See* Nasdaq UTP Plan, *supra* note 10, at 10. The CTA/CQ Plan does not contain a similar provision. *See* CTA Plan, *supra* note 10; CQ Plan, *supra* note 10. Historically, exchanges or exchange affiliates had always been selected to be plan processors.

[1629] *See* Proposing Release, 85 FR at Section II.A. and n. 43.

[1630] *See* Proposing Release, 85 FR at Section II.A.

[1631] *See* Proposing Release, 85 FR at Section III.C.2.

[1632] *See* Proposing Release, 85 FR at n. 51 and accompanying text; Proposing Release, 85 FR at Section IV.A.

[1633] *See* Proposing Release, 85 FR at Section III.C.

[1634] A number of commenters agreed with this statement. *See, e.g.,* Clearpool Letter at 11; IEX Letter at 5–6; Virtu Letter at 2; DOJ Letter at 2. *See also supra* notes 1615, 1619 and accompanying text.

[1635] Commenters agreed with this assessment. *See, e.g.,* MEMX Letter at 2 (acknowledging that ''information asymmetries exist between market participants consuming consolidated data disseminated through the'' exclusive SIP feeds and ''market participants consuming proprietary data feeds directly from national securities exchanges''); Clearpool Letter at 15; Schwab Letter at 3.

[1636] *See* Proposing Release, 85 FR at Section VI.B.2(a). The Commission believes that when market participants purchase proprietary data feeds to replace SIP data, they also almost always purchase SIP data as a back-up system to proprietary data. *See also* Proposing Release, 85 FR at n. 101.

[1637] *See* Proposing Release, 85 FR at n. 140. In addition to using proprietary DOB feeds for non-display purposes, these firms may also use proprietary DOB feeds for display purposes for their employees and clients.

[1638] As of the fourth quarter of 2019, there were approximately 2–3 million non-professional subscribers and approximately 0.3 million professional subscribers across the UTP and CTA/CQ SIPs. Additionally, there were approximately 300 non-display vendor use cases at each of the exclusive SIPs. *See, e.g.,* CTA Plan, Q2 2020 CTA Tape A & B Quarterly Population Metrics, *available at https://www.ctaplan.com/publicdocs/ctaplan/CTAPLAN_Population_Metrics_2Q2020.pdf*; Nasdaq UTP Plan, Q2 2020 UTP Quarterly Population Metrics, *available at https://www.utpplan.com/DOC/UTP_2020_Q2_Stats_with_Processor_Stats.pdf.* The Commission understands that there is an overlap in subscribers across the exclusive SIPs.

[1639] *See* Proposing Release, 85 FR at Section VI.B.2(a). Commenters agreed that many retail investors only view core data. *See, e.g.,* Schwab Letter at 2; MEMX Letter at 3. Retail investors may also view proprietary TOB feeds that contain less content than the SIP. *See infra* note 1651.

[1640] One retail broker stated that it ''currently offers depth of book products at a reasonable cost for those investors who find the data useful. Providing this data from separate feeds in specific circumstances for investors allows clients to choose what data beyond a national best bid and national best offer (''NBBO'') is important and useful to them and avoids overwhelming amounts of information.'' *See* TD Ameritrade Letter at 6.

As described in the Proposing Release,[1641] SIP data consists of certain quotation [1642] and transaction data [1643] that the SROs are required to provide to the exclusive SIPs for consolidation and dissemination to the public on the consolidated tapes. Specifically, the SIP data includes: (1) An NBBO; [1644] (2) the best bids and best offers from each SRO; [1645] and (3) information on trades such as prices and sizes. The SIP data also includes certain regulatory data, such as information required by the LULD Plan,[1646] information relating to regulatory halts and MWCBs,[1647] information regarding short sale circuit breakers,[1648] and other data, such as data relating to retail liquidity programs, market and settlement conditions, the financial condition of the issuer, OTC equities, last sale prices for corporate bonds, and information about indices.[1649]

The exchanges separately sell their individual market data directly to market participants via proprietary data feeds. For example, the exchanges have developed proprietary DOB products that provide greater content (*e.g.,* odd-lot quotations, orders at prices above and below the best prices, and information about orders participating in auctions, including auction order imbalances) at lower latencies,[1650] relative to the exclusive SIPs, for certain segments of the data market, such as automated trading systems. They have also developed proprietary TOB products that provide data that is generally limited to the highest bid and lowest offer and last sale price information and are typically priced lower than the SIP data for another segment of the data market that is less sensitive to latency (*e.g.,* retail or non-professional investors and wealth managers that access market data visually).[1651] Proprietary data feeds are available as part of exchanges' standard offerings. Most exchanges offer for sale as part of their proprietary DOB products the complete set of orders at prices above and below the best prices (*e.g.,* depth of book data), complete odd-lot quotation information, and information about orders participating in auctions, including auction order imbalances (for listing exchanges).[1652]

One notable gap between SIP data and proprietary DOB data is that SIP data does not include complete odd-lot quotation information even though odd-lots represent a large share of all trades in the U.S. stock market and can represent economically significant trading opportunities at prices that are better than the prices of displayed and disseminated round lots.[1653] While several exchanges aggregate odd-lot orders into round lots and report such aggregated orders as quotation information to the exclusive SIPs,[1654] market participants must purchase proprietary data feeds, available from the exchanges, to see the odd-lot quotations that are priced at or better than the best bid or offer.[1655]

Odd-lot transactions make up a significant proportion of transaction volume in NMS stocks, including ETPs, and a significant proportion of odd-lot trades occur at prices better than the prevailing NBBO, especially in higher priced stocks. In May 2020, approximately 45% of all trades executed on exchanges and approximately 10% of all volume executed on exchange in corporate stocks and ETFs were odd-lot sized and that 40% of those transactions (representing approximately 35% of all odd-lot volume) occurred at a price better than the NBBO.[1656] Additionally, a significant portion of quotation and trading activity occurs in odd-lots, particularly for frequently traded, high-priced tickers, and as stock prices rise, the difference in spreads calculated using the different feeds also rises, indicating that odd-lots are more likely to set the best quote as stock prices rise.[1657]

A number of commenters also submitted analyses examining the occurrence of odd-lot trades. Commenter analyses generally observed that odd-lot trades occur frequently in higher priced stocks and that their frequency has increased over time, along with an increase in the average

[1641] *See* Proposing Release, 85 FR at Section II.A.

[1642] *See* Rule 602 of Regulation NMS.

[1643] *See* 17 CFR 242.601 (Rule 601) of Regulation NMS.

[1644] The national best bid and offer are constructed from the best bid and offer prices across all exchanges in which the quoted size is at least one round lot. *See* Proposing Release, 85 FR at Section III.C.1.

[1645] The best bids and offers on an exchange are determined by the best prices in which the quoted size is at least one round lot. Some exchanges aggregate odd-lot orders at better prices into round lots and report such aggregated orders as their best bid or offer at the least aggressive price of the aggregated orders. Typically, the best bids and offers on each exchange are protected quotes under NMS Rule 611 and cannot be traded-through. *See* Proposing Release, 85 FR at Section III.C.1(a).

[1646] *See* Proposing Release, 85 FR at n. 38.

[1647] *See id.* at n. 39.

[1648] *See id.* at n. 40.

[1649] *See id.* at n. 41.

[1650] *See, e.g.,* Proposing Release, 85 FR at n. 19 (for Nasdaq Global Data Products, Real-Time—NYSE Proprietary Market Data, and Cboe Equities Offerings, all describing low-latency DOB data products). Commenters agreed with this description of the market. *See, e.g.,* DOJ Letter at 2; Committee on Capital Markets Regulation Letter at 2.

[1651] Examples of such proprietary TOB products include NYSE BBO, Nasdaq Basic, and Cboe One Feed. *See* Proposing Release, 85 FR at n. 19. NYSE BBO provides TOB data. Nasdaq Basic and Cboe One's Summary Feed provide TOB and last sale information. Nasdaq Basic also provides Nasdaq Opening and Closing Prices and other information, including Emergency Market Condition event messages, System Status, and trading halt information. Cboe One also offers a Premium Feed that includes DOB data. Each of these products is sold separately by the relevant exchange group. *See* Letter from Matthew J. Billings, Managing Director, Market Data Strategy, TD Ameritrade, (Oct. 24, 2018) (''TD Ameritrade Letter 2018''), *available at https://www.sec.gov/comments/4-729/4729-4560068176205.pdf* at 5–8 (stating that the lower cost of exchange TOB products, coupled with costs associated with the process to differentiate between retail professionals and non-professionals imposed by the Equity Data Plans, and associated audit risk, favors retail broker-dealer use of exchange TOB products).

[1652] *See* Proposing Release, 85 FR at n. 335. IEX and MEMX make proprietary data available but do not charge for it. *See, e.g.,* IEX, Market Data, *available at https://iextrading.com/trading/market-data/* (last accessed Jan. 8, 2020); MEMX Fee Schedule, *available at https://info.memxtrading.com/fee-schedule/* (last accessed Nov. 18, 2020). *See also* Ramsay Letter II. Long Term Stock Exchange does not offer a proprietary data feed, but makes information on the order book available on its website. *See, e.g.,* LTSE Connectivity Guide, *available at https://assets.ctfassets.net/cchj2z2dcfyd/1Jp5V4TWZXzhl8QmBWD3Ed/2f926fa4c55f6f489cceb8b77fe8e685/LTSE_Connectivity_Guide.pdf* (last accessed Nov. 18, 2020).

[1653] *See* Alexander Osipovich, *NYSE Aims to Speed Up Trading with Core Tech Upgrade,* Wall Street Journal (Aug. 5, 2019), *available at https://www.wsj.com/articles/nyse-aims-to-speed-up-trading-with-core-tech-upgrade-11565002800* (Retrieved from Factiva database). Commenters agreed that odd-lot quotes make up a significant portion of trading interest, especially in higher priced stocks. *See, e.g.,* Cboe Letter at 6; Healthy Markets Letter I at 3; Clearpool Letter at 11–12; IntelligentCross Letter at 3; IEX Letter at 3–4; ICI Letter at 7.

[1654] *See* Proposing Release, 85 FR at Section III.C.1(a). Exchange rules specify how the aggregation process works in different terms and with different levels of specificity, but many exchanges aggregate odd-lots across multiple prices and provide them to the exclusive SIPs at the least aggressive price if the combined odd-lot interest is equal to or greater than a round lot. *See* Proposing Release, 85 FR at nn. 157, 158, 789.

[1655] *See* Proposing Release, 85 FR at n. 163. Commenters agreed that the absence of odd-lot quote information reduces the usefulness of the SIP. *See, e.g.,* BlackRock Letter at 3.

[1656] *See supra* note 241. Similar staff analysis in the Proposing Release examining a different time period also showed that odd-lot trades account for a significant proportion of transactions. *See* Proposing Release, 85 FR at 16813.

[1657] *See supra* note 240. The staff analysis found that for the 500 top tickers by dollar volume, odd-lot quotes represented a significant price improvement over the exclusive SIP quotes. This analysis further found that as the price of the stock increased, the duration-weighted amount by which the odd-lot quote improved on the SIP quote increased as well. Similar staff analysis in the Proposing Release examining a different time period found similar results. *See* Proposing Release, 85 FR at Section III.C.1(b). Analysis by one commenter also observed that there are frequently odd-lot limit orders priced better than the NBBO and that this is more common in higher priced stocks. *See* JP Morgan Memo to File at 2.

stock price.[1658] Commenter analysis also observed that odd-lot limit orders occur frequently in higher priced stocks.[1659]

One commenter stated that odd-lot trade frequency is not a valid proxy for passive order interest because trade size is often determined by the liquidity-taking order and is often a result of algorithmic ''pinging.'' [1660] This commenter conducted an analysis and concluded that it is small liquidity-taking orders that are driving the increase in odd-lot trades.[1661] This commenter did not observe an increase in the size of passive retail investor orders but did find a decrease in their execution size. The Commission acknowledges that algorithmic ''pinging'' could account for a portion of the odd-lot trading volume that occurs but also believes that odd-lot-sized limit orders can represent a significant source of liquidity, especially in higher priced stocks. This commenter's analysis was limited to the orders of retail investors, while the staff analysis discussed above and the analyses submitted by other commenters, which observed that odd-lot limit orders are a significant source of liquidity (especially in high-priced stocks), contained the orders of other types of traders.[1662] Additionally, analyses from other commenters also observed that a significant portion of retail limit orders are smaller than 100 shares, and that this is more common in higher priced stocks.[1663]

Information on odd-lot quotes can help with the optimal placement and routing of orders across markets.[1664] Odd-lot quotation data can help market participants improve trading strategies and lower execution costs by allowing them to take advantage of odd-lot quotes that are available at prices better than the NBBO, possibly on a different exchange than where the NBBO is located. Odd-lot quotation data can also help market participants place limit orders at prices at or inside the NBBO. SIP data is unable to differentiate between individual round lot quotes and odd-lot quotes that were aggregated by the exchanges to be a round lot quote.

Another gap between SIP data and proprietary DOB data is that SIP data currently lacks quotation information in NMS stocks beyond the top of book [1665] even though the decimalization of securities pricing in 2001 led to a dispersion of quoted volume away from the top of book.[1666] Consequently, the NBBO shown in SIP data became less informative and some market participants have come to view depth of book data as necessary to their efforts to trade competitively and to provide best execution to customer orders.[1667] Market participants interested in such depth of book data must rely upon the proprietary DOB products offered by the exchanges that include varying degrees of depth data.[1668]

Staff analyzed depth of book quotations for corporate stocks using data from the week of May 4, 2020 and found that there is a substantial amount of quotation volume at several levels below the best bid.[1669] The analysis also found that during active parts of the trading day, there is quotation interest at every $0.01 increment at least ten levels out for the most liquid stocks; for the least liquid stocks, there is a large gap between the best bid and the next highest bid and large gaps are generally also present between the next several bid levels. Additionally, the analysis found a significant percentage of the total notional value of all depth of book quotations for both liquid and illiquid stocks falls within the first five price levels.

The Commission recognizes that market participants have diverse market data needs. Depth of book data can assist SORs and electronic trading systems with the optimal placement of orders across markets.[1670] Specifically, depth of book data can help market participants improve trading strategies and lower execution costs by placing liquidity taking orders that are larger than the displayed best bid or best offer and achieve queue priority for liquidity providing orders that post at prices away from the best bid or offer.[1671] At the same time, the depth of book data may be less valuable to a certain segment of market participants (*e.g.,* some retail or non-professional customers).[1672] For example, a relatively small portion of marketable orders execute at prices outside the NBBO indicating that some market participants submitting marketable orders do not find ''walking the book'' useful.[1673]

[1658] Analysis from a number of commenters observed that odd-lot trades are more prevalent in high priced stocks. *See, e.g.,* BestEx Research Letter at 6; Capital Group Letter at 3; Nasdaq Letter III at 11; RBC Letter at 5. Additional commenter analysis observed that the percentage of odd-lot trades has increased over time, especially in high priced stocks. *See, e.g.,* BestEx Research Letter at 6; Healthy Markets Letter I at 11–12. Analysis from one commenter also observed that the frequency of odd-lot trades also increased off-exchange. *See* Healthy Markets Letter I at 11–12. Commenters also observed that the average stock price has increased over time. *See, e.g.,* Cboe Letter at 6 (''The average price of a stock included in the S&P 500 Index was $44.86 at the end of 2005, compared to $140.47 at the end of 2019''); Virtu Letter at 3; Citadel Letter at 3. Other commenters also agreed that odd-lot trading has increased over time, especially in high priced stocks. *See, e.g.,* Fidelity Letter at 4; ACS Execution Services Letter at 2; Angel Letter at 13.

[1659] *See, e.g.,* Nasdaq Letter IV at 16; Schwab Letter at 4; Citadel Letter at 3.

[1660] *See* TD Ameritrade Letter at 6–7.

[1661] *See id.*

[1662] *See supra* note 1657. *See also, e.g.,* Nasdaq Letter IV at 16; JP Morgan Memo to File at 2.

[1663] *See, e.g.,* Nasdaq Letter IV at 16; Schwab Letter at 4 (''In the first quarter of 2020, a total of 1.87 million, or 23 percent, of Schwab customers' limit orders for stocks priced higher than $100 are for fewer than 100 shares''); Citadel Letter at 3. One commenter also stated that retail investors tend to trade in lots smaller than 100 shares. *See* Schwab Letter at 4.

[1664] Commenters agreed that odd-lot information has become important for trading decisions. *See, e.g.,* ACS Execution Services Letter at 2; Clearpool Letter at 11–12; IntelligentCross Letter at 4. A panelist at the Roundtable also stated that odd-lot quotation data is needed to make effective decisions in trading applications and to fill client orders effectively. *See* Proposing Release, 85 FR at n. 173 and accompanying text.

[1665] *See* Proposing Release, 85 FR at Section III.C.2.

[1666] Commenters agreed that decimalization led to a decline in top of book liquidity. *See, e.g.,* Schwab Letter at 3; ACS Execution Services Letter at 2.

[1667] *See* Proposing Release, 85 FR at Section III.C.2(d).

[1668] *See* Proposing Release, 85 FR at n. 270. Commenters stated that top of book information is insufficient and market participants pay for proprietary feeds to access depth of book information. *See, e.g.,* ICI Letter at 9.

[1669] *See supra* note 387. Similar staff analysis in the Proposing Release examining a different time period found similar results. *See* Proposing Release, 85 FR at Section III.C.2(d). Commenters also referenced analysis that observed there was significant liquidity beyond the top of book. *See, e.g.,* RBC Comment Letter at 4–5 (referencing an analysis RBC had previously submitted to the Commission); IEX Letter at 5 (referencing an academic study by Tolga Cenesizoglu and Gunnar Grass, *Bid- and ask-side liquidity in the NYSE limit order book,* 38 J. Fin. Mkts. 14 (2018)).

[1670] Several commenters agreed that depth of book information is useful in routing and placing orders effectively. *See, e.g.,* Clearpool Letter at 14; IntelligentCross Letter at 4; IEX Letter at 5; Schwab Letter at 3; Angel Letter at 9.

[1671] *See infra* Section V.C.1(c)(ii). Commenters agreed that depth of book information helps with placing market orders and accessing liquidity beyond the top of book. *See, e.g.,* ICI Letter at 8–9; Schwab Letter at 3; ACS Execution Services Letter at 4–5; IEX Letter at 5.

[1672] One commenter believes that depth of book information would be valuable for retail investors in less liquid stocks and for placing limit orders. *See* Angel Letter at 1–9.

[1673] That is, a marketable order so large that it executes against all the volume at the top of the book and then executes against orders behind the top of the book. *See* Craig W. Holden and Stacey Jacobsen, *Liquidity Measurement Problems in Fast Competitive Markets,* 69 J. Fin. 1760, at Table I (2014) (showing that 3.3% of orders clear outside the NBBO). This does not necessarily mean that limit orders outside the NBBO are irrelevant. There are limitations to using the observation of trades at prices outside the NBBO at the time of trade execution as an indicator for orders that executed at prices outside of the NBBO at the time of trade order (specifically, these events are not necessarily the same thing). Additionally, instead of submitting a large marketable order that ''walks the book'', market participants may split a larger marketable order into smaller child orders, with some smaller

Another gap between SIP data and proprietary DOB data is that SIP data includes only limited auction-related information. Auctions are important liquidity events, accounting for approximately 7% of daily equity trading volume.[1674] Closing auctions generate prices that are used for a variety of market purposes, including setting benchmark prices for index rebalances and for determining NAV prices for mutual funds and ETFs.[1675] Auctions are important for the implementation of passive investment strategies. For example, one commenter stated that mutual funds and ETFs that utilize passive index-tracking strategies actively participate in closing auctions.[1676] One commenter stated that reopening auctions play an important role in connection with security-specific or market-wide events, such as a limit up-limit down or other regulatory halt.[1677] Auction imbalance information and indicative prices can help facilitate order placement in auctions and predict price movements.[1678]

Today, some NYSE auction data, such as pre-opening indicators,[1679] are disseminated through the CTA/CQ SIP, and no auction information generated by the other primary listing exchanges is distributed through the exclusive SIPs, except very limited LULD information related to auction collar messages.[1680] Thus while the exchanges' proprietary data includes detailed information on several aspects of their auctions, only a small subset of the auction-related information is included in SIP data.[1681]

While all listing exchanges make auction information available to market participants through proprietary data feeds, only some exchanges offer this information through specialized feeds for a lower price than full DOB products. For instance, NYSE Order Imbalances is an example of such a proprietary auction data product offered by NYSE,[1682] while Nasdaq does not offer such a specialized product.[1683]

One commenter observed another gap in information between the exclusive SIPs and proprietary market data. This commenter observed that when market-wide circuit breakers tripped, proprietary feeds continued to disseminate information, such as information on quotes, during the halt while the exclusive SIPs provided updates that were not in real-time.[1684]

Currently, the gap in information between data in the exclusive SIP and proprietary DOB products may limit the current level of price efficiency if market participants with access to proprietary DOB products do not incorporate this information into prices observed by exclusive SIP subscribers quickly enough through their trading or quoting activity.[1685] However, the Commission does not know the extent of this possible effect because it does not know how quickly market participants that subscribe to proprietary DOB products incorporate the information contained in these feeds into the information contained in the exclusive SIP.

(b) Current Process for Dissemination of SIP Data and Proprietary Data Feeds

Today, SIP data is disseminated to investors and market participants through a centralized consolidation model with an exclusive SIP for each NMS stock, centrally collecting market data transmitted from the dispersed SRO data centers and then redistributing the consolidated market data to market participants who are often in different locations.[1686] The SROs typically transmit their market data through fiber optic cables to the SIPs.[1687]

Typically, proprietary data is transmitted directly from each exchange to the data center of the subscriber and does not first travel to a centralized consolidation location. Furthermore, unlike the standardized transmission of SIP data over fiber optic cable, proprietary data is frequently transmitted using low-latency wireless connectivity (*e.g.,* microwave signals) or other forms of connectivity (often provided by the exchanges) that are faster than fiber.[1688] As stated by one commenter, data transmission via microwave signals is much faster than via fiber optic cables, because ''microwave signals travel at the speed of light through air, rather than over fiber, which can attenuate signals.'' [1689]

There is a significant latency differential between SIP data and the proprietary market data products that are delivered directly to market participants or to market data aggregators who generally have better connectivity, communications, and aggregation technology than the SIPs.[1690] Specifically, the centralized consolidation model has three sources of latency: (a) Geographic latency; (b) aggregation or consolidation latency; and (c) transmission or communication latency. The latency differentials between SIP data and proprietary data, are meaningful, and market participants believe these differentials impact their

orders executing against liquidity providing orders at the top of the book and others later executing against liquidity providing orders that were behind the top of book when the first child orders executed. *See infra* Section V.B.3(e).

[1674] *See supra* note 466 for staff analysis; *see also* Proposing Release, 85 FR at Section III.C.3(c) and n. 348. Commenters agreed that an increase in the portion of total trading volume executed in opening and closing auctions makes them important liquidity events. *See, e.g.,* Cboe Letter at 21; Clearpool Letter at 15; MEMX Letter at 5–6; IEX Letter at 6; Fidelity Letter at 5; Schwab Letter at 5; ACS Execution Services Letter at 2; Angel Letter at 8; Data Boiler Letter I at 31. A number of commenters attributed the growth in auction volume to the increase in passive investing. *See, e.g.,* Schwab Letter at 5 (''The growth of passive investing and exchange-traded funds (ETF) has contributed to the growth in auctions relative to other trading.''); SIFMA Letter at 5. *See also* Proposing Release, 85 FR at 16735.

[1675] Commenters agreed with this assessment. *See, e.g.,* Clearpool Letter at 15; MEMX Letter at 5–6.

[1676] *See* ICI Letter at 9.

[1677] *See* Clearpool Letter at 15.

[1678] *See, e.g.,* ICI Letter at 9 (''Auction information, which includes imbalance levels between buy and sell orders, allows funds to decide whether to participate, and if so, to determine direction, order size and timing.''); BlackRock Letter at 2 (''Auction information telegraphs the direction and magnitude of price moves at the end of the day.''); MEMX Letter at 6.

[1679] *See* NYSE Rule 15.

[1680] *See* Proposing Release, 85 FR at n. 333; *see also* UTP Plan, UTP Participant Input Specification (Dec. 3, 2019), *available at http://www.utpplan.com/DOC/UtpBinaryInputSpec.pdf.*

[1681] *See, e.g.,* NYSE, TAQ NYSE Order Imbalance—Quick Reference Card, *available at https://www.nyse.com/publicdocs/nyse/data/TAQ_NYSE_Order_Imbalance_QRC.pdf* (last accessed Jan. 8, 2020).

[1682] *See* NYSE, Real-Time Data Imbalances, *available at https://www.nyse.com/market-data/real-time/imbalances* (last accessed Jan. 8, 2020) (describing the NYSE Order Imbalances product).

[1683] The Nasdaq Net Order Imbalance Indicator is a feature of Nasdaq's BookViewer proprietary data feed product rather than a stand-alone product. *See* Nasdaq, Net Order Imbalance Indicator, *available at https://data.nasdaq.com/NOII.aspx* (last accessed Jan. 8, 2020).

[1684] *See* T. Rowe Price Letter at 2.

[1685] For example, price efficiency may be limited if there is a delay in incorporating imbalance information observed in proprietary DOB feeds into the quote and trade prices shown by the exclusive SIP. *See infra* Section V.D.1. Price efficiency is greater when prices reflect current information faster.

[1686] *See* Proposing Release, 85 FR at Sections I, II.A; *see also* DOJ Letter at 2.

[1687] *See* Proposing Release, 85 FR at Section II.A.

[1688] *Id.*

[1689] *See* Data Boiler Letter I at 39.

[1690] *See supra* note 397; *see also* Robert P. Bartlett, III and Justin McCrary, *How Rigged Are Stock Markets? Evidence from Microsecond Timestamps* at 45 (2017), *available at https://www.law.berkeley.edu/wp-content/uploads/2019/10/bartlett_mccrary_latency2017.pdf* (''[O]ur analysis suggests SIP reporting latencies generate remarkably little scope for exploiting the informational asymmetries available to subscribers to exchanges' direct data fees.'').

ability to trade and their order execution quality.[1691]

Geographic latency refers to the time it takes for data to travel from one physical location to another. Greater distances usually equate to greater geographic latency, though geographic latency is also affected by the mode of data transmission. The Commission understands that geographic latency is typically the most significant component of the additional latency that SIP data feeds experience compared to proprietary data feeds.[1692] The record in this rulemaking suggests that the geographic latency of SIP data may be up to a millisecond.[1693]

Aggregation or consolidation latency refers to the amount of time an exclusive SIP takes to aggregate the multiple sources of SRO market data into SIP data and includes the time it takes to calculate the NBBO. This latency reflects the time interval between when an exclusive SIP receives data from an SRO and when it disseminates consolidated data to the end-user. Even though in recent years the exclusive SIPs made improvements to address aggregation latency, the proposal stated that the related latency differential remains; as mentioned above, in the second quarter of 2019, for Tapes A and B average quote feed and average trade feed aggregation latencies were 69 and 139 microseconds, respectively.[1694] In the same time period, the Tape C aggregation latency was an average of 16.9 microseconds for quotes and 17.5 microseconds for trades.[1695] Notably, these latency differentials remain even though the Equity Data Plans' Operating Committees have made some improvements to certain aspects of the exclusive SIPs and related infrastructure, including improvements to address aggregation latency.[1696]

One commenter pointed out that the CTA SIP has implemented improvements to its processing, which at the time that the commenter expected to bring the aggregation time down to ''under 20 microseconds.'' [1697] While these improvements will likely reduce the aggregation latency of the CTA SIP, 20 microseconds of aggregation latency will continue to be meaningfully slower than current market practice in the aggregation of proprietary data feeds, and only about as fast as the UTP SIP is currently.

Transmission latency refers to the time interval between when data is sent (*e.g.,* from an exchange) and when it is received (*e.g.,* at an exclusive SIP and/or at the data center of the subscriber), and the transmission latency between two fixed points is determined by the transmission communications technology through which the data is conveyed. Transmission latency also varies depending on the geographic distance between where the data is sent and where it is received. There are several options currently used for transmitting market data, such as fiber optics, which typically are used by the exclusive SIPs for receipt and dissemination of SIP data, and wireless microwave connections, which the exchanges offer as an alternative for their proprietary data feeds but not for SIP data.[1698] Fiber optics are generally more reliable than wireless networks since the data signal is less affected by weather. The modes of transmission for SIP data are typically slower than the modes of transmission used for proprietary data. In the Proposing Release, the Commission stated that each of the CTA/CQ Plan participants must transmit its data through connectivity options that have a round-trip latency of at least 280 microseconds.[1699] One of the commenters said that ''[i]n 2019, the SIP Operating Committee authorized two improvements to the CTA SIP'' and that this change ''will reduce what the Commission refers to as CTA SIP data 'transmission' latency, *i.e.,* the time interval between when the data is sent and when it is received, by over 140 microseconds.'' [1700]

The Commission believes that the benefits of greater speed on the timescales at which the market currently measures latency have mostly to do with being faster than one's competitors. In some situations small latency differentials that leave enough time for certain market participants to observe and react to information before other, slower market participants can be as costly to slower market participants as larger latency differentials.[1701] For example, a market participant may use market data to anticipate price movements and then place limit orders ahead of the price movement. In doing so, the market participant will end up in a queue of limit orders placed in the book, in order of time priority. If other market participants react the same way, then this market participant's quote will be behind the quotes in the queue of those who reacted faster. If the market participant increases its reaction time but still does not end up faster than the trader who placed the order directly in front of it in the queue, then the market participant's quote will have the exact same priority that it had at the slower reaction time.

Currently, some market participants obtain proprietary data feeds from many SROs.[1702] Of these market participants, some prefer to have consolidated

[1691] *See* Proposing Release, 85 FR at n. 412 and accompanying text; Martin Scholtus et al., *Speed, Algorithmic Trading, and Market Quality around Macroeconomic News Announcements,* 38 J. Banking & Fin. 89 (2014) (''This paper documents that speed is crucially important for high-frequency trading strategies based on U.S. macroeconomic news releases. Using order-level data on the highly liquid S&P 500 ETF traded on Nasdaq from January 6, 2009, to December 12, 2011, we find that a delay of 300 ms or more significantly reduces returns of news-based trading strategies.''); Grace Hu et al., *Early peek advantage? Efficient price discovery with tiered information disclosure,* 126 J. Fin. Econ. 399 (2017) (''Calibrating the speed of price discovery at a finer scale, we find that the first 200 milliseconds at 9:54:58 accounts for 89% of the one-second return at 9:54:58 on negative news days, and 85% of the one-second return at 9:54:58 on positives news days. In other words, most of the price discovery happens during the first 200 milliseconds, faster than the blink of an eye.''); Tarun Chordia et al., *Low Latency Trading on Macroeconomic Announcements,* 31 Rev. Fin. Stud. 4650 (2018) (''Specifically, trading in the direction of the announcement surprise results in average dollar profits (across market participants) of $19,000 per event for SPY and roughly $50,000 per event for ES. This translates to roughly $15 million in cumulative profits on average each year, which is trivial relative to about $4.7 trillion traded in SPY and $35.8 trillion notional value traded in ES in 2012. The $15 million is also trivial compared with the cost of price discovery in U.S. markets, which at 0.67% of the market capitalization (French 2008) amounted to roughly $100 billion in 2006.'').

[1692] *See* Proposing Release, 85 FR at Section IV.A. The hub-and-spoke model of the exclusive SIPs exacerbates this geographic latency. *See supra* note 676. *See also* MEMX Letter at 6.

[1693] *See* Proposing Release, 85 FR at n. 396.

[1694] *See* Proposing Release, 85 FR at Section IV.A.

[1695] *Id.*

[1696] *See* Proposing Release, 85 FR at Section IV.A.

[1697] *See* NYSE Letter II at 10, 11.

[1698] *Id.*

[1699] *See* Proposing Release, 85 FR at n. 410.

[1700] NYSE Letter II at 10–11.

[1701] Academic literature examines the effects of trading speed on revenues, adverse selection, and liquidity. *See, e.g.,* Matthew Baron et al., *Risk and Return in High-Frequency Trading,* 54 J. Fin. & Quantitative Analysis 993 (2019) (testing the connection between high frequency trading (''HFT'') latency and trading performance; the authors find that relative latency matters and that ''HFT firms exhibit large, persistent cross-sectional differences in performance, with trading revenues disproportionally accumulating to a few firms.'' Furthermore, when HFT firms use their relative latency advantages to trade on news to create short-term arbitrage opportunities, they generate adverse selection on slower traders.); Bruno Biais et al., *Equilibrium fast trading,* 116 J. Fin. Econ. 292 (2015) (arguing that fast trading technology ''provides advance access to value-relevant information, which creates adverse selection, lowering welfare,'' and ''generates a negative externality''); Thierry Foucault et al., *Toxic Arbitrage,* 30 Rev. Fin. Stud. 1053 (2017) (providing evidence that ''[a]rbitrage opportunities due to asynchronicities in the adjustment of prices to news are toxic because they expose dealers to the risk of trading with arbitrageurs at stale quotes.'' The authors then claim that these toxic arbitrage opportunities that come with higher trading speed impair market liquidity.).

[1702] The exchanges, as a subset of SROs, sell proprietary data feeds to market participants.

proprietary data. There are two ways these market participants can obtain consolidated data. First, market participants may independently create consolidated data by purchasing individual exchange proprietary market data products and consolidating that information for their own use.

Second, market participants may obtain consolidated data from market data aggregators, which are mostly firms that purchase direct access to exchange data,[1703] consolidate the data, and disseminate the data (after various levels of processing) to market participants.[1704] Additionally, some market data aggregators do not purchase direct access to exchanges. Instead, they provide hardware and software for market data aggregation to the parties that have contractual relationships to purchase or license the market data enabling market participants to outsource the significant hardware, software, and personnel expertise that is required to consolidate the proprietary feeds directly. Many of the most sophisticated market participants in the market use these products, and despite the fact that they create an additional chain link between market participants and proprietary feeds, the Commission believes that these firms generally deliver data to market participants faster than the exclusive SIPs.[1705]

Market participants who subscribe to SIP data also have two different ways of obtaining their data. They can either directly get SIP data feeds from the exclusive SIPs or, as stated by a commenter,[1706] they can get SIP data from a third party aggregator in a normalized form.[1707] The least latency sensitive market participants are the most likely to receive SIP data in this normalized form.

Some commenters stated that the need for backup data feeds is an important cost in obtaining access to market data.[1708] The Commission believes that today, many market participants use the exclusive SIPs as a backup, and maintain a subscription to the exclusive SIP feeds despite using proprietary data for trading decisions partly for this reason. The exclusive SIPs themselves maintain a geographically diverse backup system consistent with Regulation SCI. One participant in the Market Data Roundtable stated that the exclusive SIPs are ''expensive for a backup feed.'' [1709]

(c) Current State of Utilization of Market Data

One commenter stated that the introduction of different levels of quality in core data consolidation and dissemination would introduce new ''tiers'' into the market beyond the two tiers of those who use proprietary DOB feeds and those who do not.[1710] The Commission does not believe that differing tiers of market data access sophistication and technology represent changes to the market, given current market practice. Market participants have different levels of sophistication in receiving and processing real time market data, because of differences in the cost of maintaining data processing systems and in the data needs of various trading and investment strategies. More sophisticated firms use advanced data access methods and technologies, and generally seek to reduce latency and improve the way in which the data can be used. Other market participants trade latency for lower costs, and this has resulted in a continuum of different levels of latency and processing quality in the market.

The most competitive executing broker-dealers, market makers, and traders using highly latency sensitive strategies define market practice at the highest-cost, lowest-latency end of the continuum. These market participants typically invest significantly more resources in reducing latency and increasing processing speed than any other kind of market participant. This group typically purchases co-location services at all major data centers, along with the highest capacity connectivity services and the most raw and unprocessed exchange proprietary data feeds.[1711] Many market participants in this group maintain their competitive advantage by performing all major steps related to data connection and processing within their own business. That is, they arrange connectivity, software, hardware, and transmission necessary to receive and process market data on their own without employing the services of outside vendors. As a result, there are highly significant technological, infrastructure, and personnel costs to building and maintaining such a system for data processing.[1712] Therefore, the Commission believes that there are relatively few market data users at this level.[1713]

Market participants that seek to reduce the costs of maintaining this high level of capability in market data access make a variety of cost saving adjustments. For example, market participants may decide to employ vendors to assist in the most difficult or sophisticated aspects of the process, such as microwave transmission and hardware. These market participants may also use software vendors to aggregate proprietary data, and may also employ vendors to assist in connecting to the data feeds. While using such vendors can reduce cost, this can sometimes come at the expense of adding latency.[1714] This can happen because market participants may base their competitive advantage on the development of technology, which might be superior to what is available from vendors, or because the level of customizability and specialization to the specific use case available from third-party vendors is reduced, compared to developing these technologies ''in-house.''

[1703] As mentioned below, even when obtaining consolidated market data from market data aggregators, market participants also have to pay data fees directly to the exchanges. *See infra* Section V.B.2(c).

[1704] Market participants who consolidate market data independently may use other market data aggregators' products and services such as software.

[1705] *See, e.g.,* Roundtable Day One Transcript at 128–29 (Mark Skalabrin, Redline Trading Solutions).

[1706] BestEx Research Letter at 8.

[1707] Companies that normalize market data take in raw data delivered in a variety of protocols and, using feed handlers, normalize it into a single protocol different from the one used by the original venue. This way a data user can receive one feed using one streaming protocol. *See* Vela's *Definitive Guide to Market Data, available at https://info.tradevela.com/definitive-guide-to-market-data#normalisation.*

[1708] *See, e.g.,* Angel Letter at 20; NYSE Letter II at 24; FINRA Letter at 4.

[1709] Roundtable Day One Transcript at 140 (Mark Skalabrin, Redline Trading Solutions).

[1710] *See, e.g.,* Nasdaq Letter IV at 8.

[1711] For example, NYSE describes their order-by-order message feed, NYSE Integrate Feed, as a ''high-performance product.'' *See https://www.nyse.com/market-data/real-time/integrated-feed* (last accessed Sept. 21, 2020).

[1712] As an example of such costs, *see What Types of Financial Market Data Providers Are There?,* Exegy Blog, *available at https://www.exegy.com/2019/07/types-financial-market-data-providers/* (last accessed Sept. 21, 2020), stating that ''[e]xchanges are the most expensive provider option,'' because data directly from the exchange comes raw and in whatever format the exchange uses, and this leaves the end user of the data with the task of ''maintaining, transporting and processing the data.'' Because firms that are the most sophisticated users of market data consume data directly from the exchange, these are costs they incur.

[1713] The market participants at this level are a subset of all market participants using proprietary data (*see supra* Section V.B.2(a)). Much of the text discusses market participants who use proprietary data feeds; the different levels on the continuum consist of differences in how those feeds are used even within the set of market participants who use proprietary data.

[1714] *See* Vela, *supra* note 1707, stating that the use of ''. . . normalized feed of data from a vendor, however, can add latency, which may make it less suitable for latency-sensitive applications . . .''

Further cost-savings are possible by not purchasing co-location services at all major exchanges, and increasing the number of data access functions outsourced. Some market participants may obtain their entire market data feed from a third-party aggregator in the form of a pre-aggregate feed, saving money but surrendering significant ability customize the data feed.[1715] Additionally, some market participants may use the exclusive SIPs instead of proprietary feeds for some use cases. For example, proprietary feeds might only be used for actual order routing decisions, while the exclusive SIPs are used to fill other data needs. Because of the substantial difference in price between exclusive SIP and proprietary feeds, this method may represent a substantial cost savings.[1716] While the benefits of speed and quality of processing may be diminished for those market participants utilizing these more low-cost options, there continue to be trading and order routing strategies for which these approaches are sufficient. However, as acknowledged elsewhere,[1717] execution using these data aggregation methods may experience higher execution costs on average.

One commenter argued that the exclusive SIP feeds could not be used to route orders electronically, stating that ''[d]ue to its limited content and higher latency, the usage of SIP data is adequate only for investors that visually consume NMS information (*e.g.,* humans looking at quotes on a screen).'' [1718] While the Commission agrees that many users of display feeds use the exclusive SIPs (as discussed in the text below), the Commission believes that there are likely a few non-display users of the exclusive SIP data who route orders based on exclusive SIP feeds as well.[1719]

At the bottom of the continuum are those market participants for which latency sensitivity is not an issue. These include market participants that use human traders who obtain market data through display feeds, and retail investors.[1720] Such market participants frequently outsource the entire data aggregation and dissemination process, including the production of the visual display, to third-party vendors. These market participants also often rely on the exclusive SIP feeds or TOB feeds instead of the DOB feeds. Since latency sensitivity is not an issue, the primary benefit for this type of user of DOB feeds as compared to SIP or TOB feeds is the additional available data. Because of the challenges in obtaining high execution quality using only display feeds and per quote feeds,[1721] many market participants in this last level route their orders to a broker-dealer at a higher level of capability in market data access for execution. Market participants who engage in this type of behavior include investment funds and retail investors. Sometimes broker-dealers working on behalf of clients route orders to a different broker for execution.

One commenter stated ''. . . the Commission fails to consider that proprietary market data is neither necessary nor relevant to the business models and trading or investment strategies of many, if not most, ordinary investors and market participants.'' [1722] While the Commission acknowledges that this final tier of consumers of market data, which includes most retail investors, might currently rely solely on the SIPs for their own use (and this use might include visual display), the Commission disagrees that proprietary data does not matter to most market participants. The Commission continues to believe that the market participants described as using proprietary data feeds in this section do indeed need those feeds to be competitive with their peers [1723] and that these participants represent a significant segment of the market.[1724] Many market participants, in routing orders to the exchanges, rely on the more sophisticated users of market data to execute orders on their behalf. In other words, while not every individual market participant uses proprietary data feeds, nearly all orders entered into the National Market System, including retail orders, touch a component (typically the order router of the executing broker) that uses proprietary data in order to reduce execution costs and improve execution quality. The Commission therefore disagrees with this comment that proprietary data is not relevant to the business models of most market participants because the systems by which a broad range of market participants access exchange trading (namely, the network of brokers through which orders are routed) find proprietary data feeds, including their content and speed, relevant to their business models.

(d) Current Costs of Generating SIP Data and Proprietary Data Feeds

As mentioned above,[1725] currently the exclusive SIPs consolidate and disseminate SIP data to market participants. The data fees that exclusive SIPs charge to market participants for obtaining SIP data are set by the Operating Committees of the Equity Data Plans, subject to notice and comment, and Commission approval. A portion of the SIP data revenues is used to pay for the cost of maintaining and administering the exclusive SIP,[1726] and the remaining funds are distributed to the SRO members proportionately to their trading and quoting activity.[1727] In the case of the UTP SIP, there is an additional FINRA cost for the oversight of the OTC markets that is also taken out of the exclusive SIP's revenues before distributing funds to the plan participants.

[1715] *See* Exegy blog, *supra* note 1712, describing the affordability of API data feed options and the possibility that customization is reduced relative to less processed options. *See also* NBIM Letter at 4, stating that broker-dealers who do not perform the aggregation ''in-house'' will not be ''consistently competitive.'' This commenter also states that ''[t]his does not preclude using third-party technology to do the data aggregation, as long as it is done in-house to avoid incremental latency.''

[1716] For a discussion of the differences in price between exclusive SIPs and proprietary feeds, *see supra* Section V.B.2(c).

[1717] *See infra* Section V.B.3(e).

[1718] *See* T. Rowe Price Letter at 1.

[1719] For example, one commenter suggested that exclusive SIP feeds play an important role in the activities of some broker-dealers. *See* Bestex Research Letter at 3.

[1720] One commenter stated that the exclusive SIPs are ''. . . the primary feed for retail investors.'' *See* Schwab Letter at 2.

[1721] *See infra* Section V.B.3(e) for a discussion of the need for sophisticated use of market data to achieve high quality execution.

[1722] Nasdaq Letter IV at 8.

[1723] For additional details on the uses of proprietary data to be competitive, *see infra* Section V.B.3(e).

[1724] While these market participants are less numerous than, for example, retail investors, this does not mean that their role in the market is less significant. For additional insight on this point, *see* note 1794, which discusses Commission analysis that showed that 91.6% of the message volume on exchanges in a sample week came from just 50 firms. Each of these firms maintained a connection to at least all but one exchange of the 11 exchanges in the sample, which correlates with a relatively high level of sophistication in trading. The fact that the percentage of orders that comes from these firms is so high indicates their significance.

[1725] *See supra* Section V.B.1.

[1726] Once an exclusive SIP is selected, upgrades to that processor's SIP infrastructure are mandated and funded by the Operating Committee of the relevant Equity Data Plan. This comes out of SIP revenues distributed to the SROs.

[1727] The market data revenue allocation formula is summarized at, *e.g.,* UTP Plan, Summary of Market Data Revenue Allocation Formula, *available at http://www.utpplan.com/DOC/Revenue_Allocation_Formula.pdf* (last accessed Jan. 8, 2020). FINRA rebates a portion of the SIP revenue it receives back to broker-dealer internalizers and ATSs based on the trade volume they report. *See* FINRA Rule 7610B. One Roundtable commenter estimated that from 2013 to 2017, through the Nasdaq/UTP plan, the FINRA/Nasdaq TRF gave 83 percent of SIP revenue it received to broker-dealers. *See* Letter from Thomas Wittman, Executive Vice President, Head of Global Trading and Market Services and CEO, Nasdaq Stock Exchange, to Brent J. Fields, Secretary, Commission, at 19 (Oct. 25, 2018).

Exclusive SIP revenues from data fees totaled more than $430 million in 2017.[1728] There are three broad categories of SIP data fees: Access fees, content fees, and distribution/redistribution fees.[1729] An access fee is a flat monthly fee for physical connectivity to SIP data and does not depend on the type of market participant (*e.g.,* market data vendor vs. institutional broker).

There are three categories of content fees that depend on how market participants access SIP data. First, if SIP data is displayed for market participants on computer screens or other devices, the market participant is charged a display fee (a professional or a non-professional subscriber fee depending on the type of market participant). These fees can be per screen displaying the data, per user as part of the multi instance single user (MISU) program, and per application where multiple applications can run on one screen. Second, if SIP data is not displayed on computer screens and instead is directly sent to an automated system such as a trading algorithm or a SOR, then the market participant is charged a non-display fee. Display and non-display fees are monthly fees and entitle the subscriber to an unlimited amount of real-time market information during the month. In 2018, around 65% to 75% of total SIP revenue was accounted for by professional and non-professional display fees, and around 8% to 13% of revenue was accounted for by non-display fees.[1730] A third type of content fee is the query quote fee, which are fees collected from market participants accessing SIP data on a per quote basis. Under the per-query fee structure, subscribers are required to pay an amount for each request for a packet of real-time market information. Around 4% to 10% of total SIP revenue is accounted for by quote query fees in 2018.[1731] Finally, exclusive SIPs charge distribution/redistribution fees when the market data is delivered to a user other than the initial purchaser.

Based on the exclusive SIPs' public disclosures, as of fourth quarter of 2018 there were approximately 2–3 million non-professional subscription use cases and approximately 0.3 million professional subscription use cases across the UTP and CTA/CQ SIPs. Additionally, there were approximately 300 non-display vendor use cases at each of the exclusive SIPs.[1732] The Nasdaq UTP SIP operating expenses totaled around $7 million in 2017.[1733] The CTA/CQ SIP operating expenses totaled around $8.8 million in 2018.

There is a substantial difference between the fees market participants pay for SIP data and the fees they pay for proprietary DOB data products. For instance, monthly non-display fees for data (not including connectivity fees) charged by the CTA/CQ SIP is $2,000 for Network A and $1,000 for Network B,[1734] while monthly non-display fees charged by NYSE for its NYSE Integrated Feed (not including connectivity fees) is $20,000,[1735] which is an order of magnitude larger than the SIP data fee.[1736] Additionally, proprietary data feed fees have increased over the past decade. For instance, SIFMA estimates that between 2010 and 2018 data fees charged by some exchanges went up by three orders of magnitude or more.[1737] In comparison, SIP data fees went up by 5% during the same time period.[1738] Based on Commission staff experience, the Commission understands that the number of subscribers to proprietary market data is relatively small.[1739] The Commission understands that the number of subscribers of proprietary market data and proprietary market data revenues vary across exchanges and that some exchanges obtain a larger percentage than other exchanges of their total market data revenue from proprietary data products (as opposed to revenue from SIP data products). For example, the Commission estimates that in 2018, NYSE collected approximately 5% of its net revenues from selling proprietary market data products. On the other hand, according to the Commission's estimates, Cboe BYX collected approximately 9% of its revenues from selling proprietary market data products.[1740]

As mentioned above,[1741] market participants who purchase proprietary data feeds from multiple SROs may choose to self-aggregate multiple data feeds, or, alternatively, they can purchase already consolidated data from market data aggregators. The exchanges charge a data fee to any market participant that purchases exchanges' data from market data aggregators.[1742]

[1728] *See* Governance Order, *supra* note 1128.

[1729] *See, e.g.,* CTA Plan, Q2 2020 CTA Quarterly Revenue Disclosure, *available at https://www.ctaplan.com/publicdocs/ctaplan/CTA_Quarterly_Revenue_Disclosure_2Q2020.pdf;* Nasdaq UTP Plan, Q2 2020 UTP Quarterly Revenue Disclosure, *available at https://www.utpplan.com/DOC/UTP_Revenue_Disclosure_Q22020.pdf; see also* Letter from Charles M. Jones, Robert W. Lear Professor of Finance and Economics, Columbia Business School, to Brent J. Fields, Secretary, Commission, 15–16 (Oct. 21, 2018) (''Jones Letter'').

[1730] *Id.*

[1731] *Id.*

[1732] *See supra* note 1638.

[1733] Operating expenses for the Nasdaq UTP Plan represent support costs, paid to the SIP, and are a pre-determined amount agreed upon by the Nasdaq UTP Plan's SRO participants. The Nasdaq UTP SIP costs do not include the costs of the exchanges generating the data they send to the Nasdaq UTP SIP. The UTP Plan also incurs administrative costs and other miscellaneous expenses, which together totaled around $3.6 million.

[1734] *See* CTA Plan, Schedule of Market Data Charges (Jan. 1, 2015), *available at https://www.ctaplan.com/publicdocs/ctaplan/notifications/trader-update/Schedule%20Of%20Market%20Data%20Charges%20-%20January%201,%202015.pdf.*

[1735] *See* NYSE Proprietary Data Products, Market Data Pricing (Oct. 16, 2020), at 3, *available at https://www.nyse.com/publicdocs/nyse/data/NYSE_Market_Data_Pricing.pdf.*

[1736] While all of the fees are for non-display purposes, the data content in the CTA/CQ SIP data is different from the NYSE Integrated Feed. The NYSE Integrated Feed is a full DOB feed and provides an order-by-order view of events in the NYSE equities market, whereas the CTA/CQ non-display feed provides consolidated SIP data for Tape A and Tape B securities. *See supra* Section V.B.2(a) (discussing the difference in content between SIP data and proprietary DOB feeds). *See also* NYSE, Real-Time Integrated Feed, *available at https://www.nyse.com/market-data/real-time/integrated-feed* (last accessed Nov. 23, 2020); CTA, Consolidated Tape Association, *available at https://www.ctaplan.com/index* (last accessed Nov. 23, 2020).

[1737] *See* SIFMA Letter 2018.

[1738] SIFMA's study submitted in connection with the Roundtable contained analysis examining the change in fees that some broker-dealers paid for CTA SIP data between 2010 and 2018. The analysis showed that CTA SIP fees for most categories of data increased by an average of 5% between 2010 and 2018. However, the change in the total amount each broker-dealer spent on CTA SIP data varied based on the type of broker-dealer. The analysis found that the average amount of money spent on CTA SIP data by retail broker-dealers declined by 4% between 2010 and 2017, but the average amount spent by institutional broker-dealers increased by 7%. *See id.* at 21–28.

[1739] *See* Proposing Release, 85 FR at n. 140.

[1740] *See infra* Section V.B.2(e). The Commission estimates are based on NYSE and Cboe BYX's Form 1 filings and UTP and CTA/CQ revenue metrics. NYSE's Form 1 filings disclose $968 million as its net revenues in 2018. NYSE's revenues from the SIP redistribution is approximately $47 million. Note 2 to the exchange's financial statements states that NYSE collects market data revenues from the exclusive SIPs and ''to a lesser extent for (sic) New York Stock Exchange proprietary data products,'' indicating that the approximately $47 million in revenues from SIP data could be a benchmark for their proprietary market data revenues. NYSE Form 1, *available at https://www.sec.gov/Archives/edgar/vprr/1900/19003689.pdf* (last accessed Jan. 29, 2020). Similarly, Cboe BYX Form 1 filings report $58 million in net revenues. Of this $58 million, $26 million were market data revenue—approximately $21 million from SIP data revenues and $5 million from proprietary market data revenues. Cboe BYX Form 1, *available at https://www.sec.gov/Archives/edgar/vprr/1900/19003669.pdf* (last accessed Jan. 29, 2020).

[1741] *See supra* Section V.B.2(b).

[1742] Some exchanges charge redistribution fees or their equivalents to market data aggregators and separately, one or more data fees (based on different use cases such as professional or non-professional, display or non-display) to market participants who purchase the exchanges' data from market data aggregators. *See* Virtu Letter I at 16–79 (Exhibit ''A,'' lists of data and connectivity fees by several exchanges).

Therefore, these fees are effectively a part of the total price that a market participant must pay when purchasing data from a market data aggregator. In some cases, these fees may be so high that some market participants cannot afford to self-aggregate proprietary feeds from all exchanges or purchase market data aggregator products.[1743] The Commission believes that more active market makers and some sophisticated broker-dealers including a number of HFT firms and some of the larger banks with proprietary data feed trading desks either self-aggregate or purchase aggregation services or products from third-party vendors.

The Commission understands that the data fees the exchanges charge to market participants that purchase the exchanges' data from market data aggregators may account for a significant portion of the total price market participants pay for the market data aggregators' data products. However, the Commission does not have information on the pricing of market data aggregators' data and cannot break down market data product prices between the direct data fees charged by the exchanges and the fees charged by market data aggregators for their services. The Commission stated this lack of information in the Proposing Release and did not receive the information in the comment letters.

The exchanges also charge fees for various connectivity services they offer (*e.g.,* co-location, fiber connectivity, and wireless connectivity). Connectivity services permit a customer to access an exchange's proprietary market data and/or its trading and execution systems as well as SIP data. The purchase and use of certain connectivity services is necessary to directly access an exchange's market data and to directly participate in that market, at least for those market participants that represent the vast majority of trading activity on exchanges. Additionally, these connectivity services may be needed in order to take advantage of the reduced latencies offered by the proprietary data feeds, including when market participants prefer the contents of SIP data consolidated from the proprietary data feeds—rather than delivered by an exclusive SIP—to avoid additional latencies.

Connectivity fees can be substantial. For instance, the annual fiber connectivity fees per port at the exchanges' primary data centers are $90,000 at Cboe, $120,000 at Nasdaq, and $168,000 at NYSE.[1744] Co-location services may have two components: An initial fee and an ongoing monthly fee based on the kilowatt (kW) usage. For example, at NYSE, an initial fee for a dedicated high-density cabinet that consumes 9kW per month is $5,000, and an ongoing monthly fee per kW is $1,050.[1745] At Nasdaq, an initial fee is $3,500, and an ongoing monthly fee is $4,500.[1746] Thus, for a year of co-location in a dedicated cabinet with 9kW power, these fees add up to over $118,000 for NYSE and over $57,000 for Nasdaq.

(e) Current Aggregate Exchange Revenues From Selling Market Data and Connectivity

The Commission estimates that in 2018 the exchanges earned a total revenue of approximately $941 million from selling both proprietary and SIP market data products and connectivity services in the equities market. In addition, the Commission estimates that the exchanges earned approximately $596 million of this $941 million revenue from selling market data products and approximately $345 million of this revenue from selling connectivity services. With respect to the revenue from market data products, the Commission estimates that in 2018 the exchanges earned approximately $327 million of the $596 million revenue from equity SIP data and approximately $269 million from selling proprietary data products. Further, approximately $63 million of the $327 million equity SIP revenue in 2018 was distributed to FINRA.[1747]

The Commission's estimates above are mainly based on revenue information that the exchanges filed as part of their Form 1 filings.[1748] In addition, the Commission used SIP revenue information disclosed by the CTA/CQ Plans and the Nasdaq UTP Plan in their quarterly revenue disclosures.[1749] Furthermore, because revenue information provided by some exchanges in their Form 1 filings is not sufficiently detailed for this calculation, the Commission had to make certain assumptions in order to derive these estimates. First, the Form 1 filings for NYSE and NYSE MKT combine revenue from connectivity fees with revenue from market data fees. For these exchanges, the Commission derived the revenue earned from connectivity fees by assuming that the revenue that these exchanges earn from proprietary data is slightly smaller than the revenue that they earn from SIP data (based on notes in their Form 1 filings that indicate that SIP revenue exceeds proprietary data revenue). Second, the Form 1 filing for Nasdaq combines revenue from connectivity fees with revenue from transaction fees. The Commission derived the revenue that Nasdaq earned from connectivity fees by assuming that Nasdaq's revenues from connectivity fees and transaction fees were in the same proportion to one another as NYSE's revenues from these two business lines. Third, Form 1 filings for exchanges that offer trading in both equities and options provide revenue information for these two asset classes combined. For these exchanges, the Commission assumed that their combined revenues from market data fees and connectivity fees in the equities market and in the options market were in the same proportion to one another as the market data and connectivity revenues that these exchanges would have earned in each of these markets based on their dollar volume market share (as compared to the dollar volume market share of the exchanges that trade only equities or only options).

(f) Current State of National Best Bid or Offer Dissemination

Some commenters characterized the current process for dissemination of the NBBO as being based on a universally trusted source in the form of the exclusive SIPs, upon which all market participants heavy rely.[1750] Commenters also suggested that the introduction of ''multiple NBBOs'' into the market would be a significant departure from current market practice.[1751] The Commission disagrees with this characterization of the relevant baseline for the final amendments. As mentioned

[1743] *See, e.g.,* Roundtable Day One Transcript at 128–29 (Mark Skalabrin, Redline Trading Solutions).

[1744] *See* Letter from Brad Katsuyama, CEO, Investors Exchange LLC, to Brent J. Fields, Secretary, Commission, at Table 7 (Jan. 29, 2019) (''Katsuyama Letter II'') (10Gb fiber connectivity).

[1745] *See* NYSE price list 2020, *supra* note 1434.

[1746] *See* Nasdaq, Price List—Trading Connectivity, *available at https://www.nasdaqtrader.com/Trader.aspx?id=PriceListTrading2* (last accessed Dec. 19, 2019).

[1747] When taking this $63 million into account, total SIP revenues shared by SROs were approximately $390 million in 2018, which is consistent with the $430 million estimate for 2017 provided in the Proposed Governance Order (which also included the amount paid to the plan processor). *See supra* note 1728 and accompanying text. This estimate is also consistent with the $387 million estimate for 2017. *See* Jones Letter, *supra* note 1729 at 25.

[1748] *See* Commission, National Securities Exchange Periodic Amendments to Form 1 (Modified June 20, 2019), *available at https://www.sec.gov/rules/national-securities-exchanges-amendments.htm* (providing links to exchanges' Form 1 filings).

[1749] *See supra* note 1729.

[1750] *See, e.g.,* Nasdaq Letter IV at 3.

[1751] *See, e.g.,* Nasdaq Letter IV at 11; TD Ameritrade Letter at 12.

in the Proposing Release,[1752] today, at any given instant of time, there can be differences between various market participants in what they observe to be the prevailing NBBO. These differences arise because of the geographic dispersion of the exchange data centers and the differences in latency between consolidated market feeds produced by the SIPs and those produced through the use of proprietary data feeds. Furthermore, the amount of time that typically elapses before the differences are corrected is meaningful to market participants.

Geographic latency means that even if all market participants relied on the exclusive SIPs, there would still be differences in what market participants observed to be the prevailing quote. For example, suppose the CTA/CQ SIP receives an update about the prevailing NBBO in a given stock. That information must still be disseminated to the various broker-dealers at the different data centers. At a minimum, there will be broker-dealers located in Mahwah, Secaucus and Carteret who will all be interested in seeing the new quote. The exclusive SIP distributes the quote to each of the data centers at the same time, but since these are in different locations, the quotes will arrive at different times.[1753] Therefore, as many as three different quotes for the same stock could be observed to be the NBBO in that stock at these three locations at a given instant in time, at least for market participants who are latency-sensitive enough to detect such differences.

On top of this basic geographic latency source of differing NBBOs, the latency differential that exists between NBBOs obtained from the exclusive SIP and NBBOs produced by consolidating proprietary feeds [1754] further contributes to the discrepancies in market views possessed by market participants.

Market participants have adapted to this state of affairs. For example, some of the concern in the market about obtaining fast market data is directly connected to the existence of multiple NBBOs.[1755] Market participants often use co-location in order to be closer to the trading center and thereby receive updates with less delay than they would experience if they were located elsewhere, in order to prevent themselves from acting on stale NBBO quotes that may be different from the NBBO prevailing at the trading center.[1756] In addition, the inspection and enforcement conducted by SROs with regard to best execution obligations has evolved to consider this phenomenon. Specifically, SRO inspections typically request data from a broker-dealer in evaluating whether a violation has occurred.[1757] Also, the Commission has stated that for the Order Protection Rule a trading center ''. . . will be assessed based on the times that orders and quotations are received, and trades are executed, at that trading center.'' [1758] This statement reflects the fact that the inevitable latency differential between two trading centers means that there may be multiple NBBOs in the market depending on which trading center one is at. Also, the lookback provision of Rule 611 [1759] recognizes that an observed NBBO may not be the current prevailing NBBO.[1760] As detailed above, the potential for multiple NBBOs has been understood and dealt with for some time, and therefore should not be problematic for market participants.

3. Competition Baseline

This section discusses, as it relates to this rulemaking, the current state of the market for core and SIP data products, the market for proprietary data products, the market for connectivity services, and the market for trading services as well as broker-dealers' competitive strategies for trading services.

(a) Current Structure of Market for Core and SIP Data Products

Under the Equity Data Plans, SIP data is collected, consolidated, processed, and disseminated by the exclusive SIPs.[1761] Equity Data Plan Operating Committees, which are composed of the SROs, set the fees the exclusive SIPs charge for SIP data.[1762] Any revenue earned by the exclusive SIPs, after deducting their operating costs and FINRA's OTC oversight costs, is split among the SROs. FINRA rebates a portion of the exclusive SIP revenue it receives back to broker-dealers based on the trade volume it reports.[1763] The nature of the Equity Data Plan Operating Committee's responsibilities can create a conflict of interest for the SROs, as discussed above.[1764]

Each Equity Data Plan selects a single exclusive SIP through a bidding process to be the exclusive distributor of the plan's data.[1765] This grants the SIP a monopoly franchise in the distribution of the plan's data, which means that the SIPs are not subject to competitive forces that would produce more efficient outcomes. The Commission acknowledges that some economic theory would point to the opposite conclusion, but does not believe that it applies here. In particular, a paper by Demsetz would predict that the current monopolistic structure is most efficient.[1766] In industries where there are economies of scale, a monopoly franchise structure may lead to the most efficient means of production. This profile applies to the distribution of core data because of the high fixed costs.[1767] Demsetz (1968) argues that just because an industry has a monopolistic provider of a service does not mean that it is not subject to competitive forces. In particular, Demsetz (1968) argues that if the monopolistic provider of a service is subject to competition in the bidding process it could provide sufficient competitive incentives to achieve a competitive outcome. However, many theories provide examples of situations in which the monopoly franchise structure is less efficient than other structures.[1768] The Commission does not believe that the exclusive SIP bidding process provides sufficient

[1752] *See* Proposing Release, 85 FR at 16845.

[1753] While they will likely all arrive within roughly a millisecond of each other, this is still a meaningful discrepancy in today's markets.

[1754] *See supra* Section V.B.2(b) for a discussion of the types of latencies.

[1755] *See supra* Section V.B.2(b) for discussion of the value of speed in trading and data access. In that section, the Commission discussed the value of being faster than one's competitors. One way in which this is relevant is that if a competitor's order executes against the NBBO before some other competitor, then the second competitor's order will arrive at the trading center based on information about the NBBO that is no longer true at the time that the order arrives.

[1756] *See* MEMX Letter at 6 stating that because inherent geographic differences ''. . . market participants may each have a different view of market data and events based on where they are located and the technologies and telecommunication techniques used.''

[1757] *See supra* Section III.B.10(d). Also, FINRA Rule 4554 requires that ATSs report the NBBO in effect at the time of order execution and the timestamp of when the ATS captured the effective NBBO.

[1758] *See* Regulation NMS Adopting Release, 70 FR at 37523, note 215.

[1759] 17 CFR 242.611(b)(8) (Rule 611(b)(8)) provides a one-second ''window'' prior to a transaction, which allows a trading center to trade at any price equal to or better than the least aggressive best bid or best offer displayed at another trading center during the previous second.

[1760] *See* Regulation NMS Adopting Release, 70 FR at 37523.

[1761] *See* Proposing Release, 85 FR at Section II.A, for discussion of these issues in the Proposing Release.

[1762] *See supra* note 1726 and accompanying text.

[1763] *See supra* note 1727.

[1764] *See supra* Section V.A.2.

[1765] *See supra* Section IV.A.

[1766] *See* Harold Demsetz, *Why Regulate Utilities*?, 11 J.L. & Econ. 55 (1968) (''Demsetz (1968)'').

[1767] *See infra* note 1797 and accompanying text.

[1768] *See, e.g.,* Oliver E. Williamson, *Franchise Bidding for Natural Monopolies—in General and with Respect to CATV,* 7 Bell J. Econ. 73 (1976) (discussing why bidding for monopolies may not work well); Robin A. Prager, *Firm behavior in franchise monopoly markets,* 21 Rand J. Econ. 211 (1990).

competitive incentives for two reasons. First, the bidding process could be subject to conflicts of interest since some of the SROs voting to select the exclusive SIP are also bidding to be the SIP. Second, the contracts are not bid out regularly, so there may not be a significant chance that the current exclusive SIP will be replaced. Therefore, the Commission does not believe that the bidding process for exclusive SIPs is likely to produce the most efficient outcome and subject the exclusive SIPs to competitive forces.

In the Proposing Release, the Commission stated that historically there were not a large number of bidders for SIP tenders, and listed this as one of three reasons why the Commission does not believe that the exclusive SIP bidding process provides sufficient competitive incentives in the above discussion. Since then, the Commission has come to understand that there were 11 bidders for the UTP tender offer in 2014.[1769] Based on this new understanding, the Commission no longer believes that the process bidding for SIP tenders may be hindered by the number of bidders. However, the first two reasons discussed, namely, conflicts of interest and lack of regular new bidding on the contract, are sufficient reasons for the Commission to continue to believe that the bidding process may not be adequately competitive. Thus, the Commission continues to believe that the conclusions of Demsetz (1968) do not apply in this case, as discussed above.

The exclusive SIPs have significant market power in the market for core and aggregated market data products and are monopolistic providers of certain information, which means that for all such products they would have the market power to charge supracompetitive prices. Fees for core data are paid by a wide range of market participants, including investors, broker-dealers, data vendors, and others.

One reason the exclusive SIPs have significant market power is that, although some market data products are comparable to SIP data and could be used by some core data subscribers as substitutes for SIP data in certain situations, these products are not perfect substitutes and are not viable substitutes across all use cases. For example, as mentioned above, some market data aggregators buy direct depth of book feeds from the exchanges and aggregate them to produce products similar to SIP data.[1770] However, these products do not provide market information that is critical to some subscribers and only available through the exclusive SIPs, such as LULD plan price bands and administrative messages.[1771] Additionally, some SROs offer TOB data feeds, which may be considered by some to be viable substitutes for SIP data for certain applications.[1772] However, broker-dealers typically rely on the SIP data to fulfill their obligations under Rule 603 of Regulation NMS, *i.e.,* the ''Vendor Display Rule,'' which requires a broker-dealer to show a consolidated display of market data in a context in which a trading or order routing decision can be implemented.[1773]

The purchase of SIP data or proprietary market data from all exchanges, either directly or indirectly, is necessary for all market participants executing orders in NMS stocks.[1774] SROs have significant influence over the prices of most market data products. For example, the exchanges individually set the pricing of the TOB data feeds that they sell to market data aggregators and broker-dealers that self-aggregate who in turn generate consolidated data. At the same time, SROs collectively, as participants in the national market system plans, decide what fees to set for SIP data.[1775] Although market data aggregators might compete with the exclusive SIPs by offering products that provide consolidated data, they ultimately derive their data from the exchanges' direct proprietary data feeds, whose prices are set by the exchanges, a subset of SROs.[1776]

Regarding the level of competition among non-SRO market data aggregators that sell consolidated data to market participants, the Commission currently does not have an estimate of the number of players in this market and does not know how specialized these players are.[1777]

The production of both core data and proprietary data feeds involves relatively high fixed costs and low variable costs.[1778] Fixed costs are composed of, among others, costs to set up infrastructure, regulatory approval costs, software development costs, administrative costs and overhead costs, while variable costs include costs to contract with and establish connectivity to each customer. Importantly, fixed costs of the production of both core data and proprietary data feeds are not specific to the production of data but also support the exchanges' other services such as intermediating trade. In such markets, the firms have additional incentives to increase the number of their customers in order to spread the fixed cost across a larger base of consumers.

(b) Current Structure of Market for Proprietary Market Data Products

In addition to SIP data, the exchanges voluntarily disseminate proprietary data

[1769] *See* UTP *Operating Committee Selects Nasdaq as Processor Announcement,* Jordan & Jordan, *available at, https://www.jandj.com/sites/default/files/library/UTP_SIP_Processor_Announced_2014.pdf.*

[1770] The feeds produced by market data aggregators offer additional features, such as lower latency, but usually cost more than SIP data. *See* Roundtable Day One Transcript at 126–29 (Mark Skalabrin, Redline Trading Solutions).

[1771] *See* Proposing Release, 85 FR at Sections III.D, III.E. One commenter agreed, stating that because the exclusive SIPs are the sole source of such messages, many market participants must purchase both proprietary and exclusive SIP feeds. *See* MEMX Letter at 3.

[1772] In the equity markets, the top of book feeds offered by the SROs are usually cheaper than SIP data. However, they may only contain information from one exchange, or one exchange family. *See, e.g.,* Nasdaq Basic, *supra* note 1651; CBOE One, *supra note* 9 at n. 19; NYSE BQT, *https://www.nyse.com/market-data/real-time/nyse-bqt;* TD Ameritrade Letter 2018, *supra* note 1651 (stating that the lower cost of exchange TOB products, coupled with costs associated with the process to differentiate between retail professionals and non-professionals imposed by the SIP Plans, and associated audit risk, favors retail broker-dealer use of exchange TOB products).

[1773] *See* Vendor Display Rule, Rule 603 of Regulation NMS; Proposing Release, 85 FR at Section IV.B.2(a).

[1774] For example, 17 CFR 242.611(a) (Rule 611(a)) of Regulation NMS requires trading centers to establish policies and procedures to prevent trade-throughs. In order to prevent trade-throughs, executing broker-dealers need to be able to view the protected quotes on all exchanges. They can fulfill this requirement by using SIP data, proprietary data feeds offered by the SROs, or a combination of both.

[1775] *See supra* Section V.B.1.

[1776] Pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder, SROs must file with the Commission proposed rules, in which they set prices for their direct feed data. Those prices can vary depending on the type of end user.

[1777] The Commission understands that certain entities from the list of market data vendors published on Nasdaq's website currently perform the market data aggregator function. *See* Proposing Release, 85 FR at n. 516. This list does not provide a lower bound on the number of such entities because the list includes firms that the Commission believes are unlikely to perform high-speed data aggregation. The list is also not an upper bound because the Commission does not believe that all firms performing market data aggregation are listed. While the Commission does not have the number of data aggregators, the Commission has analyzed the effects on such parties qualitatively. The Commission does not have this information because data aggregators are not required to register with the Commission and/or identify themselves as data aggregators. Additionally, the Commission requested this information and did not receive any comments providing estimates of the number of data aggregators. While Commission does not have quantitative information, the Commission does have the insights discussed in this section and believes that these insights are sufficient to support our analysis in this section.

[1778] *See, e.g.,* Paul M. Romer, *Endogenous Technological Change,* 98 J. Pol. Econ. S71–102 (1990) (pointing out that information is fundamentally distinct from other goods because it has a fixed cost of discovery and a near zero cost of replication).

and charge fees for this data.[1779] Proprietary data fees have increased over the past decade.[1780] SIFMA estimates that, for some broker-dealers, data fees charged by some exchanges went up by three orders of magnitude or more between 2010 and 2018.[1781] One commenter disagreed with this estimate by comparing it to a separate estimate obtained for increases in market data revenue of 78.4% for Nasdaq over the same period (including both revenue from exchange data and non-exchange data products).[1782] The Commission does not believe there is necessarily any contradiction from the contrast in these estimates, since fees for some broker-dealers for market data are not the same thing as Nasdaq revenue for market data products, because the latter of these contains revenue from all broker-dealers as well as market participants who are not broker-dealers who purchase data from Nasdaq, and it is possible that not all these entities purchase the same set of data products. Correspondingly, exchanges' revenues from selling proprietary data and connectivity services also increased over the last several years. For example, Budish, et al. (2019) observe that exchanges earn significant revenues from selling proprietary data (a range of $555.4–$623.0M in 2015 by their estimate), as well as connectivity services (a range of $436.8–$484.8M in 2015 by their estimate).[1783] According to NYSE's Form 1 filings, its revenues from data services (including connectivity revenues but excluding SIP data revenues) increased approximately 93% from 2014 to 2018. Similarly, Nasdaq's Form 1 filings show an approximately 21% increase in their revenues from data services (excluding revenues from connectivity services and SIP data revenues).[1784] On the other hand, during the same period, revenues distributed back to NYSE by the exclusive SIPs increased approximately 18% and the revenues distributed back to Nasdaq increased approximately 12%. The exchanges' differences in their reporting of these numbers make it difficult to compare revenue numbers across exchanges. However, for both of these exchanges, their revenues from the proprietary data and connectivity business have been growing faster than the revenues they collect from SIP data.[1785]

Indicia that exchanges may not be subject to robust competition include that many broker-dealers state that even in the face of increasing proprietary data fees they feel compelled to buy proprietary data to be able to provide competitive trading strategies for their clients.[1786] Additionally, some academic research suggests that each particular exchange's proprietary data has no substitutes for some uses of the data and no perfect substitutes for any uses.[1787] For example, Budish et al. (2019) conclude that each exchange has market power with respect to the data products (and the speed technology) specific to that particular exchange because of a lack of substitutes for many applications of their data.[1788]

A commenter stated that there is competition between exchanges for proprietary data products as part of their overall competition for order flow.[1789] While it is true that exchanges compete for order flow, they are the sole source of data from their own exchange. Many market participants use a full view of the market in order to route orders effectively, regardless of whether or not they end up sending the order to any particular exchange. The Commission understands that some market participants may combine the exclusive SIPs with proprietary feeds in order form a complete view of the market, but this comes with disadvantages, as discussed elsewhere in this release.[1790]

This commenter also stated in reference to the question of competition in the provision of proprietary data that ''the Commission's analysis is incomplete and flawed because it fails to appropriately analyze competition between trading platforms, and never considers the all-in price of trading in its discussion.'' [1791] The Commission does not believe that its analysis presented on this issue is incomplete or

[1779] *See supra* Section V.B.2(a) for details on these proprietary feeds.

[1780] Some commenters agreed that fees have increased. *See, e.g.,* Virtu Letter at 2; Clearpool Letter at 2.

[1781] *See* SIFMA Letter; *see also* Virtu Letter I at 4 (discussing double ''dipping'' on fees by the exchanges).

[1782] *See* Nasdaq Letter IV at 29.

[1783] *See* Eric Budish, et al., *Will the Market Fix the Market? A Theory of Stock Exchange Competition and Innovation,* (Univ. of Chi., Becker Friedman Inst. for Econ., Working Paper No. 2019–72, May 2019), *available at https://ssrn.com/abstract=3391461* (Retrieved from SSRN Elsevier database).

[1784] Nasdaq submitted estimates for Nasdaq's increase in revenue from exchange and non-exchange data products of 78.4% over the period from 2010 and 2018, and an increase of 62.4% for revenue from connectivity services from 2010 to 2018. *See* Nasdaq Letter IV at 29.

[1785] According to its 2014 Form 1 filing, NYSE collected approximately $138 million as market data revenues, covered under the ''data services fees'' income statement line item. According to the notes to NYSE's financial statements, these market data revenues include proprietary data revenues, SIP data revenues, and revenues from connectivity services. NYSE's same revenue line item increased to approximately $236 million by the end of 2018. Whereas during this same time period, the revenues NYSE collected from the exclusive SIPs went from approximately $40 million to approximately $47 million. Nasdaq's 2014 Form 1 filing discloses approximately $206 million in ''information services'' line item in its income statement. According to the footnotes to its financial statements, this line item includes Nasdaq's market data revenues and redistributed SIP revenues but does not include connectivity service revenues. In its 2018 Form 1 filing, Nasdaq disclosed $242 million in revenues under the same information services line item. During the same time period, Nasdaq's SIP data revenues went up from approximately $76 million to $85 million, a smaller revenue increase relative to its market data revenues.

[1786] *See, e.g.,* SIFMA Letter at 2 (''[W]e do not believe that the SIPs currently provide the necessary data to market participants at the requisite speed to efficiently trade in today's high speed and automated marketplace. As a result, many broker-dealers, asset managers and other market participants are forced to purchase proprietary data feeds from individual exchanges to create a consolidated and robust view of the market, while additionally bearing the economic burden of having to purchase consolidated data from the SIPs. This results in an enormous cost burden on the marketplace and creates a two-tiered market for market data by limiting access to critical market data at the fastest speeds to those who can afford to pay the exorbitant fees charged for it by the exchanges.''); MFA Letter at 2 (''Today, the current exclusive SIP model and content of core data does not serve the needs of investors, many of whom must subscribe to the exchanges' proprietary market data feeds at considerable additional cost to trade effectively, while others are forced to rely on inferior information and outdated technology.''); State Street Letter at 2 (''. . . regulatory obligations and customer expectations related to best execution, transaction cost analysis, transparency and market competition generated further need for data that is unavailable on the SIPs. As a result, market participants have become increasingly dependent on proprietary data feeds marketed by the exchanges outside of the SIPs.''); Capital Group Letter at 2 (''Over the last 15 years, the discrepancy in data elements and latency between proprietary feeds and the consolidated tape has expanded such that the SIP is no longer a realistic tool for institutional investors or broker-dealers in meeting their respective best execution obligations when routing orders.''). *See also* Roundtable Day One Transcript at 198–199 (Joseph Wald, Clearpool) (''Clearpool and other broker-dealers are compelled to purchase exchanges' proprietary data feeds, both to provide competitive execution services to our clients and to meet our best execution obligations due to the content of the information contained in the proprietary data feeds as well as the latency differences between them, which are major and important considerations for brokers.'').

[1787] These points are supported by some commenters. *See, e.g.,* BestEx Research Letter at 2, 4 (''. . . exchanges do not compete on market data fees since each is an exclusive provider of their own, indispensable content.'') and DOJ Letter at 4, stating that characteristics of proprietary data feeds ''. . . would tend to indicate that Prop Data products lack substitutes, which would in turn enable the exchanges to exercise market power in determining their pricing of these products because they are the only data provider in their own markets.''

[1788] *See* Eric Budish et al., *supra* note 1783. *See also* Glosten, *Economics of the Stock Exchange Business: Proprietary Market Data,* (Jan. 2020), *available at: https://ssrn.com/abstract=3533525* (Retrieved from SSRN Elsevier database).

[1789] *See, e.g.,* Nasdaq Letter IV at 48.

[1790] *See supra* Section V.B.2(b).

[1791] Nasdaq Letter IV at 29.

flawed for not including the all-in cost of trading because market data and trading services, although related, are not the same thing.[1792] For example, it is conceivable that market participants may want data from an exchange even if they never route orders to that exchange. In such a case, the cost of trading on that exchange is not even relevant to that market participant. Therefore, whether exchanges face robust competition in the market for their proprietary data products can be determined by considering the indicia discussed above (among other things) and without consideration of other costs of trading, which include not only other SRO products, but often products and services provided by additional third-party vendors. Because of these considerations, the Commission also does not believe that the metric offered by one commenter [1793] produced by dividing one exchange group's total revenue by its total dollar trading volume is necessarily relevant to the question of robust competition and pricing in the market for proprietary data products. Specifically, this revenue includes revenue across all businesses, not just market data, and the value of considering this revenue on a per trade basis at this exchange group is unclear.

(c) Current Structure of Market for Connectivity Services

Exchanges are exclusive providers of their own connectivity services, and for many market participants, effective trading strategies require connection to many if not all of the exchanges, making their demand for these connectivity services less elastic (*i.e.,* less sensitive to price changes). The Commission examined data on exchange orders that shows that large broker-dealers (as measured, for example, by the number of messages sent to exchanges) connect to all or almost all exchanges.[1794] This is consistent with Roundtable participants' stated view that in order to avoid a competitive disadvantage, market participants have little choice but to purchase direct connectivity services from multiple SROs.[1795]

As mentioned above, the exchanges offer different connectivity options to transmit market data to market participants. These options may include fiber optics connections, wireless microwave connections, and laser transmission, all of which vary in speeds and reliability.[1796] The fastest and more reliable connections (*e.g.,* laser transmission) offer market participants an advantage over other market participants with slower or less reliable connections. Therefore, the Commission believes that the exchanges have incentives to offer multiple levels of connectivity and exchanges can charge higher prices for the fastest connections.

(d) Current Structure of the Market for Trading Services in NMS Stocks

The market for trading services is served by exchanges, ATSs, and liquidity providers. The market relies on competition to supply investors with execution services at efficient prices. These trading venues, which compete to match traders with counterparties, provide a framework for price negotiation and disseminate trading information. The market for trading services in NMS stocks currently consists of 16 national securities exchanges, as well as off-exchange trading venues including wholesalers [1797] and 34 NMS stock alternative trading systems.[1798]

Since the adoption of Regulation NMS in 2005, the market for trading services has become more fragmented. The number of exchanges increased from eight in 2005 to 16 exchanges operating today.[1799] Additionally, the market shares of individual exchanges became less concentrated, with a shift in market shares from some of the bigger and older exchanges to the newer ones.[1800] For instance, from 2005 to 2013, there was a decline in the market share of trading volume for exchange-listed stocks on NYSE.[1801] At the same time, there was an increase in the market share of newer national securities exchanges such as NYSE Arca, Cboe BYX, and Cboe BZX.[1802]

Additionally, the proportion of NMS stocks trading off-exchange (which includes both internalization and ATS trading) increased; for example, as of July 2020, ATSs alone comprised approximately 10 percent of consolidated dollar volume, and other off-exchange volume totaled approximately 23 percent of consolidated dollar volume.[1803] Aside from trading venues, exchange market makers provide trading services in the securities market. These firms stand ready to buy and sell a security ''on a regular and continuous basis at a publicly quoted price.'' [1804] Exchange market makers quote both buy and sell prices in a security held in inventory, for their own account, for the business purpose of generating a profit from trading with a spread between the sell and buy prices. Off-exchange market makers also stand ready to buy and sell out of their own inventory, but they do not quote buy and sell prices.[1805]

Trading venues can rely on the SIP, proprietary feeds, or a combination of both to determine the NBBO for the purposes of trade execution. One commenter observed that over one third of ATSs exclusively rely on the SIP when determining trade prices and that other ATSs used the SIP as a backup and in place of the direct feeds from some exchanges.[1806]

All of these developments increased the competitiveness of the market for trading services in NMS stocks. However, the Commission recognizes that while the market is more competitive, the actual level of competition that any given trading venue faces may depend on multiple factors including the liquidity of a stock

[1792] The relevant analysis was presented in the Proposing Release, 85 FR at Section VI.B.3(b). *See* Proposing Release, 85 FR at Section VI.B.3(d) for a discussion of trading services and the market for their provision.

[1793] *See* Nasdaq Letter IV at 30.

[1794] Based on the sample of audit trail data made available to the Commission by FINRA, firms that are connected to all exchanges account for 76.6% of the message volume (there are 37 such firms out of a total of 327 firms in the sample). Firms that are connected to at least all but one of the exchanges account for 91.6% of the message volume (there are 50 such firms). The FINRA data sample covers the week of December 5, 2016, and includes messages sent to 11 exchanges (NYSE National and Chicago Stock Exchange are not part of this sample).

[1795] *See* Proposing Release, 85 FR at Sections III.C.2.(a), II.A.

[1796] *See* Proposing Release, 85 FR at Section II.A.

[1797] Wholesalers are broker-dealers that pay retail brokers for sending their clients' orders to the wholesaler to be filled internally (as opposed to sending the trade orders to an exchange). Typically, a wholesaler promises to provide price improvement relative to the NBBO for filled orders.

[1798] As of November 23, 2020, 34 NMS stock ATSs are operating pursuant to an initial Form ATS–N. A list of NMS stock ATSs, including access to initial Form ATS–N filings that are effective, can be found at *https://www.sec.gov/divisions/marketreg/form-ats-n-filings.htm.*

[1799] *See* Proposing Release, 85 FR at n. 660.

[1800] *See* Letter from Edward T. Tilly, Chairman and Chief Executive Officer, Cboe, to Brent J. Fields, Secretary, Commission (May 25, 2018), at n. 9.

[1801] *See* Securities Exchange Act Release No. 76474 (Nov. 18, 2015), 80 FR 80998, 81112 (Dec. 28, 2015) (Regulation of NMS Stock Alternative Trading Systems Proposing Release).

[1802] *Id.*

[1803] Data sources: TAQ and FINRA's OTC Transparency Data weekly summaries (*https://otctransparency.finra.org/otctransparency/AtsDownload*). Due to FINRA's weekly aggregation, the actual sample is 03/30/2020 through 06/26/2020 (*i.e.,* the last two working days of March are included, and the last two working days of June are excluded).

[1804] *See* Commission, Fast Answers: Market Maker (modified Mar. 17, 2000), *available at http://www.sec.gov/answers/mktmaker.html.*

[1805] *See* Laura Tuttle, *OTC Trading: Description of Non-ATS OTC Trading in National Market System Stocks,* Securities and Exchange Commission (Mar. 2014), *available at http://www.sec.gov/dera/staff-papers/white-papers/otc-trading-white-paper-03-2014.pdf.*

[1806] *See* BestEx Research Letter at 3.

as well as the type of trading venue and market participant engaging in the trade.

(e) Broker-Dealers' Competitive Strategies for Trading Services

While many market participants use market data to make investment decisions, not all market participants are equally competitive in how they trade based on this data. Some broker-dealers and other latency sensitive traders utilize sophisticated routing tools to strategically decide how to fill an order, including when and where to submit the order, how to split a larger order (*i.e.,* into how many pieces, or ''child orders'' [1807]), how large the child order sizes should be, and what order type(s) should be used, *e.g.,* whether to use a market order, limit order, or some other order type. The strategies employed by broker-dealers and other latency sensitive traders in this regard are designed to secure the best possible execution price(s) for an order. For example, the methodologies utilized in trading orders can impact the price of the stock being purchased or sold in a manner that can increase or decrease its execution cost. Commenters stated that the trend towards higher proprietary data fees has had a negative impact on the market, such as making it more difficult for broker-dealers to compete.[1808]

Broker-dealers in particular compete with each other to provide the lowest possible execution costs for their clients (*i.e.,* high execution quality) as quickly as possible.

An example of routing tools as noted above is an SOR. SORs employ the use of algorithms (*e.g.,* by broker-dealers on behalf of a client) designed to optimally send parts of an order (child orders) to various market centers (*e.g.,* exchange and ATSs) so as to optimally access market liquidity while minimizing execution costs. SORs help to determine how to quickly access (''take'') available market liquidity before other market participants, and help to determine how to strategically place limit orders to optimize queue priority across various limit order books among exchanges. The ability to optimize queue priority facilitates the ability for a broker to ''capture the quoted'' spread, *i.e.,* buy on the bid or sell on the offer, while also potentially benefitting from exchange rebates paid to liquidity providers.

The Commission understands that data beyond the NBBO with minimal latency are important inputs [1809] to strategies designed to optimize the ability to access market liquidity and minimize execution costs. Further, the Commission understands that competing with the most effective SORs is more difficult without possessing real-time market data while minimizing data latency,[1810] and that those traders who do not access trading tools that utilize comprehensive market data with low-latency experience higher execution costs on average.

One commenter stated that the association of broker-dealers with proprietary data feeds represents behavior that is ''largely window-dressing,'' and that broker-dealers still rely heavily on the SIP.[1811] This commenter also stated that many broker-dealers have ''. . . layers of market data normalization and aggregation by third-party vendors'' which further increase the latency of the data as it is used.[1812] To the extent this it is the case that any current subscriber of proprietary data feeds does not, in fact, make good use of them according to the most competitive standards, the Commission believes it represents a further way in which more capable users of market data are separated from less capable users of market data, and not an indication that proprietary market data feeds are of no real advantage to any broker-dealer.

C. Economic Effects of the Rule

1. Consolidated Market Data

The Commission believes that the enhancements to consolidated data will result in numerous beneficial economic effects. These economic effects derive from codifying the definition of core data, from redefining the round lot, and from expanding the content of core data.

The change will have the benefit of mitigating the influence of existing conflicts of interest inherent in the existing exclusive SIP model.[1813] The change reduces the divergence between exchanges' proprietary DOB products and current SIP data because it establishes data elements that competing consolidators can include in their consolidated market data products.

One commenter stated that the claim that the expansion of core data mitigates conflicts of interest fails to consider the fact that the Governance Order gives some non-SRO market participants voting power on the effective national market system plan(s) Operating Committee.[1814] This commenter stated that the non-SROs would have a conflict of interest and that this needs to be considered when discussing any conflicts mitigated by the rules. The Commission disagrees with this commenter's assessment. It is not clear how the introduction of non-SRO votes to the Operating Committee and their associated interests are relevant to the question of whether or not the expansion of core data will mitigate the conflicts of interests of the SRO members of the Operating Committee. As discussed above,[1815] the Governance Order will reduce, but not eliminate the conflicts of interest of the SROs on the Operating Committee. The potential for further mitigation of the influence of those conflicts remains and the Commission continues to believe that the expansion of core data will have that benefit.

(a) Definitions of Consolidated Market Data, Core Data, Administrative Data, and Regulatory Data

The Commission's definitions of ''consolidated market data,'' ''consolidated market data product,'' ''core data,'' ''regulatory data,'' ''administrative data,'' and ''self-regulatory organization-specific program data'' under Regulation NMS will specify the quotation and transaction information in NMS stocks that can be collected, consolidated, and disseminated under rules of the national market system and pursuant to an effective national market system plan(s). This definition will codify the dissemination of certain current SIP data elements, and will include some additional data elements, but will not include some data that the exclusive SIPs currently disseminate. This section discusses the secondary economic effects of this expansion to consolidated market data that will come from codifying the inclusion of some current SIP data in ''consolidated market data,'' while subsequent sections discuss the economic effects of the new round lot definition and expanding the content of core data. These secondary effects are

[1807] ''Child order'' refers to a smaller order that was a piece of a larger ''parent'' order.

[1808] *See, e.g.,* Clearpool Letter at 2 (''. . . of all the issues relating to the costs of trading, the trend toward higher market data fees has had the most negative impact on the securities markets. It remains increasingly difficult for many broker-dealers to compete in the current market environment due, in part, to issues related to the costs associated with trading.'').

[1809] In addition to such data, the Commission believes that there are also ongoing significant personnel and technological costs to producing a sophisticated, competitive SOR.

[1810] Some commenters supported the idea that proprietary data is important in order to be competitive in offering executing brokerage services. *See, e.g.,* Healthy Markets Letter I at 5; T. Rowe Price Letter at 1.

[1811] *See* BestEx Research Letter at 3.

[1812] *See* BestEx Research Letter at 4.

[1813] *See supra* Section V.A.2. for a discussion of these conflicts of interest.

[1814] *See* Nasdaq Letter IV at 49.

[1815] *See supra* Section III.I.

providing flexibility to the Equity Data Plans for including new data elements, requiring that regulatory data will continue to be provided in the decentralized consolidation model, cost to update the national market system plan(s), and costs to obtain data that is currently in SIP data but will not be included in consolidated market data, such as data on information related to OTC equities, certain corporate bonds, and indices.[1816]

The Commission believes the definitions of ''self-regulatory organization-specific program data,'' ''regulatory data'' and ''administrative data,'' along with the ability for the Equity Data Plan(s) to add elements to these proposed definitions, will promote regulatory efficiency by providing flexibility for consolidated market data to include data elements beyond those explicitly defined as ''consolidated market data.'' It provides a mechanism for the participants in the national market system plan(s) to propose to add additional data elements, such as elements similar to current retail liquidity programs. This will allow for organic change in consolidated market data that may become useful due to future market and regulatory developments. Further, while the underlying data content of ''regulatory data'' is currently included in disseminated SIP data, the definition of ''regulatory data'' will help ensure that market participants continue to have access to this information as part of consolidated market data.[1817]

The Commission recognizes that the Equity Data Plan(s) will incur one-time initial implementation costs in ensuring the plans are consistent with the proposed definitions of ''consolidated market data,'' ''core data,'' ''administrative data,'' ''regulatory data,'' and ''self-regulatory organization-specific program data,'' but the plans will not incur significant ongoing costs as a result of the codification of these five definitions.[1818] These initial implementation costs will come from the Operating Committees needing to draft revisions to their respective plans that are consistent with the proposed definitions.

The Commission believes that not including some data elements that the exclusive SIPs currently transmit[1819] in the definition of ''consolidated market data'' may have some costs to those market participants who would want to arrange to get this data elsewhere.[1820] The UTP SIP offers quotation and transaction feeds for OTC equities, and the CTA Plan permits the dissemination of ''concurrent use'' data related to corporate bonds and indexes.[1821] Under the amendments, these data elements will not be defined as consolidated market data or core data elements. However, the amendments will not preclude the provision of these data elements by the SROs via proprietary data products to market participants and investors who wish to receive them.

One commenter stated that not including quotation and transaction data for OTC equities in consolidated market data may reduce market participant access to this data and would increase both the costs to the SRO to provide the data and the costs of market participants to acquire it.[1822] This commenter also stated that, because OTC equities may become listed and become NMS stocks and vice versa, not providing this data in the same feed as core data could result in a disruption of market data when a security switches between being listed and unlisted and investors or market participants are not subscribed to both services providing core data and data for delisted issuers.[1823] The Commission acknowledges that not including information related to OTC equities in consolidated market data may potentially increase the costs of FINRA providing this data and market participants to acquire the data. The Commission also acknowledges that this could prove disruptive to market participants not receiving both information related to OTC equities and core data if a security switches between being listed and unlisted. However, the extent of these effects is uncertain and would depend on the fees FINRA charges for the data.[1824] Market participants may still receive both of these data elements in the same data feed because competing consolidators would be able to offer a product that contains both information related to OTC equities as well consolidated market data.[1825] The degree to which competing consolidators offer this product will depend on the fees FINRA charges for this data as well as the fees for consolidated market data offerings set by the NMS plan.[1826]

(b) Effects of New Round Lot Definition

The final amendments will reduce the number of shares included in the definition of a round lot for NMS stocks for which the prior calendar month's average closing price on the primary listing exchange was greater than $250.00.[1827] Higher priced stocks will be grouped into tiers based on their price and stocks in higher price tiers will have fewer shares in their definition of a round lot. In addition, part of the definition of core data will require that the best bid and offer and national best bid and offer include odd-lots that, when aggregated, are equal to or greater than a round lot and that such aggregation shall occur across multiple prices and shall be disseminated at the least aggressive price of all such aggregated odd-lots.[1828] Round lot quotes will be protected quotations subject to the trade-through prevention requirements of Rule 611 and the locked and crossed markets restrictions of Rule 610(d).[1829]

For stocks priced above $250, the new round lot definition will result in the inclusion of quotes at better prices in core data that were previously excluded from being reported because they consisted of too few shares. This will make these quotes visible to anyone who subscribes to core data, thereby improving transparency.[1830] This will also mechanically narrow NBBO spreads for most stocks with prices greater than $250, which will affect other Commission or SRO rules and regulations. This section discusses the effects of the new round lot definition on: The NBBO, market participants, the

[1816] *See supra* Section II.C.2(c).

[1817] Commenters agreed that regulatory data is highly relevant and important to all types of market participants. *See, e.g.,* IEX Letter at 7; MEMX Letter at 6.

[1818] *See infra* Section V.C.2(d)(ii) and *supra* Section IV.D.6(c) for a discussion of these costs. Below in Section V.C.1(c)(iv), the Commission also discusses the costs of including data elements to the definition of ''core data'' that are not currently in SIP data.

[1819] *See supra* Section II.C.2(c) and Proposing Release, 85 FR at Section III.B.

[1820] One commenter agreed, stating that not including quotation and transaction data for OTC equities in consolidated market data would increase both the costs to provide the data and the costs of market participants to acquire it. *See* FINRA Letter at 11.

[1821] *See supra* Section II.C.2(c) and Proposing Release, 85 FR at Section III.C.

[1822] *See* FINRA Letter at 9, 11.

[1823] *See* FINRA Letter at 11.

[1824] *See supra* Section II.C.2(c).

[1825] Competing consolidators will not be restricted from also offering data elements from SRO proprietary data. *See supra* note 220 and accompanying text.

[1826] *See supra* Section II.C.2(c) (discussing fees for information related to OTC equities) and *infra* Section V.C.2(b)(i) (discussing fees for consolidated market data).

[1827] *See supra* Section II.D.2.

[1828] *See supra* Section II.E.2(b). Several exchanges already aggregate odd-lot orders into round lots and report such aggregated odd-lot orders as quotation information to the exclusive SIPs. *See* Proposing Release, 85 FR at nn. 157–58.

[1829] *See supra* Section II.E.2(a).

[1830] The Vendor Display Rule will require broker-dealers to show, in the context of which a trading or order-routing decision can be implemented, a consolidated display that includes quotes derived from the new round lot size. *See supra* Section II.D.2(b) and *infra* Section V.C.1(b)(vii).

internalization of retail order flow, and on trading venues. Additionally, this section discusses the effects of the monthly calculation to determine the round lot size, the costs of the new round lot definition, and the effects of the new round lot definition on other rules and regulations.

(i) Effects on the NBBO

The new round lot definition will change the average spread between the NBBO for many stocks with prices above $250 because the NBBO will now be calculated based off of the smaller round lot size. Because odd-lot shares exist in these stocks at prices that are better than the national best bid and offer (*i.e.,* at prices higher than the national best bid and prices lower than the national best offer), the new national best bid and offer will be at a higher/lower price because fewer odd-lot shares will need to be aggregated together (possibly across multiple price levels) to form a round lot. This will result in a quoted spread that is calculated based off of the NBBO being narrower for these stocks.[1831] The reduction in spreads will be greater in higher priced stocks because stocks in higher priced tiers will have fewer shares included in the definition of a round lot.[1832]

The Commission believes that market participants relying on new core data will see a significant improvement in the NBBO for stocks that fall into the higher priced round lot tiers. Table 3 confirms this belief by updating the analysis from the Proposing Release to account for the new round lot tier structure.[1833] Specifically, Table 3 shows the percentage of instances in a sample of market data when the NBBO provided at the time by an exclusive SIP [1834] was inferior to the price of an NBBO determined by the new definition of a round lot in the final amendments. For instance, the table shows that for stocks with prices between $1,000.01 and $10,000, the new round lot definition caused a quote to be displayed that improved on the current round lot quote 47.7% of the time. The frequency of this narrower NBBO is lower for lower priced stocks. For example, the new round lot definition resulted in a quote being displayed that improved on the current round lot quote 26.6% of the time in the $250.01–$1000 tier. This analysis shows that, within each round lot tier the new round lot definition will improve the quoted spread in a significant number of instances.

TABLE 3—INSTANCES OF SMALLER NBBO

Round lot tier [1] [2]	Instances of smaller NBBO (%) [3]		
	Best bid	Best ask	Best bid or best ask
1. $0–$250 (100 shares)	n/a	n/a	n/a
2. $250.01–$1,000 (40 shares)	16.3	16.5	26.6
3. $1000.01–$10,000 (10 shares)	40.2	34.6	47.7
4. $10,000.01+ (1 share)	n/a	n/a	n/a

[1] Tier based on the stock's prior month's average closing price in April 2020.
[2] Twelve stocks trade in round lots different than 100 shares and are included in the table. Six stocks are in the $0–250 tier and currently trade in 10 share lots, 2 stocks are in the $250.01–$1,000 tier and trade in 10 share lots, 3 stocks are in the $1000.01 to $10,000 tier, and 1 stock is in the $10,000.01+ tier. In the $1000.01 to $10,000 tier, 1 stock trades in 1 share lots and 2 stocks trade in 10 share lots. In the $10,000.01+ tier, 1 stock trades in 1 share lots.
[3] Overall frequency of smaller NBBO quotes during May 2020 for the new round lot tier criteria (source: Direct feeds) versus the current 100 share round lot criteria (source: SIP). The denominator consists of hourly snapshots from 10:30 a.m. to 3:30 p.m. for each trading day in May 2020. The numerator is the total number of snapshots with smaller NBBO quotes.

The effects of instances of narrower NBBOs under the new round lot definition depends on the trading volume of stocks in the tiers affected by the change. The Commission believes that, in particular, for securities with a significant amount of dollar trading volume, there will be significant changes to (tightening of) the quoted spread displayed under the new round lot definition. Table 4 accounts for the new round lot definition, showing the number of NMS stocks that would be in each round lot tier based on monthly average closing prices in September of 2020, as well as the percent of overall average daily volume (''ADV'') and notional value (''$ADV'') of each price group during one week of trading in October of 2020.[1835] It shows that while most stocks, approximately 98.5%, will remain unaffected by the new round lot definitions, around 28.1% of the dollar trading volume currently is in stocks that will have a new round lot definition.

TABLE 4—ROUND LOT TIER NUMBER OF STOCKS AND TRADING VOLUME

Round lot tier [1]	Number of stocks in round lot tier	Percent of ADV, by price group [2]	Percent of $ADV, by price group [2]
1. $0–$250 (100 shares)	9,023	97.12	71.93
2. $250.01–$1,000 (40 shares)	117	2.79	23.24
3. $1000.01–$10,000 (10 shares)	16	0.09	4.82
4. $10,000.01+ (1 share)	1	0.00	0.02

[1] Tier based on the stock's prior month's average closing price in September 2020.
[2] Percent of ADV and Percent of $ADV are based on trading volume between October 5–9, 2020.

[1831] Commenters agreed that the new round lot size would tighten spreads. *See, e.g.,* Nasdaq Letter III at 11, 15; ICI Letter at 6; BestEx Research Letter at 6; CBOE Letter at 5.

[1832] *See supra* Section II.D.2(a).

[1833] *See* Proposing Release, 85 FR at Table 4.

[1834] Since the source used for this SIP NBBO is an exclusive SIP itself, this quote includes quotes the exchanges produce by aggregating or ''rolling up'' odd-lots to obtain a round lot-sized quote.

[1835] *See* Proposing Release, 85 FR at Table 1.

The Commission believes that the size of the change in the spread, conditional on the NBBO being smaller, will also be substantial. Table 5 confirms this belief by updating the analysis from the Proposing Release that quantifies the average change in the spread offered by the best quote under the new round lot definition, conditional on the event that the NBBO is smaller in the first place.[1836] The table shows, for example, that the new round lot definition in the $250.01–$1000 tier could yield a 7 basis point reduction in the spread (conditional on the NBBO being smaller). Because the average quoted half spread is 24 basis points, this represents a significant reduction in the half spread. In the case of the $1000.01 to $10,000 tier, the difference of 13 basis points represents an even more significant fraction of the 23 basis point average half spread.

TABLE 5—SIZE OF CHANGE IN NBBO

Round lot tier [1] [2]	Best bid: Average price change ($) [3]	Best ask: Average price change ($) [3]	Average difference in quoted half spread (%) [4]	SIP: Average quoted percent half spread (%)
1. $0–$250 (100 shares)	n/a	n/a	n/a	n/a
2. $250.01–$1,000 (40 shares)	0.64	0.89	0.07	0.24
3. $1000.01–$10,000 (10 shares)	2.48	2.81	0.13	0.23
4. $10,000.01+ (1 share)	n/a	n/a	n/a	n/a

[1] Tier based on the stock's prior month's average closing price in April 2020.
[2] Twelve stocks trade in round lots different than 100 shares and are excluded.
[3] Conditional on a the instance of a smaller quote, stock-day average price improvement is calculated using MIDAS data, which consists of hourly snapshots from 10:30 a.m. to 3:30 p.m. for each trading day in May 2020. Calculation is based on the difference between the best bid/best ask calculated under the new round lot tier definition (source: Direct feeds) compared to the NBBO based on the current 100 share round lot criteria (source: SIP)
[4] Conditional on a the instance of a smaller quote (bid or ask), stock-day average difference in percent quoted half spread is calculated by SIP NBBO quoted percent half spread minus the new percent quoted half spread under the proposed round lot tier criteria. Quoted half spread is defined by: Quoted half-spread = $QS_{it} = 100 * (Ask_{it} - Bid_{it})/(2*M_{it})$, where M is the midpoint between the best bid and best ask.

In the Proposing Release, the Commission qualitatively discussed that the change in round lot size could cause the NBBO and protected quotes to widen for the twelve stocks that currently have a round lot size less than 100 shares.[1837] However, one commenter stated that the Commission did not analyze the effects of the change in round lot size and protected quotes on these twelve stocks.[1838] In response to this comment, the Commission quantitatively analyzed the effects of the revised definition of round lot size on these stocks using data from one week of trading in October 2020 and confirmed that the NBBO would widen in some of these stocks.[1839] The analysis showed that the round lot size will not change for four of these stocks, so their NBBO will not change. However, for eight of these stocks the round lot size would increase. In these 8 stocks, the analysis showed that, on average, the NBBO would widen 97.1% of the time under the new round lot definition. In the instances in which the NBBO was wider, the Commission found that the NBBO half-spread increased by an average of 3.66% in these stocks.

(ii) Effects on Market Participants

For stocks priced above $250, the new round lot definition will result in the inclusion of quotes at better prices in core data that were previously excluded from being reported because they consisted of too few shares. This will make these quotes visible to anyone who subscribes to core data, thereby improving transparency.[1840] The Commission believes that this will create an economic benefit for market participants who currently rely exclusively on SIP data to obtain market information, such as many retail investors. These market participants will benefit from being able to see information on these smaller quotes at better prices before they send in their orders, which may improve their trading decisions and order execution quality by providing an opportunity to realize gains from trade,[1841] as discussed below in this section.[1842] This may also improve price efficiency. This is because certain odd-lot information not currently disseminated as part of SIP data will be made available as part of core data; therefore market participants who use SIP data who previously did not use the information contained in these odd-lot quotes will be able to incorporate this information into their trading decisions. These trading decisions are integral to how market prices are formed. Also, the change may affect order routing and the share of order flow received by each exchange, since more market participants who rely on core data will be aware of quotes at better prices that are currently in odd-lot sizes, and these may not be on the same exchange as the one that has the best 100 share quote.

The Commission believes that changing the round lot definition to include smaller-size orders in stocks priced higher than $250 will benefit market participants who would have traded with price-improving odd-lot quotes in these stocks but do not do so because they cannot see information on odd-lot quotes.[1843] Under the final

[1836] *See* Proposing Release, 85 FR at Table 5.

[1837] *See* Proposing Release, 85 FR at 16824, 16830–1.

[1838] *See* NYSE Letter II at 6.

[1839] The round lot tiers for these twelve was based on the stocks' prior month's average closing price in September 2020. The analysis for these twelve stocks used the same data source and methodology as the analysis in Tables 4 and 6, but was based on trading occurring between October 5–9, 2020. Because the new round lot size will be protected, this analysis also examines the change in the protected quotes under the final amendments.

[1840] Commenters agreed that the new round lot definition would improve transparency. *See, e.g.,* Schwab Letter at 4; CBOE Letter at 5. The Vendor Display Rule will require broker-dealers to show, in the context of which a trading or order-routing decision can be implemented, a consolidated display that includes quotes derived from the new round lot size. *See supra* Section II.D.2(b) and *infra* Section V.C.1(b)(vii).

[1841] *See supra* note 1593.

[1842] It will also benefit market participants who post odd-lot quotes at prices superior to the NBBO because market participants that rely exclusively on SIP data may now be able to see some of these quotes and trade against them.

[1843] Currently, some information about odd-lot quotes ends up in core data through certain exchanges rolling up odd-lot quotes into round lots. But even in this case, the rolled up quote is reported to the exclusive SIPs at the worst price out of all the odd-lots that were rolled up to produce the quote, so the full amount of price improvement

amendments, these market participants will be able to see these quotes in core data, and make a decision about whether to trade based on this newly visible, improved price.[1844] This may benefit market participants, including many retail investors, because they will be able to realize the gains from trade that are available in this situation and are not currently occurring because of the lack of information. Also, some market participants may wish to exchange an odd-lot quantity of a stock by posting a limit order for an odd-lot amount. Currently, this order's price is not visible to market participants who rely solely on SIP data, and thus there may be delays in getting this limit order filled, since such market participants would not send market orders in. Thus, adding smaller-size quotes in core data for certain stocks will result in a benefit to both the market participants who would submit the market orders and the market participants who post the odd-lot quotes they execute against.

The magnitude of this benefit depends on the amount of additional trading generated by the inclusion of odd-lot information. In particular, the Commission believes that to the extent many market participants who rely solely on SIP data and lack information on odd-lot quotes would have traded frequently against odd-lot quotes had they known about them, the benefit will be large. However, if it is uncommon for market participants who would trade frequently against odd-lot quotes to rely solely on SIP data and to lack information on odd-lot quotes, then the Commission believes that the associated economic benefit from including smaller-size quotes in core data for certain stocks will be small. The Commission believes it is not possible to observe this willingness to trade with existing market data.

The Commission believes that the new round-lot definition will benefit market participants by improving order routing in stocks priced higher than $250, provided that they do not already obtain information on odd-lots from proprietary feeds.[1845] Currently, market participants who rely on core data are not aware of odd-lot quotes available at other exchanges that exist at prices that are better than the national best bid and offer (*e.g.,* the exchange with the best priced 100 share quote may not be the exchange with the best priced odd-lot quote).[1846] The new round lot definition will make more of these quotes in higher priced stocks visible to market participants that subscribe to core data, which will improve order routing and may improve order execution quality and facilitate best execution for these market participants.[1847]

The Commission believes that the new round lot definition may improve price efficiency for stocks priced above $250.[1848] The wider availability of information about odd-lot quotes may mean that more market participants (who currently rely solely on SIP data) will incorporate the information contained in those quotes into their trading decisions. This may have the effect of improving the efficiency with which this information becomes reflected in prices.

The Commission believes that the new round lot definition may cause changes to order flow as market participants change their trading strategies to take advantage of newly visible quotes.[1849] This may mean that there would be changes to the share of order flow each exchange receives as a result of this rule. The Commission is uncertain about the magnitude of this effect.

As observed by commenters,[1850] the new round lot definition will also improve transaction cost analysis and best execution analysis in higher priced stocks, which are benchmarked against the NBBO. A smaller round lot size will improve these analyses because it will increase the accuracy of the NBBO, which will now better reflect smaller sized odd-lot quotes that may be available at better prices, possibly on another exchange.[1851]

Some commenters stated that new round lot tiers would increase complexity and create confusion among investors.[1852] The Commission acknowledges that the new round lot tiers may initially increase complexity when they are first implemented.[1853] However, after the new round lot tiers are implemented, the Commission does not believe they will significantly increase the complexity of the market or create confusion for a number of reasons.[1854] First, market participants already trade in stocks with round lot sizes other than 100 shares.[1855] Second, most NMS stocks will have a round lot size of 100 shares under the new round lot tier definitions.[1856] Third, core data will be distributed with the size of the NBBO and best quotes from each exchange given in shares and not number of round lots.[1857] Currently, the SIPs indicate size as the number of round lots available at the NBBO and each exchange's best quote, so investors need to convert round lot size to share size for stocks with round lots other than 100 shares. Under the final amendments, investors will observe the number of shares available and will not need to make this conversion. Fourth, the Commission expects that broker-dealers and other market participants will modify or develop their systems to automatically keep track of the different round-lot changes.[1858]

Commenters stated that the reduced round lot sizes would cause less liquidity to be available at the new NBBO in higher priced round lot tiers

available on that exchange is still not visible to market participants relying solely on exclusive SIPs for market data.

[1844] Commenters agreed that the new round lot definition would show more odd-lot trading interest. *See, e.g.,* CBOE Letter at 6; BlackRock Letter at 3.

[1845] This benefit would apply to both market participants who are routing their own orders and market participants whose orders are being routed by a broker-dealer, provided the broker-dealer does not do not already obtain information on odd-lots from proprietary feeds.

[1846] Battalio, Corwin, and Jennings (2016) examined the frequency of trading at inferior prices as compared to available unprotected odd-lot quotes in a sample of 10 high-priced stocks during one week in 2015. They found that there was an unprotected odd-lot limit order available at a better price for 2.52% of the trades that occurred. *See* Robert Battalio et al, *Unrecognized Odd Lot Liquidity Supply: A Hidden Trading Cost for High Priced Stocks,* 12 J. Trading 35 (2016). A commenter also referenced this study and stated that unprotected odd-lot quotes at prices better than the NBBO at other exchanges get traded through. *See* BlackRock Letter at 4.

[1847] For a discussion of order execution quality and the provision of execution services by broker-dealers, *see supra* Section V.B.3(e).

[1848] For additional discussion of the price efficiency point, *see infra* Section V.D.1.

[1849] For example, currently a market participant, relying on SIP data, may submit an order to the exchange with the exclusive SIP NBBO and in the process, trade at an inferior price to an odd-lot quote that the market participant was not aware of on another exchange. If the market participant would have preferred to route to the price-improving odd-lot quote, then under the updates to core data the market participant will send the order to the exchange with the smaller, price improving quote.

[1850] *See, e.g.,* ICI Letter at 7; AHSAT Letter at 5. It will also improve the accuracy of Rule 605 statistics. *See infra* Section V.C.1(b)(vii).

[1851] *See supra* Section V.C.1(b)(i) and discussion in this section.

[1852] *See, e.g.,* Clearpool Letter at 11–12; STANY Letter II at 3; TD Ameritrade Letter at 10.

[1853] *See infra* Section V.C.1(b)(v).

[1854] Commenters agreed that the new round lot tiers would not add significant complexity. *See, e.g.,* MEMX Letter at 4 (''Once tiers are required, although technology changes will be needed to implement the tiering structure, MEMX does not believe that there is significant additional complexity associated with supporting differing numbers of tiers.''); IEX Letter at 4.

[1855] *See supra* Section V.C.1(b)(i).

[1856] The Commission estimates that approximately 98.5% of NMS stocks will have a round lot size of 100 shares. *See supra* Table 4.

[1857] *See supra* Section II.C.2(e). One commenter stated that showing the number of shares rather than the number of round lots would reduce confusion with different size round lot tires. *See* CBOE Letter at 13–14.

[1858] *See infra* Section V.C.1(b)(v).

and that more marketable orders would have to walk the book and execute at prices outside the NBBO.[1859] One of these commenters stated that the round lot tier structure in the Proposing Release would cause many retail investors' marketable orders to walk the book, which could lead to confusion and disappointment among retail investors because they are not used to having their orders walk the book.[1860] The Commission acknowledges that the smaller round lot size could lead to a smaller number of shares at the NBBO for most stocks in higher priced round lot tiers. However, this effect will depend on how market participants adjust their order submissions. For example, as observed by a commenter, orders pegged to the NBBO will remain at the NBBO.[1861] If this represents a significant portion of orders at the NBBO, then the number of shares at the NBBO may not change significantly.

If the size at the NBBO decreases in a stock in a higher priced round lot tier, then it could increase the frequency with which marketable orders walk the book. The adopted round lot tier sizes are based on a notional value of $10,000. Staff analysis estimated that the average notional trade size in 2019 was $8,068 (excluding auctions).[1862] Commenter analysis also observed that a significant portion of trading occurred at or below $10,000.[1863] The Commission acknowledges that these estimates indicate that if the available liquidity at the NBBO is close to the $10,000 notional value, then there could be an increase in the frequency with which orders walk the book in the higher priced round lot tiers. However, as discussed above in this section, it is not entirely clear how investor orders and the size at the NBBO will change. Therefore, it is also uncertain how frequently orders will walk the book under the new round lot tiers. Even if the size at the NBBO declines, the Commission does not believe it will cause a significant increase in the frequency that retail investors' marketable orders walk the book and lead to confusion among retail investors for two reasons. First, currently most retail investor marketable orders execute off-exchange at retail internalizers and do not execute on an exchange and walk the limit order book.[1864] Because retail internalizers may offer price improvement, it is possible that the retail internalizer could fill the entire order at a price that is equal to or better than the NBBO.[1865] Second, even if a retail marketable order was routed to an exchange, it may not be greater than the notional size of the NBBO at an exchange in a higher priced round lot tier.[1866] Additionally, even if the size at the NBBO is smaller and a marketable order walks the book or a retail internalizer does not execute the whole order at the NBBO, the Commission does not believe that the average price at which it executes will decrease, *i.e.,* transaction costs will not increase, because the NBBO will be at a better price.[1867]

As observed by commenters, protecting the smaller round lot quotes in higher priced stocks will benefit retail investors by better protecting their limit orders.[1868] One commenter observed that 23 percent of its customers' limit orders for stocks priced higher than $100 are less than 100 shares.[1869] Under the new round lot tiers, retail investors will benefit because a greater portion of their odd-lot sized orders in higher priced stocks will be protected and not traded-through.[1870]

One commenter stated that the smaller round lot size in higher priced stocks would disadvantage the limit orders of retail traders because it would make it easier for low-latency professional traders to step ahead of them with less risk.[1871] The Commission disagrees with this commenter. Currently low-latency professional traders that receive proprietary feeds that contain all odd-lot information do not need to submit a round lot sized order to step ahead of retail limit orders. These traders can submit an odd-lot-sized order to step ahead of the retail investor's order at a lower price and the retail investor may not observe it if the retail investor only receives SIP data. With the smaller round-lot size in higher priced stocks, retail investors who only receive core data would be better able to observe if a smaller order steps ahead of their order at a better price and may be able to adjust their limit order in response.

One commenter stated that protecting smaller round lot quotes would negatively impact the trading of institutional investors because market participants would post smaller displayed quotes and institutional investors with larger orders would have to slice their trading activity into smaller increments to avoid signaling their trading interest.[1872] The Commission does not believe that protecting the smaller round lot size in higher priced stocks will negatively impact the trading of institutional investors. It is already common practice for institutional investors' parent orders to be sliced into smaller child orders.[1873] Additionally, because the round lot tiers are based on a notional value, $10,000, which is larger than the average trade size, $8,068 (excluding auctions),[1874] the Commission does not believe that market participants are likely to significantly reduce the size of their displayed limit orders and institutional investors' orders will not have to be sliced into smaller sizes than they already are. Additionally, the Commission believes that protecting the smaller round lot sizes in higher priced stocks could benefit smaller odd-lot-sized child limit orders that institutional investors submit. Because more of these orders would now be observable in core data, they may be more likely to execute against the marketable orders of market participants who rely on SIP data and were not previously able to observe these orders, as described above in this section.

[1859] *See, e.g.,* TD Ameritrade Letter at 7–8, 10; AHSAT Letter at 5; Nasdaq Letter III at 12.

[1860] *See, e.g.,* TD Ameritrade Letter at 8. The round lot tier sizes the commenter was referring to in the Proposing Release were based on a $1,000 notional size. The adopted round lot tiers are based on a larger $10,000 notional size, which should significantly decrease the frequently of a marketable order being larger than the notional value of the adopted round lot tiers compared to the round lot tiers in the Proposing Release. *See supra* Section II.D.2(a).

[1861] *See* BestEx Research Letter at 6.

[1862] *See supra* Section II.D.2(a). Several commenters stated that the Commission did not conduct analysis to determine the notional value of the proposed round lot tiers. *See, e.g.,* Nasdaq Letter V at 4–5; Angel Letter at 13–14. In developing the notional value for the adopted round lot tiers, the Commission considered its estimate of the average trade size in 2019 and commenter analysis on the size of trades and orders. *See supra* note 269 and accompanying text.

[1863] *See* Virtu Letter at 3–4 (stating that data from 2019 to present show that the vast majority (over 75%) of all trades are still for less than $10,000); Angel Letter at 17 (''[T]he median trade size is roughly $10,000.''); IntelligentCross Letter at 3 (''[T]he notional value of the median trade today is about $2,000.'').

[1864] *See infra* Section V.C.1(b)(iii).

[1865] It is also possible that a retail internalizer could execute part of the order and route the rest to an exchange, where it could execute against the NBBO or walk the book.

[1866] One commenter observed that the average retail trade size between 2007 and the present is around $14,581. *See* Virtu Letter at 3–4. The minimum notional size at the NBBO on a single exchange in the higher priced round lot tiers will be $10,000. If more than one exchange were at the NBBO, then an order would need to execute at the available liquidity at those exchanges before walking the book.

[1867] *See supra* Section V.C.1(b)(i).

[1868] *See, e.g.,* Schwab Letter at 4–5; SIMFA Letter at 9–10.

[1869] *See* Schwab Letter at 4–5.

[1870] *See supra* note 1846.

[1871] *See* TD Ameritrade Letter at 9.

[1872] *See* T. Rowe Price Letter at 3.

[1873] *See supra* Section V.B.3(e).

[1874] *See supra* note 1862 and accompanying text.

Commenters stated that the Proposing Release did not consider the effects the smaller round lot size could have on the options market, where the standard options contract size is 100 shares.[1875] The Commission does not believe the new round lot tier sizes will have a significant impact on the options market for a number of reasons. First, the new round lot size will not change the size of the options contract. Second, most NMS stocks will still have a round lot size of 100 shares under the new round lot tier definitions.[1876] Third, even for stocks that are in a higher priced round lot tier, the smaller round lot may not have a significant impact on quoting in the options market because the round lot definition will not change market maker quoting obligations in the options market. Fourth, because there is already a significant presence of odd-lot quotes better than the NBBO in higher priced stocks,[1877] the best prices in these stocks are already frequently smaller than 100 shares. Therefore, the change in the round lot size may not have a significant impact on arbitrage opportunities between the options and equity markets for stocks in the higher priced round lot tiers. Fifth, the options markets already have standard options contracts on stocks with a round lot size less than 100 shares, so there are already conventions for dealing with options in which the round lot size in the equity market is not 100 shares.[1878]

(iii) Effects on Internalization of Retail Order Flow

The Commission believes that the change in the round lot size may have an effect on wholesalers in the retail order flow internalization business. Currently, some wholesalers,[1879] by arranging to execute orders on behalf of retail broker-dealers, offer superior prices relative to the existing NBBO (*i.e.,* price improvement) to retail investors. As part of this arrangement, the wholesaler typically agrees that some percentage of the broker-dealer's orders will execute at prices better than the NBBO and/or agrees to certain execution quality metrics. The Commission expects that the new definition of a round lot will, at times, make the NBBO narrower for the affected stocks because the new definition will include orders that are at superior prices to the 100 share NBBO at a size less than 100 shares. As a result, it may become more difficult for the retail execution business of wholesalers to provide price improvement and other execution quality metrics at levels similar to those provided under the 100 share round lot definition today.[1880]

By the same mechanism, retail investors might or might not experience an improvement in execution quality, as measured by execution prices, from these wholesalers.[1881] Assuming that the NBBO has narrowed and wholesalers continue to agree to provide the same amount of price improvement off of the narrower spread, retail investors will receive better execution prices. One commenter stated that retail investors will not receive better execution prices under the new round lot sizes because wholesalers already offer price improvement to retail investors that exceeds the potential improvements in the NBBO from the new round lot size.[1882] However, another commenter stated that all investors, including retail, would experience reduced execution costs from a tighter NBBO no matter where the execution took place.[1883] The Commission is uncertain whether the execution quality retail investors receive from wholesalers will change if the NBBO narrows for securities in the smaller round lot tiers because the effect of the amendments on retail execution quality would depend on how the change in the NBBO compared to the current price improvement offered by wholesalers, as well as on changes in the degree of price improvement wholesalers will offer in stocks with tighter NBBOs, which is uncertain.

To the extent that retail wholesalers are held to the same price improvement standards by retail broker-dealers in a narrower spread environment, the profitability of the retail execution business for wholesalers might decline. In particular, less ''spread profit'' would be available to the wholesaler in a narrower NBBO. This is, in part, because the wholesaler may often keep a portion of the spread profit that is not given as price improvement to the investor who submitted the order. Therefore, if the NBBO has narrowed and the same price improvement must still be provided, less revenue will be left for the wholesaler.[1884] To the extent this happens, it will be a transfer from the wholesaler to retail investors. As such, any impact on wholesaler profitability depends on the same factors as the impact on retail execution quality.

To make up for lower revenue per order filled in a narrower spread environment, wholesalers may respond by changing how they conduct their business in a way that may affect retail broker-dealers. There are several possibilities, including but not limited to, reducing per order costs associated with their internalization programs, such as reducing any payments for order flow or reducing the agreed upon metrics for price improvement. In the event that wholesalers reduce payments for order flow, retail broker-dealers may respond by changing certain aspects of their business. The Commission is uncertain as to how wholesalers may respond to the change in the round lot definition, and, in turn, how retail broker-dealers may respond to those changes, and the Commission is uncertain as to the extent of these effects.

The effect of lost revenue for wholesalers discussed above may be reduced if wholesalers currently use proprietary feeds to trade, to the extent they already see and respond to odd-lot quotations inside the NBBO and currently provide execution quality to customers based upon the superior odd-lot quotations.

(iv) Effects on Trading Venues

The Commission believes that changes in the NBBO caused by the new round lot definitions may also affect other trading venues, including

[1875] *See, e.g.,* STANY Letter at 4; Nasdaq Letter IV at 2; Data Boiler Letter I at 81.

[1876] The Commission estimates that approximately 98.5% of NMS stocks will have a round lot size of 100 shares. *See supra* Table 4.

[1877] *See supra* Section V.B.2(a).

[1878] *See supra* Section II.D.2(a).

[1879] *See supra* note 1797 for a discussion of wholesalers and retail internalization.

[1880] Commenters agreed that a protected smaller round lot quote could affect the ability of internalizer to provide price improvement to retail investors. *See, e.g.,* Virtu Letter at 5.

[1881] This improvement may not be transparent to the retail investor. The price improvement metrics reported by retail broker-dealers do not take into account odd-lot quotes priced better than the NBBO. Even if a retail investor receives a better execution price from the new round lot definition, it might not show up as price improvement in retail wholesaler price improvement metrics if the NBBO also narrowed as a result of the new round lot size and now reflects odd-lot quotes that are priced better than the NBBO based on the current round lot size. One commenter stated retail wholesalers' price improvement metrics, along with Rule 605 statistics, are not accurate because they do not take into account odd-lots quotes that are priced better than the NBBO. *See* Healthy Markets Letter I at 6–17.

[1882] *See* TD Ameritrade Letter at 8, 10.

[1883] *See* Best Ex Research Letter at 6 (''A tighter NBBO will reduce execution costs for all market participants—both retail and institutional investors—no matter where executions take place.'').

[1884] The NBBO based off the new round-lot definition will be relevant to the spread considered by the wholesalers, because, among other things, it would be used for Rule 605 execution statistics. *See infra* Section V.C.1(b)(v) for further discussion of Rule 605 statistics.

exchanges and ATSs.[1885] Exchanges and ATSs have a number of order types that are based off of the national best bid and offer.[1886] Changes in the NBBO may affect how these order types perform and could also affect other orders they interact with. Some ATS matching engines also derive their execution prices based off of price improvement measured against the NBBO. Changes in the NBBO from the new round lot definition may affect execution prices on these platforms. Overall, the Commission believes that these interactions may affect relative order execution quality among different trading platforms, but it is uncertain of the magnitude of these effects.

Changes in relative execution quality may in turn affect the competitive standing among different trading venues, with trading venues that experience an improvement/decline in execution quality attracting/losing order flow. However, the Commission is uncertain of the magnitude of these effects.

One commenter stated that protecting the smaller round lot size could affect order flow to exchanges and other trading venues.[1887] The narrower protected NBBO in higher priced round lot tiers could cause more order flow to be routed to exchanges in these stocks. Because off-exchange trading venues would not be able to trade-through the NBBO, a narrower protected NBBO would limit the price range in which off-exchange trading venues could execute trades and cause more orders to be routed to exchanges in order to not trade through a protected quote.

(v) Effects of Monthly Round Lot Calculation

The Commission believes that the use of the previous calendar month's average closing price on the primary listing exchange to determine the round lot tier for a given stock balances certain tradeoffs that should be considered when selecting such a benchmark.[1888] The Commission is balancing a more up-to-date stock price estimate against the costs imposed on market participants from having to frequently make updates to systems and practices to account for changes to a stock's round lot tier. A more recent average (*e.g.,* the past week's average closing price) may better reflect the stock's current price level, and thereby lead to the stock being placed in the correct tier more frequently. However, such a recent estimate may be more volatile and thus more prone to causing frequent changes to the stock's status, especially if the stock's price level is close to a round lot tier cutoff point. This could impose a greater burden because it would require more frequent adjustments from market participants, including SROs and competing consolidators, to account for what a stock's round-lot tier is and what the NBBO for that stock would be given its tier.[1889]

Commenters stated that updating of a stock's round lot size each month could create confusion.[1890] One commenter stated that only updating a stock's round lot size monthly could create confusion because it could lead to a stock's current price not reflecting its round lot tier, especially during months of extreme volatility or if a stock splits its shares.[1891] This commenter also stated that it could create confusion and uncertainty at the end of each month if a stock's price is close to a threshold and could also create confusion comparing Rule 605 statistics if a stock changed round lot tiers.[1892] The Commission does not believe that the updating a stock's round lot tier each month will create significant confusion. Most NMS stocks will still have a round lot size of 100 shares under the new round lot tier definitions.[1893] In response to comments, the Commission estimated that between August 2019 and August 2020, on average, only 17 stocks would change round lot tiers each month, which means that most stock's current prices would be reflective of their current round lot tiers. Additionally, primary listing exchanges will publish data on each stock's round lot size and the Commission expects market participants will modify or develop systems to automatically keep track of a stock's round lot size.[1894]

(vi) Costs of New Round Lot Definition

The Commission believes that the new round lot definition will impose two types of implementation costs on market participants: (1) One associated with upgrading systems to account for additional message traffic and (2) to modify and reprogram systems to account for the new round lot definition.

The Commission believes that market participants who currently rely solely on core data to obtain NBBO feeds will incur some infrastructure investment costs as a result of the change in the definition of a round lot. This is because the change will likely lead to more frequent updates to the NBBO and this will likely result in an increase in message traffic for NBBO feeds.[1895] Because most NMS stocks will still have a round lot size of 100 shares,[1896] the Commission does not believe the increase in message traffic will be significant. Therefore, the Commission does not believe that the system upgrades required by the new round lot definition will be significant. However, the Commission is unable to estimate the associated costs because it does not have access to information about the infrastructure expenses a broker-dealer incurs to process market data and because of the likelihood that such costs vary substantially according to the existing infrastructure of broker-dealers.

Additionally, for certain core data use cases, the costs described in the preceding paragraph are likely to be minimal. Many broker-dealers, when accessing data for the purposes of visual display, currently obtain NBBO quotes from the exclusive SIPs with a ''per query'' use case. This use case is set up so that a quote is only sent when it is asked for. The Commission believes that this setup has very little technological cost associated with it and that furthermore whatever cost there is to receiving such a feed will not be impacted by increasing the number of times the NBBO is updated over a given time period. Thus, the Commission believes that for those broker-dealers who rely on per query use cases for their quotes, the upgrade costs resulting from changing the round lot definition will be minimal.[1897]

[1885] *See supra* Section V.C.1(c)(iv) for additional discussion of effects on exchange rules.

[1886] For example, the apparent price improvement over the NBBO calculated based off core data that is offered by a midpoint crossing network will be reduced as a result of changes to the NBBO.

[1887] *See* Virtu Letter at 5.

[1888] Commenters agreed that a monthly calculation strikes an appropriate balance. *See* MFA Letter at 10; Data Boiler I at 25.

[1889] One commenter stated more frequent updates could impose a higher administrative burden. *See* NovaSparks Letter at 1.

[1890] *See, e.g.,* Nasdaq Letter IV at 17; MFA Letter at 12–13.

[1891] *See* Nasdaq Letter IV at 17.

[1892] *See id.*

[1893] The Commission estimates that approximately 98.5% of NMS stocks will have a round lot size of 100 shares. *See supra* Table 4.

[1894] *See infra* Section V.C.1(b)(vi) (discussing the implementation costs for these systems).

[1895] This will happen more in high-priced stocks where the new round lot definition will have more of an effect.

[1896] The Commission estimates that approximately 98.5% of NMS securities will have a round lot size of 100 shares. *See supra* Table 4.

[1897] This conclusion is contingent on the assumption that competing consolidators will choose to offer a per query service to market participants so that this arrangement may continue. Because a significant portion of market participants (particularly retail investors) access SIP data on a per query basis, the Commission believes that it is likely the Equity Market Data Plans will continue to charge fees on a per query basis and some competing consolidators will also offer a per query service in order to meet the demand of market participants.

Trading venues and broker-dealers will experience implementation costs from having to modify and reprogram their systems, including matching engines and SORs, to account for the changes in the new round lot definition. Commenters stated that there would be implementation costs for market participants to develop systems to monitor and account for changes in a stock's round lot size.[1898] One commenter observed that broker-dealers would need to make changes to their order routing systems and systems that display customer orders each month to account for changes in the round lot size.[1899] This commenter also stated that regulators would need to modify their surveillance systems each month to account for changes in a stock's round lot size.[1900]

In the Proposing Release the Commission estimated that the implementation cost for a trading venue to update its systems, including its matching engine, to account for the new round lot definition and changes in the Order Protection Rule would be similar to the estimated costs of an exchange modifying its systems to implement the Tick Size Pilot, which, based upon the input from commenters, the Commission estimated to be around $140,000.[1901] The Commission also estimated in the Proposing Release that the implementation cost for a broker-dealer to update its systems, including its SOR, would be $9,000.[1902] One commenter stated that the Commission significantly underestimated the costs for a trading venue to update its systems and estimated that its costs to modify its trading venue to account for the changes in round lot size and order protection would be between $3.4 and $4 million.[1903] The Commission agrees and believes that the estimates from the Proposing Release underestimated the implementation costs for modifying trading venue and broker-dealer systems to account for the new round lot definition and changes in the Order Protection Rule, which created a separate NBBO and PBBO.[1904] However, the Commission also believes, as suggested by commenters, that the new round lot definition under the final amendments will require significantly less system modifications compared to the Proposing Release.[1905] For example, one commenter stated that if the new round lot definitions were protected then trading venues and broker-dealers will be able to rely on existing technology to continue to operate without significant changes to current execution and routing logic compared to having to build new logic and workflow to account for a separate NBBO and PBBO.[1906] Additionally the Commission believes that many broker-dealer and trading venue systems already account for different round lot sizes and will not need to make extensive modifications to account for a changing round lot size each month. Therefore, although the implementation costs estimated in the Proposal Release may have underestimated the costs to modify systems to account for a separate NBBO and PBBO, the Commission believes they provide an appropriate sense of the level of cost associated with the implementation costs of modifying systems related to the new round lot definition under the final amendments, including building or modifying systems to account for the monthly change in a securities round lot size. The Commission estimates that a trading venue will incur an initial implementation cost of approximately $140,000 and a broker-dealer will incur an initial implementation cost of approximately $9,000 to modify its systems to account for the new round lot definition. However, these costs will vary substantially according to the existing infrastructure of the broker-dealer or trading venue.

(vii) Other Rules and Regulations

The amendments to the definition of round lot and resulting mechanical changes to the NBBO spread, affect how other rules and regulations operate.[1907] In particular, this change affects which orders determine the reference price for numerous rules, including rules under the Exchange Act, SRO rules, and effective national market system plans.[1908] Specifically, the Commission believes that the changes to the NBBO may present changes to the benchmark prices used in Regulation SHO, LULD, retail liquidity programs, market maker obligations, and certain exchange order types and recognizes that the change in the benchmark price may result in economic effects. Further, changing the NBBO will alter the estimation mechanics for Rule 605 metrics, resulting in implementation costs. In addition, the round lot definition will result in economic effects through its impact on the 17 CFR 242.606 (Rule 606) compliance. Finally, although the new round lot definition may alter the requirements of some rules, such as Rules 602, 604, and 610(c), the Commission believes that the economic effects of the changes are uncertain and depend on current practices of handling odd-lot-sized orders. If broker-dealers already include odd-lot-sized orders when complying with the provisions of these rules, then the new round lot definition may not produce any economic effects related to these rules.

For the Short Sale Circuit Breaker, the reference bid for the execution of a short sale transaction could be higher for stocks in the higher priced round lot tiers under the final amendments than it is currently, potentially slightly increasing the burdens on short selling.[1909] Currently, after the Short Sale Circuit Breaker triggers, short sales can only execute at prices greater than the national best bid. While short sales are currently permitted to execute against any odd-lot quotations that exist above the national best bid, the new round lot definition will reduce the instances of such odd-lot quotations in higher priced stocks. Therefore, the final amendments may result in a higher national best bid and thus result in a slightly higher benchmark price for short sale executions in stocks priced more than $250, reducing the fill rate of short sales or increasing the time to fill for short sales.

In addition, a potentially higher national best bid (or lower national best offer) price could marginally affect the trigger of the Short Sale Circuit Breaker.

[1898] *See, e.g.,* MEMX Letter at 4; Fidelity Letter at 6; STANY Letter at 4; Nasdaq Letter IV at 17; MFA Letter at 12–13; Angel Letter at 17.

[1899] *See* MFA Letter at 12–13. This commenter stated that Rule 604 does not require a broker-dealer to display a customer's limit order if it is an odd-lot size.

[1900] *See id.*

[1901] In the Proposing Release, the Commission stated that it did not have detailed information on the operation of exchange matching engines and believed that the $140,000 from the Tick Size Pilot may provide some sense of the level of cost associated with the changes SROs, ATSs, and other off-exchange trading venues would have to make. *See* Proposing Release, 85 FR at Section VI.C.1(c)(i).

[1902] *See id.*

[1903] *See* Nasdaq Letter IV at 17. This commenter also estimated it would cost an additional $800,000 to $1.2 million to modify its systems to account for the changes in locked and crossed markets as a result of the changes in order protection. *See* Nasdaq Letter IV at 19.

[1904] *See supra* Section II.E.1.

[1905] *See, e.g.;* MEMX Letter at 4; BestEx Research Letter at 6–9.

[1906] *See* MEMX Letter at 4.

[1907] The Commission is also deleting the reference to ''The Nasdaq Stock Market, Inc.'' from the definition of protected bid or offer and believes that this change will have no economic effects. As explained above, Nasdaq is now a national securities exchange and is thus otherwise bound by the definition. *See supra* note 361.

[1908] The Commission discussed many of these changes in the Proposing Release. *See* Proposing Release, 85 FR at Section III.C.1(d)(i).

[1909] One commenter stated that the Commission failed to include analysis of how the change in the round lot definition affected Rule 201 of Regulation SHO. *See* NYSE Letter II at 8. This commenter is mistaken. The Commission did qualitatively analyze the effects of the round lot definition on Rule 201 of Regulation SHO. *See* Proposing Release, 85 FR at Section VI.C.1(c)(iii).

In particular, the final amendments could result in slight delays in or a reduction in the number of Short Sale Circuit Breaker triggers, or it could have the opposite effect in the nine stocks whose round lot size will increase. In particular, a national best bid that includes smaller round lots could result in a higher-priced execution relative to a national best bid that does not include smaller round lots. This higher-priced execution could be above the price that would trigger the Short Sale Circuit Breaker whereas an execution on a 100-share quote would have triggered the circuit breaker. This could delay the trigger if the price continues downward, such that the circuit breaker still triggers, or the circuit breaker may not trigger at all if the price rebounds after such an execution. On the other hand, in the eight stocks that will have a larger round lot size, and lower priced national best bid, it could have the opposite effect on circuit breaker triggers: Triggering sooner and more often.[1910]

The Commission believes that the economic effects of the potential impact on the Short Sale Circuit Breaker are unlikely to be significant. These effects should not create implementation costs, and the Short Sale Circuit Breaker should continue to function consistent with its stated purpose. Notably, if the adopted rule will result in not triggering as many Short Sale Circuit Breakers, it could reduce ongoing compliance costs in situations in which the price rebounds despite the lack of a price test on short sales.

Similarly, a potentially higher bid price or lower offer price could affect the trigger of a Limit State under the LULD Plan. A lower-priced national best offer or a high-priced national best bid could result in that quote being more likely to touch a price band, thus triggering a Limit State, when it otherwise would not have. Depending on whether the quote would have otherwise rebounded, this could increase the number of Limit States and/or Trading Pauses or could merely trigger such Limit States or Trading pauses sooner. As in the case of the Short Sale Circuit Breaker, the effects should not create implementation costs, and LULD should continue to function consistent with its stated purposes. In addition, the economic effects of this potential marginal change depends largely on how often odd-lot quotations lead price declines or lead price increases.

[1910] *See supra* Section V.C.1(b)(i).

As discussed in the Proposing Release,[1911] a number of Rule 605 execution quality statistics are benchmarked to the NBBO. Under the final amendments, the NBBO will be based on the tiered, price-based round lot sizes, which means any Rule 605 execution quality statistics that rely on the NBBO as a benchmark will reflect the modified definition of the NBBO. This could cause certain execution quality statistics to change in higher priced stocks. As discussed above, the Commission believes that the NBBO will become narrower for some stocks in higher price tiers. This could cause execution quality statistics that are measured against the NBBO to change because they will be measured against the new, narrower NBBO. For example, execution quality statistics on price improvement for higher priced stocks may show a reduction in the number of shares of marketable orders that received price improvement because price improvement will be measured against a narrower NBBO.[1912] However, the Commission believes that some of these changes may cause some Rule 605 statistics to more accurately reflect actual execution quality because the NBBO based on the new definition for round lots may now take into account more liquidity that the current NBBO ignores.[1913] The Commission believes that these effects will be larger for stocks in higher price tiers because their new round lot definition will include fewer shares.

In addition, the NBBO midpoint in stocks priced higher than $250 could be different under the adopted rules than it otherwise would be, resulting in changes in the estimates for Rule 605 statistics calculated using the NBBO midpoint, such as effective spreads. In particular, at times when bid odd-lot quotations exist within the current NBBO but no odd-lot offer quotations exist (and vice versa), the midpoint of the NBBO resulting from the rule will be higher than the current NBBO midpoint. For example, if the NBB is $260 and the national best offer is $260.10, the NBBO midpoint is $260.05. Under the adopted rules a 40 share buy quotation at $260.02 will increase the NBBO midpoint to $260.06. Using this new midpoint, effective spread calculations for buy orders will be lower but will be higher for sell orders. More broadly, the adopted rules will have these effects whenever the new round lot bids do not exactly balance the new round lot offers. However the Commission does not know to what extent or direction that odd-lot imbalances in higher priced stocks currently exist, so it is uncertain of the extent or direction of the change.

Finally, the Commission recognizes that the new round lot definitions could force market centers (or their third-party service providers) to revise their processes for estimating the Rule 605 execution statistics. Such changes will result in implementation costs.

The Commission recognizes that the NBBO serves as a benchmark in SRO rules in addition to Exchange Act rules and effective national market system plans. For example, the NBBO acts as a benchmark for various retail liquidity programs on exchanges, for exchange market maker obligations, for some order types, and for potentially many other purposes.[1914] As such, including smaller quotes in the NBBO will change how these rules operate and these changes could have economic effects. For example, having to post more aggressive limit orders into retail liquidity programs could reduce the already low volume by reducing the liquidity available but could result in better prices for those retail investors able to execute against that liquidity. In addition, a narrower NBBO could effectively increase some market maker obligations, which could improve execution quality for investors and/or provide a disincentive to being a market maker on the margin. Alternatively, the exchanges with such retail liquidity programs, order types, or market maker obligations could elect to propose rule changes to maintain the current

[1911] *See* Proposing Release, 85 FR at Section III.C.1(d)(i).

[1912] A commenter agreed that the smaller round lot size would cause a decrease in the number of orders showing price improvement in Rule 605 statistics. *See* Nasdaq Letter IV at 19.

[1913] In the hypothetical case of a stock in which there are often valuable odd-lot quotes, broker-dealers trading in this stock can currently use these odd-lot quotes to improve on the NBBO, and this improvement might be reflected in Rule 605 statistics. Under the new round lot definition, if this stock is priced over $250 per share, then some of these odd-lot quotes could end up being defined as round lots under the new definition and thereby end up the basis for the NBBO. With these quotes as the NBBO, the broker-dealer will no longer appear to be improving over the NBBO in its execution, and Rule 605 statistics may appear to indicate a decrease in execution quality. However, they will, in fact, merely be reflecting a more accurate picture of the market circumstances at the time of execution. One commenter agreed that Rule 605 statistics may not be accurate because they do not include information on odd-lot quotes priced better than the NBBO. *See* Healthy Markets Letter at 15. One commenter agreed that the new round lot size would improve the accuracy of Rule 605 statistics and that this would improve transaction cost analysis for funds that rely upon these statistics to analyze broker-dealer execution quality. *See* ICI Comment Letter at 7.

[1914] *See supra* Section V.C.1(b)(i) for a discussion of the effect of changes to the NBBO on order types and for a discussion related to changes to round lot size for stocks with round lots of less than 100 shares.

operation of these rules. Such proposals could mitigate any follow-on economic effects (both benefits and costs) but would require exchanges to incur the expenses associated with proposing amendments to their rules.

As discussed in the Proposing Release,[1915] the definition of round lot could result in an increase in the number of indications of interest in higher priced stocks that will be required to be included in 606(b)(3) reports. Depending on the number of potential indications of interest included as a result of the final amendments, the Commission believes that these changes could increase the benefits of 17 CFR 242.606(b)(3) (Rule 606(b)(3)) with little to no effect on costs.[1916] In particular, the inclusion could result in clients receiving information on order routing for more of their orders, with the resulting benefits. Further, because the incremental cost of adding orders to the reports is low, the Commission does not expect that adding indications of interest to the reports will significantly increase costs.

One commenter stated that the Commission did not examine the effects of the new rules on Rule 603(b), the Vendor Display Rule.[1917] The new round lot definition will require broker-dealers to show a consolidated display that includes the NBBO derived from the new round lot size in higher priced stocks. This will allow investors to see odd-lot quote information that may not previously have been included in the NBBO under the current round lot definition, which may improve their trading decisions and order routing and execution quality.[1918] Broker-dealers may also incur implementation costs in order to adjust their systems.[1919]

The new round lot definition would also affect the requirements regarding the size of orders that need to be collected and made available under Rules 602(a) and (b) and 604(a)(1) and (2). However, it is unclear whether this will have any economic effects, because it would depend on the current practices for handling odd-lot orders. For example, exchanges may already have procedures to collect and make available their best bids and offers to vendors, regardless of the size of those best bids and offers. Further, broker-dealers may already treat all bids and offers as firm quotes regardless of size and may already display all customer limit orders regardless of size. To the extent that these practices are in place, there will be no economic effect from these changes. To the extent that these practices are not in place, the final amendments will increase transparency in higher priced stocks by requiring broker-dealers and trading venues to include smaller sized orders that meet the new round lot definition under these rules.[1920] Broker-dealers and trading venues may also incur implementation costs in order to adjust their systems.[1921]

One commenter stated that the Commission did not consider the burden that applying Rule 610(c) to the new round lot definition would have on market participants and competition, including trading centers that display quotes.[1922] The Commission does not believe that applying the new round lot definition to Rule 610(c) create a significant burden for market participants, including trading centers that display quotes, or have a significant impact on competition. The Commission believes that exchanges may already pay the same rebates or charge the same access fees regardless of order size. Therefore, it does not expect the new round lot definition to affect these fees.

(c) Expanded Core Data Content

The Commission is adopting amendments to include certain information on odd-lot quotes at and inside the NBBO, certain depth of book data, and information on orders participating in auctions in the definition of core data. This section discusses the economic effects of expanding the core data content separately for each additional core data element and then discusses the additional costs that may accrue to market participants from the combined new core data elements, although competing consolidators will not be required to offer consolidated market products that include all of the content of expanded core data and market participants may choose not to take in all of the new core data elements in every instance.[1923] The economic effects discussed in this section depend on the fees for data content underlying core data charged by the effective national market system plan(s) for NMS stocks and the competing consolidators. The fees for data content underlying new core data are discussed later, in Section V.C.2(b).

The Commission believes that expanding the content of core data to include information on odd-lot quotes at and inside the NBBO, depth of book information, and auction information will provide benefits to market participants that previously only relied on the SIP and choose to receive the new core data elements if the fees are lower as part of consolidated market data than fees for equivalent data today.[1924] Expanding core data will reduce information asymmetries between these market participants and market participants that subscribe to proprietary DOB feeds.[1925] A reduction in information asymmetry may, in turn, enhance market efficiency and price discovery if it leads to information that was previously only contained in proprietary DOB feeds being impounded into prices quicker.[1926] The additional information contained in expanded core data will also allow these market participants to improve order routing and will help facilitate best execution, which may reduce their transaction costs.[1927] The additional content of expanded core data could make consolidated market data a reasonable alternative to exchange proprietary data feeds for some market participants,[1928] potentially lowering their costs.[1929]

One commenter stated that it is unclear whether the expanded content

[1915] *See* Proposing Release, 85 FR at Section III.C.1. for a discussion of how the definition impacts Rule 606.

[1916] *See* Proposing Release, 85 FR at n. 227 for a discussion of the benefits of 606(b)(3).

[1917] *See* NYSE Letter II at 6–7.

[1918] *See supra* Section V.C.1(b)(ii).

[1919] *See supra* Section V.C.1(b)(vi).

[1920] *See supra* Section V.C.1(b)(ii).

[1921] One commenter stated that market makers would need to make adjustments to their systems to display customer limit orders in the new round lot sizes under Rule 604. *See* MFA Letter at 12–13. These costs are included in the costs to adjust systems to the new round lot size. *See supra* Section V.C.1(b)(vi).

[1922] *See* NYSE Letter II at 7–8.

[1923] *See infra* Section V.C.1(c)(iv).

[1924] *See infra* Section V.C.2(b)(i).

[1925] Commenters agreed that the expansion of core data would reduce information asymmetries. *See, e.g.,* BestEx Research Letter at 2; Better Markets Letter at 2–3; BlackRock Letter at 2; Capital Group Letter at 2. *See infra* note 2404 and accompanying text for a discussion of commenter stating that allowing competing consolidators to offer customized products containing subsets of expanded core data would increase information asymmetries.

[1926] Commenters agreed that the expansion of core data would improve market efficiency and price discovery. *See, e.g.,* Better Markets Letter at 2–3; ICI Letter at 5.

[1927] Commenters agreed that the additional information in core data would facilitate best execution. *See, e.g.,* Clearpool Letter at 11; DOJ Letter at 4; IntelligentCross Letter at 2; SIMFA Letter at 3–4.

[1928] Commenters agreed that the expanded content of core data could reduce some market participants' dependence on proprietary data feeds. *See, e.g.,* Clearpool Letter at 11; BlackRock Letter at 2; DOJ Letter at 4.

[1929] *See infra* Section V.C.2(b) (discussing potential fees for consolidated market data). Commenters agreed the expanded content of core data could lower costs for some market participants who currently subscribe to proprietary DOB feeds and switch to consolidated market data. *See, e.g.,* Virtu Letter at 5.

of core data would be useful to any set of investors and that the Proposing Release did not provide any analysis on this point.[1930] This commenter questioned whether there would be demand for the expanded content of core data, stating that it would simultaneously provide ''too much and too little to be optimal for anyone—too much data for the retail investor and too little for sophisticated traders.'' [1931] This commenter also stated that expanding the content of core data would provide no real benefits because all of the information is already available to everyone who needs it.[1932] The Commission disagrees with this commenter and believes there would be demand for the expanded content of core data. Although the Commission did not quantify the number of market participants that would subscribe to the expanded content of core data, the Commission did provide a qualitative analysis of how certain market participants might subscribe to and could benefit from the expanded content of core data.[1933] Although expanded core data will not contain all of the data contained in proprietary DOB feeds, the Commission believes that it will contain data that will be useful for market participants.[1934] For example, although the DOB data contained in expanded core data will only contain five levels of depth, the Commission believes, and commenters agree, that including five levels of depth in expanded core data will provide a benefit to market participants, including allowing them to improve their order routing.[1935] The Commission believes that there are market participants who would subscribe to proprietary DOB feeds, but do not currently do so because of the cost.[1936] Because the Commission anticipates that the total fees for a consolidated market data product containing all the elements of expanded core data are likely to be less expensive than equivalent proprietary data feeds,[1937] the Commission believes that there would be demand from these market participants for a consolidated market data product that contains all the elements of expanded core data because it will reduce information asymmetries between these market participants and market participants that subscribe to proprietary DOB feeds.[1938] Additionally, if a consolidated market data product containing all data elements is offered at reduced latency, then some market participants that currently rely on aggregated proprietary DOB feeds may use it as a substitute for proprietary feeds.[1939] Furthermore, there are likely market participants that may only benefit by taking subcomponents of expanded core data or products that competing consolidators offer that may be derived from the expanded content of core data, such as products that detail the best-priced odd-lot quotes or DOB imbalance measures. Therefore, to the extent that the individual components of expanded core data are less expensive than equivalent data from proprietary feeds,[1940] there will be demand for competing consolidators to also offer consolidated market data products that contain a subset of consolidated market data. Even if market participants do not directly benefit from any of the expanded content of core data, they may benefit indirectly if the broker-dealers that handle their orders subscribe to the expanded content.[1941] While the Commission believes there will be demand for the expanded content of core data, the Commission remains unable to quantify the number of market participants who will subscribe to the expanded content of core data because it does not have information on the number of market participants that would subscribe to proprietary DOB feeds, but do not do so because of the cost, or information on the number of market participants that currently subscribe to proprietary DOB feeds but might switch to expanded core data if the cost is lower.[1942]

Because competing consolidators will not be required to offer a consolidated market data product that contains all of the data elements of consolidated market data,[1943] there is a risk that a consolidated market data product containing all of the data elements of expanded core data will not be offered by any competing consolidator. The Commission believes this risk is low because there is likely to be sufficient demand for such a product from market participants. As discussed above in this section, because the fees for a consolidated market data product containing all of the data elements of core data are likely to be lower than fees for equivalent data from proprietary feeds today,[1944] the Commission believes that there will be demand from market participants for a consolidated market data product containing all of the elements of expanded core data.[1945] Because there will be demand for the data and because the competing consolidator market is subject to competitive forces, the Commission believes that one or more competing consolidators will be incentivized to offer a consolidated market product containing all of the data elements.

Commenters stated that expanding the content of core data would provide no benefit to retail investors.[1946] Commenters stated that depth of book and auction data is not useful for most retail investors and is likely to cause confusion.[1947] The Commission disagrees with these commenters. The Commission acknowledges that many retail investors may not directly view

[1930] *See* Nasdaq Letter IV at 33, 38 (''the Proposed Rule replaces ''only pay for what you need'' with a feed that is simultaneously providing too much and too little to be optimal for anyone—too much data for the retail investor and too little for sophisticated traders'').

[1931] *See* Nasdaq Letter IV at 38.

[1932] *See* Nasdaq Letter IV at 34.

[1933] *See* Proposing Release, 85 FR at Section VI.C.1.

[1934] For example, expanded core data will not contain complete order-by-order information or full depth of book information.

[1935] *See infra* Section V.C.1(c)(ii). Commenters agreed that five levels of depth is sufficient for many market participants. *See, e.g.,* State Street Letter at 2–3; Capital Group Letter at 3; Fidelity at 4.

[1936] *See supra* note 28 (discussing commenters' views that the cost of proprietary DOB products currently inhibits the purchase of, and the widespread dissemination of, the data elements that will be contained in expanded core data). *See also* Roundtable Day One Transcript at 128–29 (Mark Skalabrin, Redline Trading Solutions) (stating that some customers do not purchase exchange proprietary DOB products because of the cost, explaining ''we sell to various customers, leading firms that have lots of money and really imbed this technology, but also to startup brokers and small firms trying to integrate in the market. And not all of them use direct feeds. And it was mentioned before that some people just don't buy the direct feeds. Some people can do without it. And we deal with them in that decision process. It's not a mystery why they don't use the direct feeds; it's solely cost.'').

[1937] *See infra* Section V.C.2(b)(i) (discussing fees for consolidated market data).

[1938] *See infra* Sections V.C.1(c)(i), V.C.1(c)(ii), and V.C.1(c)(iii). Commenters agreed that core data that included odd-lot information, auction information, and five levels of depth would be useful to market participants. *See, e.g.,* Better Markets Letter at 3 (''These information taken together amount would fill a significant gap that currently exists in the SIP data.''); ICI Letter at 4; State Street Letter at 2–3.

[1939] *See infra* Section V.C.4(a). Commenters agreed that the additional information contained in expanded core data would make consolidated market data a viable alternative to proprietary DOB feeds. *See, e.g.,* SIFMA Letter at 7; T Rowe Price Letter at 2; Clearpool Letter at 11.

[1940] *See infra* Section V.C.2(b)(ii).

[1941] *See supra* Sections II.A and II.C.2(a). *See also infra* Sections V.C.1(c)(i), V.C.1(c)(ii), and V.C.1(c)(iii).

[1942] *See infra* Sections V.C.2(b), V.C.4(a).

[1943] *See supra* III.C.8(a).

[1944] *See infra* Section V.C.2(b)(i) (discussing fees for consolidated market data).

[1945] *See supra* note 1936 and accompanying text.

[1946] *See, e.g.,* Nasdaq Letter IV at 33, 38; TD Ameritrade Letter at 2, 15.

[1947] *See, e.g.,* Nasdaq Letter IV at 33; TD Ameritrade Letter at 5.

the entire content of expanded core data, but believes that retail investors will benefit from the expansion of the content of core data. Competing consolidators could offer customized products derived from the expanded content of core data that retail brokers may be able offer to their clients, who may be able to utilize the data to achieve some of the benefits discussed below without the retail broker taking in the additional message traffic from the full content of expanded core data. For example, competing consolidators could offer measures summarizing DOB or auction imbalances, or a feed that gives information on the best priced odd-lot quotes. Additionally, the Commission believes, as suggested by commenters, that retail brokers may allow some sophisticated retail investors to directly utilize the expanded content of core data and realize the benefits discussed below.[1948] Furthermore, retail investors may indirectly benefit if their executing broker-dealer uses expanded core data and did not previously receive this information from proprietary feeds. Additionally, retail investors may also indirectly benefit from other market participants utilizing expanded core data because they would be better able to observe and interact with retail investor orders, possibly leading to additional gains from trade.[1949]

(i) Effects of Addition of Information on Odd-Lot Quotes at and Inside the NBBO

This section discusses the economic effects of expanding the content of core data to include information on odd-lot quotes that are priced at or more aggressively than the NBBO to the definition of core data.[1950] For market participants who currently do not receive information on odd-lot quotes and choose to receive this aspect of expanded core data,[1951] the Commission generally believes that the economic effects will be similar to many of the effects discussed above regarding including smaller sized odd-lot quotes in the definition of a round lot.[1952] However, these benefits may be greater because these market participants will receive significantly more information on odd-lot quotes, since they will receive aggregated information on all odd-lot quotes priced better at or better than the NBBO for all NMS stocks, rather than just information on the smaller subset of quotes that will be included in the new round lot definition for stocks priced greater than $250.[1953] More specifically, the inclusion of odd-lot quote information in core data will improve transparency and reduce information asymmetry between market participants who already receive this information through proprietary DOB feeds and market participants who choose to subscribe to this aspect of core data and previously did not receive this information.[1954] This could potentially lead to these market participants being able to reduce their execution costs, make more informed trading decisions, facilitate best execution, as well as realize gains from trade. Including odd-lot quotes in core data may also cause changes in order flow to exchanges and off-exchange trading venues, as well as improvements in price efficiency. It may also benefit some market participants that currently subscribe to proprietary DOB feeds to receive data on odd-lot quotes because it may allow these market participants to receive this information through expanded core data, potentially at lower cost.[1955] However there may also be costs to market participants who choose to receive this data because they may need to upgrade their infrastructure in order to handle the additional message traffic contained in the odd-lot information.[1956] There could also be costs to market participants who currently receive information about odd-lot quotes from proprietary feeds and benefit from existing information asymmetries.

The Commission recognizes that many market participants, including many retail brokers-dealers (and their clients), may choose not to receive all of the information on odd-lot quotes priced at or better than the NBBO that is contained in expanded core data.[1957] However, the Commission believes that there are some market participants that currently do not receive information on odd-lot quotes but may choose to receive this information from expanded core data if it is available at a cheaper price than equivalent proprietary data.[1958] If these market participants subscribe to this element of core data, then the Commission believes they will receive many of the benefits (and incur many of the costs) discussed below. Even if market participants do not directly receive all of the odd-lot information in expanded core data, they could realize some of the benefits if competing consolidators offer products that are derived from or contain some of the odd-lot information in expanded core data. For example, competing consolidators could offer a product that only contains information on the best priced odd-lot on each exchange. Because such a product would not significantly increase message traffic compared to receiving all the odd-lot information in expanded core data, many market participants, including many retail broker-dealers (who may offer it to their clients), may be able to utilize such a product and gain additional information about odd-lot quotes that would allow them to lower their execution costs and potentially realize additional gains from trade. Even if market participants do not receive any additional information on odd-lot quotes contained in expanded core data, they could still benefit if the broker-dealers handling their orders use the information. If a broker-dealer previously did not have access to odd-lot information, then a broker-dealer receiving the additional information may help facilitate best execution of its clients' orders. Even if a broker-dealer previously received the data from proprietary feeds and now receives it from core data, customers of the broker-dealer may benefit if the broker-dealer indirectly passes on any cost savings from switching data sources to its clients.

Adding information on odd-lot quotes that are priced at or more aggressively than the NBBO to the definition of core data will significantly increase transparency for market participants that do not currently receive information on odd-lot quotes, such as market participants that rely exclusively on SIP data, and choose to receive this element of expanded core data. Even though the new round lot definition would expand information on odd-lots that may be priced better than the current NBBO in some stocks,[1959] most stocks would not be affected by the new round lot definition.[1960] Additionally, the analysis in Table 1 shows that a substantial amount of odd-lot transaction volume in stocks above $250 would not be included in the new round lot definition. The addition of odd-lot information to expanded core data will

[1948] *See, e.g.,* Schwab Letter at 1, 3.

[1949] *See infra* Sections V.C.1(c)(i), V.C.1(c)(ii), V.C.1(c)(iii).

[1950] *See supra* Section II.C.2(b).

[1951] Market participants may choose not to subscribe to this element, as well as other aspects of expanded core data. *See infra* Section V.C.1(c)(iv).

[1952] *See supra* Section V.C.1(b)(ii).

[1953] *See supra* Section V.C.1(b).

[1954] One commenter stated that including all odd-lot quotes at prices better than the protected BBO in core data would provide investors with valuable information. *See* CBOE Letter at 15.

[1955] *See infra* Sections V.C.2(b) and V.C.4(a).

[1956] *See infra* Section V.C.1(c)(iv).

[1957] *See supra* Section V.C.1(c).

[1958] *See infra* Section V.C.2(b).

[1959] *See supra* Section V.C.1(b)(ii).

[1960] The Commission estimates that approximately 98.5% of NMS stocks will have a round lot size of 100 shares. *See supra* Table 4.

make information on these additional odd-lot quotes that are priced at or better than the NBBO available to market participants who previously did not observe this information and who will choose to subscribe to this element of expanded core data. This would reduce information asymmetry between these market participants and market participants who currently receive this information through proprietary DOB feeds.

Market participants who choose to receive the odd-lot quotes from expanded core data and currently do not receive this information could realize a benefit from additional gains from trade. Some of these market participants may have traded with a price-improving odd-lot quote but did not because they cannot see information on odd-lot quotes. Under the final amendments, these market participants would be able to see these quotes if they receive odd-lot information from expanded core data, and make a decision about whether to trade based on this newly visible trading interest.[1961] This may benefit these market participants or their clients because they will be able to realize the gains from trade that are available in this situation and are not currently occurring because of the lack of information. Market participants that post the odd-lot quotes that these market participants trade against would also benefit from realizing additional gains from trade.

The magnitude of this benefit depends on the amount of additional or improved trading generated by the inclusion of odd-lot information. In particular, the Commission believes that to the extent market participants who rely solely on SIP data and lack information on odd-lot quotes choose to receive the odd-lot information in expanded core data and would have traded frequently against odd-lot quotes had they known about them, the benefit will be large. However, if these market participants would not have frequently traded against odd-lot quotes but for a lack information, then the Commission believes that the associated economic benefit from including odd-lot quotes in core data will be small. The Commission believes it is not possible to observe this willingness to trade with existing market data.

Market participants who choose to receive the odd-lot quotes, or their clients, may benefit from making more informed trading decisions by utilizing the data to improve their strategies related to order routing and order placement, provided that they do not already obtain information on odd-lots from proprietary feeds. For instance, market participants who wish to fill an order at the best possible price, including at sizes of less than 100 shares, will be better able to do so because odd-lot quotes at prices better than the NBBO will be visible to them. Additionally, these market participants may be able to improve the placement of their limit orders by being able to see odd-lot quotes at or inside the NBBO at multiple exchanges in order to evaluate which exchange's queue would provide their limit order with the highest execution priority. The use of this information may improve order execution quality and facilitate best execution for these market participants or their clients.[1962] The Commission believes that many of the market participants who utilize such strategies already have access to full odd-lot information via proprietary feeds; for these market participants, this portion of the final amendments may not improve their strategies related to order routing.[1963]

Also, the Commission believes that some market participants might start running these order routing strategies if the data were available to them at prices that are lower than the cost of obtaining this data through proprietary feeds.[1964] These market participants might currently find that the value of attempting such strategies without information on odd-lots is too low to justify running the strategies, but they might find that access to data on such orders through the updates to expanded core data will enable them to run such strategies effectively. To the extent that such market participants exist, the inclusion of odd-lot quotes in core data will be a benefit to them as well.[1965]

The Commission believes that adding information on odd-lot quotes priced at or better than the NBBO to expanded core data may improve price efficiency. The wider availability of information about odd-lot quotes may mean that market participants who currently do not receive this information and subscribe to this element of expanded core data will incorporate the information contained in those quotes into their trading decisions. This may have the effect of improving the efficiency with which this information becomes reflected in prices.[1966]

One commenter stated that adding information on unprotected odd-lot quotations to core data would create confusion for retail investors.[1967] The Commission disagrees with this commenter. As discussed above in this section, the Commission believes that many retail brokers will not directly offer their clients all of the odd-lot information contained in expanded core data and, therefore, their clients will not be confused by it. If a retail broker does directly offer all of the information to any of its clients, the Commission believes that any client receiving the information will likely be a sophisticated retail investor and not confused. Additionally, if competing consolidators develop products for retail brokers to offer to their clients (*i.e.,* retail investors) that contain subsets of the odd-lot information in expanded core data, the Commission believes that competing consolidators and the data vendors or broker-dealers that supply the information to retail investors will do so in way that does not create confusion.

The Commission believes that adding information on odd-lot quotes priced at or better than the NBBO to expanded core data may cause changes to order flow as market participants that do not currently receive this information and choose to subscribe to it change their trading strategies to take advantage of newly visible quotes. This may mean that there will be changes to the share of order flow each exchange and off-exchange trading center receives as a result of this rule. The Commission is uncertain about the magnitude of this effect.

The addition of odd-lot quote information to expanded core data will increase the total message traffic in expanded core data, and this increase in message traffic will be accompanied by costs to market participants to set up the infrastructure required to handle this new level of traffic. Additionally, competing consolidators and SROs may

[1961] One commenter agreed that displaying odd-lot information would reveal greater liquidity in a stock. *See* RBC Letter at 5.

[1962] For a discussion of order execution quality and the provision of execution services by broker-dealers, *see supra* Section V.B.3(e).

[1963] Adding information on odd-lot quotes priced at or better than the NBBO to expanded core data may benefit those market participants who already obtain odd-lot information by providing them with alternatives to proprietary feeds. For a discussion of this effect, *see infra* Section V.C.4(a). Also, the Commission understands that some market participants who use proprietary feeds as their main source of market data also use the SIP feeds as a backup. For such market participants, adding information on odd-lot quotes priced at or better than the NBBO to expanded core data may improve the value of a core data feed as a backup if they choose to subscribe to the additional information contained in expanded core data.

[1964] *See infra* Section V.C.2(b).

[1965] For further discussion of new entrants to the competitive order routing business, *see infra* Section V.C.4(b).

[1966] For additional discussion of the price efficiency point, *see infra* Section V.D.1.

[1967] *See* TD Ameritrade Letter at 4–5.

incur implementation costs related to receiving and generating the information necessary to process and disseminate consolidated market data. However, market participants are not required to receive (or display) the odd-lot quotes contained in expanded core data, and competing consolidators will not be required to disseminate all of the information in consolidated market data, including odd-lot quotes contained in expanded core data, so they will not incur these costs unless they choose to receive or disseminate this information, respectively.[1968] These costs are discussed below in Section V.C.1(c)(iv).

The addition of information on all odd-lot quotes priced at or better than the NBBO to core data may negatively affect certain trading strategies, but the associated costs are likely to be small. First, the Commission believes that there may be traders who currently attempt not to display their orders to wide public view by posting them in odd-lot sizes, in pursuit of trading strategies that take advantage of a market's limited knowledge of odd-lot size quotes. The Commission understands that certain traders (ones who are the most likely to recognize any advantage being sought in this manner) obtain proprietary feeds and so currently can see these odd-lot quotes. This means that this strategy cannot be used to hide quotes from users of proprietary DOB feeds. To the extent that it is necessary to hide the quotes from such users in order for the strategy to work, the benefits of such a trading strategy are likely to be minimal. If this is the case, then to the extent that the addition of odd-lot quotes to core data makes this strategy more difficult, the Commission believes that the cost to these traders of losing such an opportunity will also be minimal. On the other hand, if there is some benefit to posting quotes in odd-lot sizes to hide them from view (or at least from the view of market participants that do not observe these odd-lot quotes) despite the fact that users of proprietary DOB feeds can still see the quotes, the Commission believes that to the extent that the addition of odd-lot quotes to core data makes this strategy more difficult, there may be a cost to the traders who use such a strategy. The Commission cannot observe whether an odd-lot quote is being used to hide the order or not.

Second, there may be costs to those traders who currently enjoy the position of being among the traders who can see odd-lot quotes via proprietary data feeds. The Commission believes that odd-lot quotes are more easily taken advantage of by those traders who can see the quotes. Currently, this advantage is available only to those traders who purchase proprietary data feeds. The Commission believes that this gives these traders an advantage over other traders by improving their order execution costs. Under the changes to core data, this advantage is likely to be reduced. If this were to happen, it will be because other traders will obtain the advantage as well and may take advantage of these quotes before the current direct feed subscribers do. To the extent that this happens, this cost to current direct feed subscribers from losing this advantage represents a transfer to the traders who can see the liquidity currently in odd-lots. The Commission is uncertain about the size of the loss in advantageous trading opportunities to traders who subscribe to the proprietary data. To quantify this requires knowing (among other things) when an odd-lot quote is traded with by a participant who had access to full odd-lot information and when it was traded with by a participant who did not know the quote was there, and this is not observable from available market data.

It can sometimes happen that a market becomes locked or crossed in odd-lot orders. As a result of the final amendments, information on all odd-lot quotes priced at or better than the NBBO will now be included in expanded core data, and these locked and crossed odd-lot orders will now be visible to subscribers of expanded core data that chose to receive odd-lot information. The economic effects of having these locked or crossed quotes visible to market participants who receive this data will be minor. In particular, to the extent that these crosses and locks in odd-lot sizes represent a profitable trading opportunity to those market participants who do not receive odd-lot information, being able to observe the occurrence of these events as a result of the receiving odd-lot quotes in expanded core data will be a benefit to these market participants. Also, to the extent that market participants who currently subscribe to proprietary feeds are able to profit from being the only market participants to observe crossed or locked odd-lots, the change will represent a cost to them. To the extent these market participants can profit from exploiting those market participants who cannot see the crosses or locks, this change will represent a transfer from those who currently trade on this information to those who acquire the information through new core data and are able to use it effectively. It is also possible that traders avoid sending orders because of the risk of being exploited if they cross or lock the market. To the extent that this happens and that the expansion of core data addresses this concern, the increase in trading that will result will represent a benefit to both sides of the trade. The Commission believes that some crossed or locked odd-lot quotes represent traders who are not aware at the time they post their quote that the quote could be filled by a marketable order elsewhere. To the extent this happens it represents a cost to this trader since the posted order is exposed to the risk that it will be executed with a marketable order at a price inferior to what is available on the market to the trader who posted the order. The final amendments will reduce this cost for market participants who receive odd-lot information because they will now be able to observe and trade with odd-lot orders available at better prices.

(ii) Effects of Addition of Depth of Book Information

The Commission is adding certain depth of book information to the definition of core data, which will result in this information becoming available to anyone who subscribes to this element of core data. The Commission believes that this information could be useful in trading, and therefore disseminating this information as an element of core data could have the effect of causing changes to the trading strategies of those market participants who currently rely solely on SIP data and will choose to buy depth of book information. This could potentially lead to improvements in order routing for these market participants or their clients and reductions in their execution costs and facilitate best execution. Adding certain depth of book information to the definition of core data may also lead to changes in order flow to trading venues, improvements in price efficiency of markets, and gains from trade that are not currently being realized. Market participants that choose to receive the depth of book data may experience implementation costs from having to upgrade infrastructure to account for the increase in message traffic from the data.

Some commenters stated that most market participants do not need depth of book information.[1969] However, other commenters believed that including depth of book data in core data would

[1968] *See supra* Sections II.C.2(a) and III.C.8(a)(ii).

[1969] *See, e.g.,* Nasdaq Letter IV at 33; TD Ameritrade Letter at 5.

be useful for market participants.[1970] The Commission recognizes that many market participants, including many retail investors, may choose not to receive all of the DOB information contained in expanded core data.[1971] However, the Commission believes that there are some market participants that currently do not receive DOB information but may choose to receive this information from expanded core data if it is available at a lower price than equivalent proprietary DOB feeds.[1972] If these market participants subscribe to this element of core data, then the Commission believes they will receive many of the benefits (and incur many of the costs) discussed below. Even if market participants do not directly receive all of the DOB information in expanded core data, they could realize some of the benefits if competing consolidators offer products that are derived from or contain some of the DOB information in expanded core data. For example, competing consolidators could offer a product that contains only information on the price and size available at the next best round lot price outside the NBBO. Because such a product would not significantly increase message traffic compared to receiving all DOB information in expanded core data, many market participants, including many retail brokers (who may offer it to their clients), may be able to utilize such a product and gain additional information that would allow them to lower their execution costs. Even if market participants do not receive any additional DOB information contained in expanded core data, they may still benefit indirectly from including depth of book information in core data if the broker-dealers handling their orders use the information. If a broker-dealer previously did not have access to DOB information, then its clients may benefit if a broker-dealer uses the DOB information in expanded core data when handling customer orders, which may improve their execution quality.[1973] Additionally, the Commission believes that the depth of book information in expanded core data may benefit market participants who substitute it for proprietary DOB feeds if it is available at lower cost [1974] The Commission is not able to quantify the number of market participants who will directly utilize the depth of book information in core data because it would depend on the future fees the Equity Market Data Plan establishes for the additional content of core data.

One commenter stated that it was unclear if five levels of depth would be useful to any investors at all.[1975] However, the Commission believes, and commenters agree, that including five levels of depth in expanded core data will benefit market participants.[1976] The Commission acknowledges that market participants that substitute expanded core data for proprietary DOB feeds will not receive as much depth of book information and may experience a reduction from the benefits they receive from such information. However the Commission believes that these market participants will only substitute expanded core data for proprietary DOB data if the money they save exceeds the value of the reduction in benefits from not receiving the additional information contained in proprietary DOB feeds.

The Commission believes that adding the depth of book information as an element of core data will benefit market participants who previously relied exclusively on SIP data and who choose to receive this element of expanded core data. Academic research has found evidence that valuable trading information can be obtained from the full depth of a limit order book.[1977] As noted in the Proposing Release, some market participants also believe that depth of book information is valuable.[1978] Currently, only traders who subscribe to exchanges' proprietary data feeds can receive this information. As a result of the final amendments, additional depth of book information will become available to anyone who subscribes to these elements of core data. The Commission believes that market participants, including, as suggested by commenters, some retail investors,[1979] that currently rely solely on SIP data could use the additional depth of book information to improve trading strategies and to lower execution costs.[1980] To the extent that the advantage of having this information depends on other traders not having it, this economic effect will represent a transfer from the current users of depth of book information to those market participants who will now get access to, and will be able to utilize, this information.[1981] In particular, a more widespread dissemination of depth of book information may cause market prices to adjust to this information more rapidly as more people react to this information. Once market prices settle to a level that reflects this information, the opportunity to profit from having additional depth of book information may be lost.

The Commission believes that market participants who use strategies related to order routing, order placement, and order execution, may benefit from the new depth of book information, provided that currently they do not already obtain this information via proprietary data feeds. For instance, market participants may seek to get priority in the queue at a particular price level behind the top of book by posting a limit order. Such a strategy may benefit from being able to see the depth at these price levels at multiple exchanges in order to evaluate which exchange's queue would provide the order with the highest execution priority. To the extent this is the case, the Commission believes that market participants who previously did not have access to additional depth of book information will benefit by being able to better run such strategies. This could improve order execution quality for these market participants (or their clients).[1982] The Commission believes that many of the market participants who utilize such strategies already have

[1970] *See, e.g.,* Clearpool Letter at 14; Healthy Markets Letter I at 3; DOJ Letter at 2–4.

[1971] *See supra* Section V.C.1(c).

[1972] *See infra* Section V.C.2(b).

[1973] *See supra* Section V.B.2(a). Even if a broker-dealer previously received the data from proprietary feeds and now receives it from core data, clients of the broker-dealer may benefit if the broker-dealer indirectly passes on any cost savings from switching data to its clients.

[1974] *See infra* Sections V.C.2(b)(i) and V.C.4(a).

[1975] *See* Nasdaq Letter IV at 33.

[1976] Commenters agreed that five levels of depth is sufficient for many market participants. *See, e.g.,* State Street Letter at 2–3; Capital Group Letter at 3; Fidelity at 4. In addition, the staff analysis found a significant percentage of the total notional value of all depth of book quotations for both liquid and illiquid stocks falls within the first five price levels. *See supra* note 387. *See also supra* Section II.F.2(b).

[1977] *See* Lawrence E. Harris and Venkatesh Panchapagesan, The Information Content of the Limit Order Book: Evidence from NYSE Specialist Trading Decisions, 8 J. Fin. Mkts. 25 (2005); Jonathan Brogaard et al., Price Discovery without Trading: Evidence from Limit Orders, 74 J. Fin. 1621–58 (2019); Shmuel Baruch, Who Benefits from an Open Limit-Order Book?, 78 J. Bus 1267 (2005) (presenting some theoretical results showing that liquidity takers benefit more from an open limit order book).

[1978] *See* Proposing Release, 85 FR at Section III.C.2(c) (describing how market participants have stated that they believe they need depth of book information in order to run their businesses). *See also supra* Section V.B.2(a) (discussing the value of depth of book information).

[1979] *See, e.g.,* Schwab Letter at 1, 3 (''providing depth-of-book data on the consolidated feed will give Main Street investors a critical look at market sentiment with regard to an individual security and pricing information for the size of the order they want to place''); Angel Letter at 8.

[1980] Commenters agreed including depth of book information in core data would help lower execution costs. *See, e.g.,* RBC Letter at 4; ICI Letter at 8–9.

[1981] *See infra* Section V.C.1(c)(iv).

[1982] For a discussion of order execution quality and the provision of execution services by broker-dealers, *see supra* Section V.B.3(e).

access to full depth of book information via subscriptions to proprietary feeds; for these traders the additional core data will not produce a direct benefit.[1983] The Commission is unable to quantify the number of market participants who currently run these types of strategies without using depth of book information because the Commission does not have access to information on specific strategies utilized by individual traders in the market.[1984]

Also, the Commission believes that there may be market participants that would start running these order routing strategies if the data were available to them at prices lower than the current prices for equivalent data in proprietary feeds.[1985] These market participants might currently find that the value of attempting such strategies without DOB data is too low to justify them, but that access to additional DOB data through these elements of the new definition of core data will enable them to run such strategies effectively. To the extent that such market participants exist, the additional DOB data will be a benefit to them as well.

The revision in trading strategies discussed above may result in changes to the decisions traders make about where to route their orders among the various trading venues. Market participants may find that depth of book information suggests trading opportunities on exchanges to which they would not have otherwise routed their orders. The Commission is uncertain about the magnitude of this effect or which trading venues may gain or lose order flow as a result. The Commission cannot determine how many market participants may choose to change routing strategies as a result of the new depth of book information, nor to what extent the new depth of book information will cause market participants to change where they route their orders.[1986]

Also, the Commission believes that the more widespread dissemination of depth of book information may result in more efficient pricing.[1987] As more traders take advantage of information contained in the depth of book data, prices will reflect this information more quickly.[1988] Therefore, more widespread dissemination of depth of book information may lead to pricing that better reflects available information. The size of this effect depends on the willingness and ability of market participants who currently rely solely on SIP data to make use of the information in the new depth of book data, which is unobservable.

The Commission believes that there may be gains from trade that will be realized as a result of adding this depth of book information as an element of core data. The possibility for this benefit to materialize relies on the extent to which there exist market participants who will be willing to send orders that ''walk the book'' [1989] but currently do not do so because they do not see what is beyond the top of the book. This situation represents a current economic inefficiency because there are potential gains from trade that are not realized because of a lack of information. This would benefit both the market participant walking the book and the market participants who posted orders behind the BBO that will be filled as a result of the trade.

Relatively few orders actually execute at prices outside the NBBO,[1990] which implies that trading against quotes away from the NBBO on a single exchange, using a single marketable order, does not occur frequently. In addition, an analysis of a sample of trading in ten stocks on the Nasdaq exchange found that an average of 0.65% of market orders walked through the best displayed price level for these ten stocks.[1991] Therefore, the Commission believes that there may be limited benefits from additional DOB information in the particular hypothetical case of market participants who currently rely solely on SIP data for market information and who will submit market orders to trade against limit orders beyond the top of the book on a single exchange when the depth of book information is available in core data. However, the size of the benefit depends on the willingness of market participants to walk the book after receiving the new DOB information, as well as their trading interest, and this is unobservable in the current market.[1992]

The addition of depth of book information to expanded core data will increase the total message traffic in expanded core data, and this increase in message traffic will be accompanied by costs to market participants to set up the infrastructure required to handle this new level of traffic. Additionally, competing consolidators and SROs may incur implementation costs related to receiving and generating the information necessary to process and disseminate consolidated market data. However, market participants are not required to receive (or display) the DOB information contained in expanded core data, and competing consolidators will not be required to disseminate all of the information in consolidated market data, including DOB information contained in expanded core data, so they will not incur these costs unless they choose to receive or disseminate this information.[1993] These costs are discussed below in Section V.C.1(c)(iv).

(iii) Effects of Addition of Auction Information

The Commission is adding ''auction information'' as an element of core data. This will result in all auction information currently disseminated by exchanges via proprietary data feeds being made available to subscribers of these elements of core data feeds. This will have effects that include changes to market participants' trading strategies, gains from trade as a result of new

[1983] The inclusion of depth of book information may benefit those market participants who already use depth of book information by providing alternatives to proprietary feeds. For a discussion of this effect, *see infra* Section V.C.1(c)(iv). Also, the Commission understands that some market participants who use proprietary feeds as their main source of market data also use the exclusive SIP feeds as a backup. For such market participants, the expansion of DOB information may improve the value of a core data feed as a backup.

[1984] The Commission requested comment on market participants who run order routing strategies without access to DOB information but did not receive information from commenters that would help quantify the number of market participants that use such strategies. The Commission believes that it is possible that the inclusion of this information in the definition of core data, along with reductions in the latency differential that will result from the decentralized consolidation model, may benefit market participants who do not currently run these strategies but who will choose to start running them as a result of the changes. For more discussion on this possibility, *see infra* Section V.C.4(b).

[1985] *See infra* Section V.C.2(b)(i) for a discussion of consolidated market data fees and Section V.C.4(b) for a discussion of market participants who may start running such strategies.

[1986] One commenter stated that this information ''should be essential'' to the Commission's analysis, yet did not provide such information. *See* Nasdaq Letter IV at 47. The Commission requested comment on this issue but did not receive information to help determine these effects, which is unobservable in the current market.

[1987] For further discussion of this point, *see infra* Section V.D.1.

[1988] A commenter agreed that including depth of book information in core data would improve price discovery. *See* RBC Letter at 4.

[1989] *See supra* note 1673.

[1990] *See id.*

[1991] *See* Nikolaus Hautsch and Ruihong Huang, *Limit Order Flow, Market Impact and Optimal Order Sizes: Evidence from NASDAQ TotalView-ITCH Data,* at 10, Table 3 (Aug. 22, 2011), *available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1914293* (Retrieved from SSRN Elsevier database).

[1992] The Commission requested comment on to what extent any benefits of including depth of book information in core data depend on the degree to which orders walk the book. No commenters provided information on the willingness of market participants to walk the book if they received the new DOB information from expanded core data.

[1993] *See supra* Sections II.C.2(a) and III.C.8(a)(ii).

participation in auctions, potential improvements to price discovery in auctions, changes to order routing decisions, and a significant reduction in the value of dedicated proprietary auction feeds.

Several commenters stated that auction information may only be useful to sophisticated investors who already receive it and that including it in core data may not benefit most market participants.[1994] However, other commenters stated that investors, including retail investors, would benefit from including auction information in expanded core data.[1995] The Commission disagrees with the first set of commenters. The Commission believes including auction information in core data would expand its availability and allow more market participants to receive the benefits described below. Even if market participants do not directly access auction information, including it in core data may indirectly benefit market participants. If broker-dealers that do not currently receive auction information utilize the auction information included in core data to improve their handling of customer orders that participate in opening and closing auctions, it may improve their execution quality. More participation in closing auctions could also improve the price efficiency of closing prices, which could lead to better trading outcomes for market participants that rely on closing prices resulting from closing auctions, but do not participate directly in closing auctions.

As discussed above, some auction information is currently available to market participants through specialized feeds,[1996] and also a limited set of auction information is available through the current SIP feeds.[1997] The availability of these feeds enables access to a limited set of auction information for some market participants without having to subscribe to full DOB feeds. To the extent that any market participants find these specialized auction feeds sufficient for their trading needs, the Commission believes that the addition of all auction information as an element of core data will have a limited effect on these market participants.[1998] To the extent that those market participants make up a large share of the market participants who would be interested in using additional auction information, the Commission believes that the effect of adding auction information may be limited.[1999] The Commission believes that the extent of this limitation is reduced by the fact that not all auction information is available to market participants through such feeds. The Commission does not have data on the number of market participants with these proprietary feed subscriptions.

The Commission believes that auction information contains insights useful to market participants in devising and executing trading strategies.[2000] Therefore, the Commission believes that adding this information as an element of core data will benefit those market participants (including retail investors) who currently do not access such information, as well as their clients. To the extent that these market participants can use this auction information, the addition of this information as an element of core data will enable them to produce better trading strategies and lower execution costs for their own orders and for their clients' orders, as well as facilitate best execution.[2001] To the extent that the advantages of possessing auction information come from exploiting the trading decisions of market participants who lack this information, this effect will represent a transfer from those market participants who currently have auction information to those market participants who would obtain access to it through this rule and are able to exploit it to improve their trading strategies.[2002] The Commission believes that this auction information could potentially be used across all trading venues, including exchange auctions, continuous exchange trading, and off-exchange venues.

The Commission believes that the addition of auction information as an element of core data will result in increased participation in auctions, which may allow market participants to realize potential gains from trade. Commenters suggested that there are market participants who do not currently trade in auctions because they do not access auction data due to the cost of proprietary feeds.[2003] To the extent that such market participants exist, including auction information in core data will allow these market participants to access this information, which may allow them to gain insights about trading opportunities that induce them to trade in auctions.[2004] Commenters stated that an increase in auction participation will also increase auction liquidity.[2005] The Commission agrees and believes that increased auction liquidity will also result in increased trading during auctions, which could benefit both sides of the trade, thus resulting in an economic benefit. To the extent that market participants who start trading in auctions as a result of gaining access to auction information possess insights beyond what can be inferred from auction information, increasing the number of participants in auctions as described above should improve price discovery in the auction process.[2006] The Commission believes that those who do not participate in auctions because they do not access auction information are unlikely to possess insights beyond what can be inferred from auction information. This is because any market participant who has such insights would find it worthwhile to purchase auction information and participate in the auction so as to exploit the value of the insights. Therefore, the size of this effect depends on the number of market participants who currently possess such insights

[1994] *See, e.g.,* TD Ameritrade at 5; Nasdaq Letter IV at 33; Data Boiler Letter at 31.

[1995] *See, e.g.,* CBOE Letter at 21; Angel Letter at 8; SIFMA Letter at 7; Virtu Letter at 5.

[1996] *See supra* Section V.B.2(a).

[1997] *See id.*

[1998] Market participants who currently receive auction information through proprietary feeds may switch to using the auction information contained in expanded core if it is available at lower cost than equivalent data from proprietary feeds. *See infra* Section V.C.2(b).

[1999] Since the cost to integrate multiple auction feeds into a single feed is a fixed cost in producing a market data feed, the Commission believes that there would still be a benefit from the rule in the form of competing consolidator integrated auction feeds, which could be cheaper for market participants than integrating the feeds themselves.

[2000] *See* Proposing Release, 85 FR at nn. 344–46. Commenters agreed auction information is useful for predicting price movements and placing orders in closing auctions. *See supra* note 1678.

[2001] Commenters agreed that including auction information in core data may promote more informed and effective trading in auctions. *See, e.g.,* Clearpool Letter at 15.

[2002] One commenter agreed that including auction information in core data would level the playing field for investors. *See* Virtu Letter at 5. Commenters also agreed that including auction information in core data would reduce information asymmetry between subscribers of SIP data and proprietary DOB feeds. *See, e.g.,* IntelligentCross Letter at 4; Clearpool Letter at 15. One commenter stated including auction information in core data would benefit retail investors by reducing information asymmetry between retail investors and more informed market participants. *See* Angel Letter at 8 (''Retail investors should be properly informed with appropriate information about the indicative auction price and the trading imbalance. Otherwise, we will be at a serious disadvantage to other better informed players.'').

[2003] Commenters stated that the costs of proprietary data feeds prevent some market participants from competing in auctions. *See, e.g.,* ICI Letter at 9–10; SIFMA Letter at 7.

[2004] Commenters agreed that including auction information in core data would result in more market participants participating in auctions. *See, e.g.,* BlackRock Letter at 2; ICI Letter at 9–10.

[2005] *See, e.g.,* BlackRock Letter at 2; IntelligentCross Letter at 4.

[2006] Commenters agreed that adding auction information to core data would improve price discovery. *See, e.g.,* BlackRock Letter at 2; ICI Letter at 9–10; Data Boiler Letter at 31.

relative to those who do not who start participating in auctions as a result of this rule and the size of their resultant auction trades. Both of these effects are unobservable in the current market.

Further, the Commission believes that the addition of auction information as an element of core data may affect the order routing decisions of market participants who currently do not have access to auction information. For example, some off-exchange trading venues cross market-on-close orders before the closing auction takes place and later settle the trades at the closing auction price. To the extent auction information is made available prior to the applicable cut-off time, if any, for the submission of closing orders to off-exchange venues, having access to auction imbalance information may affect market participants' decision to route a closing order to either an off-exchange venue or to the closing auction on the primary listing exchange. For example, a market participant who gets access to auction information through a subscription to these elements of new core data might decide not to route the order to an off-exchange venue so as to be able to participate in the auction using the new information available. Additionally, this auction information could also affect decisions made during the time when auction information is disseminated about whether an order should participate in continuous market trading or an auction. For example, if auction imbalance information indicates that an order would have a low probability of executing in an auction (or would be likely to execute at a worse price than if the order executed during continuous trading), then a market participant may decide the order should participate in continuous market trading, instead of the auction, to increase the chance the order is filled (or executed at a better price).[2007] However, the overall effect of auction information on order routing decisions is uncertain and likely will vary based on market conditions.

The Commission believes that the value of dedicated proprietary auction feeds will be substantially reduced as a result of the addition of auction information to core data, and that this will result in a loss of revenue for those exchanges who offer such feeds.[2008] The Commission believes that the value of any existing data product that provides only auction data[2009] that is not currently in the exclusive SIP feeds will be substantially reduced because of the loss of revenue from these dedicated auction feeds. The Commission expects that many market participants who are executing a trade, either for themselves or for a client, have, and will continue to have, a subscription to core data.

(iv) General Costs to Expanding Consolidated Data

The Commission believes that there are four potential costs to adding the new core data elements, which are common across all these elements. The first potential cost is the cost to the new competing consolidators that will be necessary to implement or upgrade existing infrastructure and software in order to handle the dissemination of the additional core data message traffic. The second potential cost is the cost to SROs to implement system changes required in order to make regulatory data and other data needed to generate consolidated market data available to competing consolidators. The third cost is the technological investments market participants might have to make in order to receive the new core data message traffic. The fourth cost is the cost to users of certain kinds of trading strategies that may currently be relying on the fact that this data is not widely distributed today.

The Commission believes that the cost for firms that wish to become competing consolidators to implement or upgrade infrastructure to handle the dissemination of odd-lot quotes, depth of book information, and auction information will be limited. Competing consolidators will not be required to disseminate all of the information in consolidated market data, including the additional data elements contained in expanded core data, so they will not incur these costs unless they choose to disseminate this information.[2010] As discussed in more detail below,[2011] the Commission believes that the new competing consolidators will likely be firms that already have the technological infrastructure necessary to process full depth of book data and to generate the NBBO using this data. Therefore, for these firms, processing the new message traffic resulting from the additional content of expanded core data may add only a minimal cost to becoming a competing consolidator. However, for a firm that does not currently subscribe to, or process data from, exchange proprietary feeds, the additional message volume will increase the cost of becoming a competing consolidator if they choose to offer a consolidated market data product that includes the additional data elements contained in expanded core data. In particular, if the existing exclusive SIPs should decide to enter the competing consolidator business and choose to offer a consolidated market data product containing this data, they may incur such costs as they do not currently disseminate full depth of book data. These costs are included in the estimated costs for competing consolidators discussed below in Section V.C.2(d)(i).

The Commission believes that there will be some infrastructure investment required on the part of SROs to provide the information necessary to process and disseminate consolidated market data. The Commission believes that the infrastructure investment required by most SROs to provide the elements necessary to generate core data will be limited, because most SROs currently provide all elements of the new definition of core data over their proprietary feed infrastructure.[2012] In addition, the Commission believes that many competing consolidators and self-aggregators will be firms that already subscribe to these feeds,[2013] and thus, the SROs will likely not have a large amount of new data connections to service and therefore will not need to invest in infrastructure to handle them. However, as discussed by a commenter, FINRA may incur higher infrastructure investment costs in order to make data from the ADF available to competing consolidators and self-aggregators because it currently only provides this data to the SIPs.[2014] Additionally, exchanges, particularly primary markets, may incur some infrastructure costs related to the dissemination of new regulatory data.[2015] Currently, the

[2007] Similarly, if auction imbalance information indicated a market participant's order would be more likely to execute in an auction at a better price, then the market participant may choose to have the order participate in the auction instead of continuous trading.

[2008] *See infra* Section V.C.4(a) (discussing effects on exchange proprietary revenue).

[2009] *See* Proposing Release, 85 FR at n. 335.

[2010] *See supra* Section III.C.8(a)(ii).

[2011] *See infra* Section V.C.2(a) for a discussion of the technological capabilities of firms the Commission believes are most likely to become competing consolidators. It is possible that the new definition of core data will make consolidation more difficult for core data than it is currently, and that this added difficulty will result in additional latency. However, the Commission believes that the risk of this is minimal, again because of the technological capabilities of competing consolidators and the market forces that will be in effect in the decentralized consolidation model.

[2012] *See supra* Section V.B.2(a).

[2013] *See infra* Sections V.C.2(a) and V.C.2(f).

[2014] *See* FINRA Letter at 3–4. *See supra* Section III.B.9(e).

[2015] As discussed above, this new regulatory data will consist of all the same messages as current regulatory data distributed through the exclusive SIPs. *See supra* Sections II.H and II.I. *See also* Proposing Release, 85 FR at Section III.D.

new regulatory data component to consolidated market data is distributed through the SIPs. In order for this information to be distributed through the new decentralized consolidation model, the rule requires the exchanges to provide a feed to competing consolidators and self-aggregators that contains the regulatory data. The Commission believes that the infrastructure and operational processes to provide such a feed are currently not completely in place and will require investment on the part of exchanges. These costs are included in the estimated costs for SROs discussed below in Section V.C.2(d)(ii).

One commenter stated that requiring each SRO to connect and transmit data to a large number of competing consolidators and self-aggregators could significantly increase costs for SROs.[2016] The Commission disagrees with this commenter. As discussed above, the Commission does not believe that SROs will need to add significant connectivity to account for competing consolidators and self-aggregators, because the Commission believes that most market participants who will become competing consolidators and self-aggregators already subscribe to exchange proprietary data feeds.[2017]

The Commission believes that there will be costs for infrastructure investment in order for market participants to receive the new odd-lot, DOB, and auction information components of core data. However, because market participants will not be required to receive the additional information in core data, the infrastructure investment costs will be limited to those market participants that choose to receive it.[2018] Adding these components to core data will substantially increase the total message traffic in core data,[2019] and this increase in message traffic will be accompanied by costs to market participants to set up the infrastructure required to handle this new level of traffic. Commenters stated that this will require significant infrastructure upgrades to receive the data.[2020] The Commission acknowledges that some market participants will require significant infrastructure upgrades to receive the additional elements of core data. However, the Commission notes that the final amendments will not require market participants to receive (or display) the complete set of consolidated market data, and competing consolidators will not be required to deliver all proposed consolidated market data for each data product they offer.[2021] Therefore, most market participants who do not want to incur the costs associated with the expanded core data message traffic due to additional odd-lot information, depth of book information, or auction information will be able to choose not to receive any such additional information. Thus, market participants who do not wish to incur the cost of the infrastructure investments necessary to receive the new core data will not. For those market participants who do wish to incur the cost, the Commission is unable to estimate the associated costs because the costs would vary across market participants and depend on each market participant's existing infrastructure.[2022]

Some commenters stated that the increase in message traffic from expanding core data will increase the latency of core data.[2023] The Commission does not believe that expanding the content of core data will increase the latency of core data when it is combined with the decentralized consolidation model. The Commission believes that competing consolidators will develop technology to handle the expanded content of core data and to reduce the latency of aggregating and transmitting core data.[2024] The Commission understands that third party market data aggregators aggregate and disseminate proprietary DOB feeds (which contain additional message traffic) at lower latencies than the exclusive SIPs and expects that competing consolidators would use similar technology to aggregate and disseminate the expanded content of core data at lower latencies than the exclusive SIPs.[2025] Furthermore, the decentralized consolidation model will also reduce geographical latency by eliminating the extra hop that the exclusive SIPs currently experience.[2026] As discussed above, market participants may also need to expand their bandwidth and invest in additional technology and infrastructure to handle receiving the additional content in core data. The increase in message traffic could increase the latency of market participants receiving expanded core data if they do not make these investments. However, the Commission believes that for those market participants who choose to receive the entire content of consolidated market data, these market participants will make the investments in technology to receive the data and not add latency.

The Commission believes that adding the odd-lot quote, depth of book, and auction information to core data may impose a cost on traders who rely on strategies that take advantage of the fact that the information in odd-lot quote, depth of book, and auction data is not widely distributed (*i.e.,* those traders who are beneficiaries of existing informational asymmetries). To the extent that some of the value of odd-lot quote, depth of book, and auction information lies in the fact that they currently are not observed by a number of market participants, the Commission believes that the dissemination of this data will adversely impact the profitability of such trading strategies. For traders using trading strategies based on depth of book information, the magnitude of the cost caused by the proposed amendments will depend on the extent to which the five aggregated levels of depth approximate the information contained in the full depth of book information. To the extent that these strategies exploit the lack of information on the part of exclusive SIP-reliant traders, this cost will represent a partial transfer to traders who currently rely solely on SIP data. The Commission is unable to estimate the size of this effect, since it does not have a method for detecting the use of such trading strategies from market data or determining what the profit on such strategies would be if they could be detected.

One commenter stated that the Commission did not evaluate the effects of the potential changes in these trading strategies, including its effects on liquidity on ''lit'' markets.[2027] The

[2016] *See* FINRA Letter at 3.

[2017] As discussed below, an SRO would incur costs, which could include costs related to expanding connectivity and making sure the data is delivered at similar speeds to its other proprietary feeds, if it developed a separate feed to distribute the data necessary to generate consolidate market data. However the Commission does not believe that an SRO is likely to develop a separate feed and incur the costs. *See infra* Section V.C.2(d)(v).

[2018] *See supra* Section III.B.6.

[2019] The Commission believes that the addition of information on odd-lots quotes that are priced at or more aggressively than the NBBO and the addition of DOB information, in particular, may substantially increase message traffic. *See* Proposing Release, 85 FR at n. 294. Commenters agreed that the expansion of new core data, especially the inclusion of DOB would significantly increase message traffic. *See, e.g.,* Virtu Letter at 5; STANY Letter II at 3.

[2020] *See, e.g.,* Virtu Letter at 5; TD Ameritrade Letter at 5.

[2021] A market participant that has obligations under Rule 603(c) will have to receive all data necessary to generate consolidated market data to comply with the rule. The specific cost associated with some of this data is discussed below. *See infra* Section V.C.2(d).

[2022] *See infra* note 2290 and accompanying text.

[2023] *See, e.g.,* STANY Letter II at 3.

[2024] *See infra* Sections V.C.2(c)(ii) and V.C.2(c)(iii).

[2025] *See supra* Section V.B.2(b).

[2026] *See infra* Section V.C.2(c)(iii).

[2027] *See* Nasdaq Letter IV at 31.

Commission does not believe that changes in these trading strategies will have a significant effect on the liquidity on exchanges because increased competition from new market makers and broker-dealers that receive the expanded content of core data (which contribute to the reduction in the profits of those traders who are beneficiaries of existing informational asymmetries) will offset any liquidity reduction that may have occurred from changes in the trading strategies of those traders who are beneficiaries of existing informational asymmetries.[2028] However, the Commission is unable to estimate the size of this effect because it cannot estimate the extent to which the profitability of such trading strategies will be affected.

One commenter stated that one cost the Commission did not consider in the expansion of core data was that, to the extent that the definition of core data continues to be updated in the future Commission rulemaking to include more proprietary data in it, exchanges will have less incentive to innovate and provide new or improved proprietary data products.[2029] The Commission agrees that to the extent this happens, the incentive to innovate will be reduced. However, the Commission does not believe that the incentive to innovate will be entirely removed. The final rules do not include all proprietary data elements in consolidated market data and do not contemplate any updates to core data (except for additions to auction data information). Therefore, exchanges may be able to expect that some amount of revenue could be collected on new proprietary data products developed. To the extent that the Commission does not change the definition of core data in the future to include any new data products after such products are made available, the exchanges may be able to collect a significant amount of revenue on such products and therefore will continue to have strong incentives to innovate. To the extent that the Commission frequently changes the definition of core data to include new products developed by exchanges soon after they are made available, exchanges may not be able to collect significant revenue from them and their incentives to innovate will weaken. In the event that exchange incentives to innovate are weak, the lost innovation may represent a significant cost to the market.

Commenters stated that retail investors currently receive core data at little or no cost and that the expansion of core data content would increase costs for retail investors.[2030] One of these commenters stated that currently retail investors who do not use depth-of-book data and auction data do not pay for it, but that the proposed rule will replace this with a single feed that is too much data for the retail investor.[2031] The Commission believes that there is uncertainty regarding the cost of market data that retail investors will pay.[2032] One factor would be the data content that retail investors receive. If retail brokers supply retail investors with some of the additional content from expanded core data, then their costs could increase but still be lower than the current cost of receiving equivalent data from SIP and proprietary feeds. However, even if retail brokers do not supply retail investors with any additional content from expanded core data, there are reasons that the overall cost of market data for retail investors could stay at similar rates or decrease relative to the fees charged by the current exclusive SIPs, including, among other things, the fees set by the Equity Data Plan(s) and whether they establish fees for data content underlying consolidated market data offerings that use subsets of consolidated market data (*i.e.,* for only TOB data, DOB data, etc.), as well as the different products offered by competing consolidators and how they allocate fixed costs.[2033]

2. Decentralized Consolidation Model

This section focuses on the economic effects pertaining to the decentralized consolidation model. We first discuss the relevant broad economic considerations and economic benefits and costs of the decentralized consolidation model with regards to competing consolidators, then we address economic benefits and costs for self-aggregators, and finally we conclude with the discussion of conforming changes.

(a) Broad Economic Considerations About the Decentralized Consolidation Model

The economic analysis of the effects of the decentralized consolidation model assumes that upon the introduction of the model, a sufficient number of competing consolidators will enter the market so that competitive market forces will have a significant effect on their behavior. Several factors affect the reasonableness of this assumption: Barriers to entry into the competing consolidator space, fees for data content, uncertainty regarding connectivity charges for data underlying consolidated market data, potential size of the market for consolidated market data products, and competing consolidators' ability to offer differentiated products. While the Commission recognizes uncertainty in these factors[2034] and that certain economic impacts depend on this assumption, the Commission believes that the risk of too few competing consolidators entering the market, and thus, precluding any potential benefits from materializing is low. Further, the Commission will consider the state of the market and the general readiness of the competing consolidator infrastructure in determining whether to approve a national market system plan amendment that will effectuate a cessation of the operation of the existing exclusive SIPs.

(i) Factors

(a) Barriers to Entry

The first factor that will affect the number of competing consolidators is the barriers to entry. Potential entrants into the competing consolidator business could incur two types of barriers to entry: Business implementation costs that emerge from the technical necessities of becoming a competing consolidator and regulatory compliance costs. The business implementation costs will include creation or modification of technical systems to receive, consolidate, and disseminate consolidated market data.[2035] Potential entrants will also

[2028] *See infra* Section V.C.4(a).

[2029] *See* Nasdaq Letter IV at 7 ("Expropriating the proprietary market data products that Nasdaq and others have spent years developing would rob them of the fruits of their labors and dash their incentives to develop new and innovative data products going forward.").

[2030] For commenters' views regarding current retail core data costs *see, e.g.,* Angel Letter at 11 (stating retail "nonprofessional" investors pay almost nothing in direct fees for market data and that most of the data costs are picked up by "professional" users as a result of the good price discrimination in the current system that favors retail investors); Nasdaq Letter IV at 38. For commenters' views regarding cost increases to retail investors from the expansion of core data content, *see, e.g.,* Nasdaq Letter IV at 38; TD Ameritrade Letter at 2, 14–15; Angel Letter at 24.

[2031] *See* Nasdaq Letter IV at 38.

[2032] Retail investors may not directly pay for market data, but the costs of retail investors accessing market data may be indirectly passed on through the fees charged by retail broker-dealers.

[2033] *See infra* Section V.C.2(b) for a detailed discussion of these fees.

[2034] Commenters agreed that there is uncertainty about the potential market for competing consolidators. *See, e.g.,* Nasdaq Letter IV at 8.

[2035] Competing consolidators will need to have systems and connections in place to receive data content from all SROs and then to disseminate the consolidated market data to a variety of market participants who will purchase their products. *See*

Continued

need to satisfy the regulatory compliance requirements of Rule 614 to become competing consolidators, and many competing consolidators may need to eventually satisfy the regulatory requirements of Regulation SCI.[2036] Both the business implementation and regulatory compliance costs will differ based on the entrant type.[2037] The Commission believes that the barriers to entry will vary based on whether the potential competing consolidator is: A market data aggregation firm or a broker-dealer that currently aggregates market data for internal uses, one of the existing exclusive SIPs (which are operated by SROs), an SRO that does not operate an exclusive SIP, or a new entrant without experience aggregating market data. The business implementation costs will also vary based on the elements of consolidated market data the competing consolidator chooses to offer in their products.

The Commission believes that the existing market data aggregation firms and some broker-dealers that currently aggregate market data for internal uses could face low barriers to entry to become competing consolidators. Because they currently collect, consolidate, and, in some cases, disseminate market data to their customers, much like competing consolidators would, the Commission believes that firms and broker-dealers that currently aggregate proprietary market data would not have to extensively modify their systems. However, the Commission believes that each of these firms and broker-dealers would incur costs to expand their bandwidth and purchase hardware to receive information that is not currently disseminated in the exchange proprietary market data feeds, such as the regulatory data and administrative data.[2038] Further, current market data aggregators and broker-dealers that currently aggregate market data for internal uses would incur new compliance costs to satisfy the regulatory compliance requirements to become competing consolidators, including costs associated with Form CC, as well as costs to comply with Rule 614(d)(9) and likely eventually Regulation SCI.[2039] These regulatory costs would initially be lower, but they could become large and therefore may affect entry and the benefits of the decentralized consolidation model.[2040]

The Commission believes that barriers to entry for a potential competing consolidator that is affiliated with an exchange—which could be one of the exclusive SIPs—would depend on several factors. In addition, both business implementation and regulatory compliance costs would be relatively lower for the existing exclusive SIPs than for the other competing consolidators that are affiliated with exchanges.

The barriers to entry from business implementation costs to operate a competing consolidator would be relatively low for an exclusive SIP. Because the systems used by the exclusive SIPs already collect information in quotations and transactions from the SROs as well as aggregate and disseminate it, the exclusive SIPs would not have to make as extensive modifications to their systems as the other competing consolidators that are affiliated with exchanges.[2041] However, they would still incur costs to expand their bandwidth and connections to consume and disseminate consolidated market data as well as to transmit it with lower latency, and to program feed handlers to receive and normalize the different formats of the data feeds developed by the exchanges.[2042] On the other hand, the Commission believes that other competing consolidators that are affiliated with exchanges would likely have to build at least some new systems to process expanded core data, and thus, could incur relatively high initial implementation costs, though they may be able to keep their costs lower by leveraging some of their existing systems.[2043]

The barriers to entry from regulatory compliance costs would also be relatively lower for an exclusive SIP. Because the exclusive SIPs currently operate critical SCI systems,[2044] they will not bear any initial compliance costs associated with Rule 614(d)(9) and their ongoing compliance costs associated with Regulation SCI will not increase.[2045] SROs that do not operate exclusive SIPs are also already SCI entities. However, because these SROs do not have direct experience operating in the consolidated market data business, they may need to incur initial costs in order for their competing

supra Section V.C.1(b)(vi) and *infra* Section V.C.2(d). One commenter agreed that infrastructure costs would serve as a barrier to entry for potential competing consolidators. *See* NYSE Letter II at 15 (''[t]he significant costs required to develop, test, and support these technologies—costs that even existing data processors would incur—would serve as a barrier to entry for the competing consolidator market.''). As discussed in detail in this section and below in Section V.C.2(d), the Commission believes that the costs for potential competing consolidators to develop and implement their systems will vary based on the type of entity that becomes a competing consolidator, but for some types of entities, these costs could be significantly higher and pose a larger barrier to entry.

[2036] *See supra* Sections III.C.7 and III.C.8 (discussing the requirements of Rule 614). *See also supra* Section III.F (discussing the requirements of Rule 614(d)(9) and Regulations SCI). New entrants will face both initial implementation and ongoing costs to comply with these regulatory requirements. *See infra* Sections V.C.2(d) and V.C.2(e)(ii) (discussing these costs).

[2037] *See supra* Sections IV.D.3 and IV.G. *See also infra* Sections V.C.2(d) and V.C.2(e)(ii).

[2038] *See infra* Section V.C.2(d).

[2039] *See id. See also infra* Sections V.C.3 (for costs associated with Form CC); V.C.2(e)(ii) (for costs associated with Rule 614(d)(9) and Regulation SCI).

[2040] Although potential competing consolidators will initially be subject to the lower costs of Rule 614(d)(9) rather than Regulation SCI, which will lower the initial barriers to entry, the Commission expects that many competing consolidators will eventually be SCI competing consolidators and that potential competing consolidators will take the higher costs of eventually becoming an SCI competing consolidator into account when deciding to enter the market. Rule 614(d)(9), which includes requirements similar to some of the key provisions of Regulation SCI, will apply to all competing consolidators (except competing consolidators affiliated with exchanges that do not operate under the limited exemptive relief) during the initial transition period and smaller competing consolidators that do not meet the market data revenue threshold for SCI competing consolidators thereafter. All competing consolidators that meet the consolidated market data revenue threshold for SCI competing consolidators, after the initial transition period, will be subject to Regulation SCI. *See infra* Section V.C.2(e)(ii) (discussing these costs). *See also supra* Section IV.G.3 (discussing number of competing consolidators subject to Regulation SCI).

[2041] Based on Commission staff experience, the Commission understands that existing exclusive SIPs' protocols for receiving direct data from exchanges are not standardized and introduce additional operational complexities. However, as the operators of exclusive SIPs, the exchanges, have figured out how to aggregate direct feeds for the purposes of their exchange matching engines, so they have the technology that would be deployable in the new decentralized consolidation model. If the exclusive SIPs determine to register as competing consolidators and to operate their competing consolidators using the existing infrastructure of the exclusive SIPs, then they may incur costs in order to reimburse each Plan's Participants for the costs they paid to build the exclusive SIP's systems. However, any determinations regarding payments to Participants or the disposition of the assets of the exclusive SIPs would be made by the Participants of the Equity Data Plans, subject to Rule 608. *See supra note* 979 and accompanying text.

[2042] *See supra* Section V.C.1(b)(vi) and *infra* Section V.C.2(d).

[2043] *See supra* Section IV.D.3 and *infra* Section V.C.2(d).

[2044] *See supra* Section III.H.

[2045] The Commission believes that the exclusive SIPs that become competing consolidators will likely surpass the 5% revenue threshold and will be required to comply with Regulation SCI at the end of the transition period, as described in the amendments. Their compliance costs associated with Regulation SCI may decrease, because the systems of an exclusive SIP that became a competing consolidator would no longer be considered critical SCI systems, which have stricter requirements and higher costs than other SCI systems. For example a critical SCI system needs to maintain backup systems that are designed to allow them to resume operations within two hours of a system outage (SCI entities only have the requirement to resume operations the day following a system outage). *See infra* V.C.2(e)(ii).

consolidator systems to be compliant with Rule 614(d)(9).[2046]

The other regulatory costs that the competing consolidators that are affiliated with exchanges would incur would vary based on whether they chose to operate under the provisions of the limited exemptive relief from the rule filing requirements of Section 19(b) of the Exchange Act and Rule 19b–4 thereunder, the denial of access provisions in Section 19(d) of the Exchange Act, the requirements in Section 6(b) of the Exchange Act, and from Regulation SCI in regard to their competing consolidators.[2047] However, the Commission believes that a competing consolidator that is affiliated with an exchange would choose to operate under the provisions of the limited exemptive relief because then they would not need to file rule changes (including new products and fee changes) related to their competing consolidator functions with the Commission under Section 19(b) of the Exchange Act.[2048] If these competing consolidators operate under the exemption, then they would still incur the other regulatory compliance costs associated with Rule 614.[2049] If these competing consolidators did not operate under the exemption, then they would need to comply with certain rules applicable to SROs, including the provisions of Regulation SCI and the requirements of Section 6(b), and to file all rule changes with the Commission under the Section 19(b) process, which would impose significant regulatory barriers in terms of making adjustments to their products and fees compared to other competing consolidators, potentially placing them at a competitive disadvantage.[2050] It would also create higher initial barriers to entry because the competing consolidator operations would need to be filed and approved by the Commission under Section 19(b) of the Exchange Act before they could begin operating.

The Commission anticipates that new entrants without prior experience in the market data aggregation business may become competing consolidators but that they would have the highest barriers to entry because they would incur both infrastructure and compliance costs. The new entrants would incur high infrastructure costs to build new systems to receive, consolidate, and disseminate consolidated market data; including costs to program feed handlers to be able to receive and normalize exchange data in different formats, and purchase bandwidth and connections to exchanges and co-location. These costs increase the fixed costs of participating as a competing consolidator in the market, further contributing to the barriers to entry. New entrants may also have the highest compliance costs among all potential entrants, because they would have to build compliance systems from scratch to satisfy both Rule 614(d)(9), and later potentially Regulation SCI, as well as the other requirements of Rule 614, including Form CC. Therefore, the Commission believes that there may be a limited number of firms that could enter the market data aggregation business for the first time.

The business implementation compliance costs will vary based on the elements of consolidated market data the competing consolidator chooses to offer in their products. Specifically, potential entrants that seek to specialize in offering data products to clients who do not wish to receive the full consolidated market data could save on ongoing costs and potentially also on initial infrastructure costs.[2051] The initial cost savings would vary across the entrant types listed above depending on the extent to which the entrant has already built the infrastructure necessary to aggregate and distribute data similar to consolidated market data. For example, current data aggregators choosing to specialize are likely to see a small reduction in barriers to entry from this change while firms without prior experience are likely to see a significant reduction in barriers to entry.

One commenter stated that the Commission did not consider the risks of the potential liability that a competing consolidator may incur for any performance failures, which are a significant barrier to entry.[2052] The Commission believes that these potential liability concerns are not a significant barrier to entry for competing consolidators. Competing consolidators could attempt to limit their potential liability from systems issues through contractual agreements with their subscribers, similar to provisions that data providers currently include in their subscriber agreements.[2053]

b. Effective National Market System Plan(s) Fees for Data Content Underlying Consolidated Market Data

Another factor that would affect the number of competing consolidators relates to the fees that the effective national market system plan(s) would set for the consolidated market data content.[2054] If these fees are set too high or have the effect of limiting product differentiation,[2055] they could limit the opportunities for competing consolidators to build profitable businesses.

The Commission recognizes uncertainty in these fees. The fees developed by the effective national market system plan(s) for the data

[2046] *See id.*

[2047] A competing consolidator affiliated with an exchange may be a facility of the exchange and subject to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder. If a competing consolidator that is affiliated with an exchange chooses to act under the limited exemptive relief, then the competing consolidator could do so pursuant to the conditions of the exemption and without having to operate under the denial of access provisions in Section 19(d) of the Exchange Act, the provisions of Regulation SCI related to an SRO (it would still be subject to the provisions of Regulation SCI related to competing consolidators), or without filing proposed rule changes with the Commission under Section 19(b) of the Exchange Act and Rule 19b–4 thereunder. Additionally, a competing consolidator that is affiliated with an exchange that chooses to operate under the limited exemptive relief would be exempt from the requirements of Section 6(b) of the Exchange Act (it would still be subject to the requirement in Rule 614(d)(3) to make consolidated market data products available to subscribers on terms that are not unreasonably discriminatory). *See supra* Section III.C.7(a)(iv).

[2048] *See id.*

[2049] A competing consolidator operating under the exemption would bear the regulatory compliance costs associated with Rule 614, including the costs associated with Form CC because the exemption requires the competing consolidator be registered as a competing consolidator under Rule 614 and be in compliance with the disclosure and other substantive regulatory requirements applicable to competing consolidators in Rule 603, Rule 614 and Form CC. Under the exemption, the exchange would also not be permitted to link the pricing for services of the affiliated competing consolidator to activities on, or other services performed by, the exchange. *See id. See also infra* Sections V.C.2(d) and V.C.3 for discussions of the regulatory compliance costs.

[2050] Rule filings under Section 19(b) would be subject to a notice and comment process and Commission consideration. Fee changes could be immediately effective upon filing under Section 19(b)(3), but the Commission would have the authority to abrogate such fee changes.

[2051] *See supra* Section III.C.1(b) and *infra* Section V.C.2(d)(i).

[2052] *See* NYSE Letter II at 15.

[2053] *See, e.g.,* CTA Plan Professional Subscriber Agreement, *available at https://www.ctaplan.com/publicdocs/ctaplan/notifications/trader-update/Professional%20Subscriber%20Agreement.pdf;* UTP Plan Subscriber Agreement, *available at http://www.utpplan.com/DOC/subagreement.pdf;* Nasdaq Global Subscriber Agreement, *available at: http://www.nasdaqtrader.com/content/AdministrationSupport/AgreementsData/subagreemstandalone.pdf;* ICE Data Services and Software Services Agreement, *available at: https://www.theice.com/publicdocs/agreements/ICE_Data_Services_Agreement.pdf.*

[2054] *See infra* Section V.C.2(b) for a discussion on the economic analysis of data content, consolidation and dissemination, and connectivity fees.

[2055] *See infra* Section V.C.2(a)(i)e for a discussion on the potential dimensions of product differentiation by competing consolidators.

content underlying consolidated market data offerings would be proposed by the Operating Committee(s) of the national market system plan(s) and filed with the Commission.[2056] Because such fees depend on future action by the effective national market system plan(s), the Commission cannot be certain of the level of those fees or whether such fees would provide discounts for those end users who wish to receive subsets of consolidated market data (*e.g.,* different prices for different levels of data content or different core data component) or based on usage categories (*e.g.,* professional, non-professional, non-display).[2057] As discussed further below, the fees developed by the Operating Committee of the effective national market system plan(s) must be fair and reasonable and not unreasonably discriminatory.

Some commenters said that the uncertainty over fees for data content underlying consolidated market data offerings will make it difficult for potential competing consolidators to estimate the economic value of this new business opportunity, and therefore, enter the market.[2058] While there is uncertainty surrounding the currently unknown levels of data content fees, potential competing consolidators can judge the value of the business opportunity. Potential competing consolidators will see, and be able to comment on, the newly proposed data content fees before they will have to decide whether to register as competing consolidators.[2059] During the transition period, the new data content fees proposed by the effective national market system plan(s) will be available for potential competing consolidators to review and comment on before the registration date for the initial competing consolidator wave expires. This will give competing consolidators adequate time to evaluate this information and the potential business opportunity.

Additionally, the Commission believes that there will likely be different levels of fees for data content underlying consolidated market data offerings either based on usage category (*e.g.,* professional, non-professional, non-display) or based on the scope of data content market participants use or a combination of both.[2060] In either case, the Commission believes that the differential pricing of consolidated market data will expand differentiation opportunities for the potential competing consolidator, as discussed below.[2061]

c. Connectivity

Another factor affecting the number of competing consolidators is the uncertainty regarding connectivity charges for data underlying consolidated market data and their effects on the viability of the decentralized model. Each exchange's data connectivity fees will continue to be set forth in the exchange's fee schedules and must continue to meet statutory standards.[2062] Connectivity fees for the provision of data content underlying consolidated market data would be a fixed input cost for competing consolidators, and, therefore, the level of connectivity fees for data content underlying consolidated market data may affect the economies of scale and the resulting number of competing consolidators.[2063] To the extent that some competing consolidators choose to offer data products with narrower data content than the entirety of consolidated market data, they could lower their connectivity costs because they could likely use connectivity options with narrower data transmission bandwidths.

d. Potential Size of the Market for Consolidated Market Data Products

Another important factor in assessing whether competing consolidators might face profitable business opportunities is the size of the market for consolidation and dissemination services. The size of the market will limit the aggregate revenue that competing consolidators will be able to collect from market participants. The size of the market can only support the number of competing consolidators that keep aggregate costs at or below the aggregate revenue.

Commenters stated that the size of this market is not large enough to support enough competing consolidators for sufficient competition and that the Proposing Release did not adequately analyze potential revenue streams for competing consolidators.[2064] The Commission believes that the size of the market is large enough to sustain several competing consolidators, because the Commission estimates that the potential annual revenues for competing consolidators will range from approximately $78 million to $97 million.[2065] This is large enough to support several competing consolidators. The Commission is able to estimate the current revenues from consolidation and dissemination of SIP data because of some new information provided by one commenter.[2066]

The Commission believes these estimates are a lower bound [2067] and are based on the current SIP market conditions. They do not take into account any demand expansion from potential new entrants into the broker-dealer, market maker, and other latency sensitive businesses [2068] nor from market participants who currently rely exclusively on SIP data choosing to spend more on data to receive additional consolidated data.[2069] The Commission cannot address these

[2056] *See* Proposing Release, 85 FR at 16837.

[2057] *See infra* Section V.C.2(b)(ii) for further discussion of the impact of providing discounts based on scope of data content.

[2058] *See, e.g.,* NYSE Letter II at 14.

[2059] *See supra* Section III.H for a discussion of the steps during the transition period.

[2060] *See infra* Section V.C.2(b) for a discussion in the impact on data fees.

[2061] *See infra* Section V.C.2(a)(i)e for a discussion on competing consolidators' differentiation.

[2062] *See* Proposing Release, 85 FR at n. 1019.

[2063] One commenter stated that the Commission may need to consider ways ''to avoid the imposition of fees that are substantially disproportionate to the cost of providing these connectivity methods.'' *See* IEX Letter at 8. As discussed below, connectivity fees competing consolidators might pay to the exchanges to receive data content underlying consolidated market data will have to be filed with the Commission as part their fee schedules and must continue to meet statutory standards. *See infra* Section V.C.2(b)(i)c and note 2171.

[2064] *See, e.g.,* IDS Letter I at 3.

[2065] To calculate these numbers the Commission uses estimates of the current revenues from consolidation and dissemination of SIP data as well as estimates of potential revenues from market participants switching from proprietary data to consolidated market data products as a proxy for the potential revenue size for the new competing consolidator business. *See infra* notes 2072, 2074, 2075, 2076, and 2077 for the calculations of these numbers and the various assumptions that went into those calculations.

[2066] *See* Nasdaq Letter IV at 29 for a discussion on Nasdaq's connectivity and market data revenue numbers. *See also* Proposing Release, 85 FR at 16816.

[2067] These are estimates for the end of 2018, because the main connectivity information used in these calculations is provided by one of the commenters for 2018. *See* Nasdaq Latter IV at 29.

[2068] *See infra* Section V.C.4(b) for a discussion on potential new entrants into the broker-dealer, market maker, and other latency sensitive businesses.

[2069] Potential demand for consolidated market data under the amendments is unlikely to be smaller than the current demand from market participants who rely on SIP data because market participants will continue to need the NBBO and last sale information to comply with the Vendor Display Rule. The Commission believes that the potential demand for consolidated market data might be larger than the current demand from market participants who rely on SIP data, because a portion of the current proprietary data users might switch to using consolidated market data and, additionally, there might be new entry into the broker-dealer, market maker, or other latency sensitive businesses, as discussed below in Section V.C.4(b). One of the commenters agreed that some of the current proprietary data users might switch to using consolidated market data. According to the commenter, a portion of those market participants newly choosing to use consolidated market data could become self-aggregators and others could be served by competing consolidators. *See* Nasdaq Letter IV at 25. *See also supra* Section V.C.1(c) for a discussion on the benefits of expanded core data content.

omissions because it does not have sufficient information to estimate the size of this potential demand expansion. As a result, these numbers underestimate the potential market size for competing consolidators. In addition, the estimates contained in this section are associated with significant additional uncertainty, especially in terms of connectivity revenues.[2070] The potential revenue estimate is based on the current exclusive SIPs' revenues combined with certain market data aggregators' and certain exchanges' revenues that the Commission believes could be available for competing consolidators under the amendments. Specifically, the four components of these estimated potential revenues are: Current exclusive SIP operating expenses (approximately $16 million), fees paid to the current SIP data normalizers (approximately $21 million), SIP data connectivity fees paid to the exchanges operating the exclusive SIPs (approximately $13 million to $18 million), and data processing and connectivity fees (approximately $28 million to $42 million) from proprietary data users switching to using consolidated market data products.

The first component of the estimated potential revenues for competing consolidators is the operating expenses the current exclusive SIPs collect for their consolidation and dissemination services. The SIP data consolidation and dissemination fees currently paid to the exclusive SIPs could be paid to competing consolidators under the Rule, and thus, could be a potential source of income for the new competing consolidator business. As discussed above, UTP operating expenses totaled around $7 million in 2017 and CTA operating expenses totaled around $8.8 million in 2018.[2071] Together, the Commission estimates the exclusive SIPs' operating expenses to be approximately $16 million at the end of 2018.[2072]

The second component of the estimated potential revenues for competing consolidators is the overall fees market participants pay to market data aggregators that are SIP data normalizers. Current SIP data normalizers take in raw data provided by the two exclusive SIPs and create a combined single data feed to their subscribers. Under the Rule, with the cessation of the exclusive SIPs, these subscribers will likely purchase consolidated market data products from competing consolidators.[2073] The fees that market participants currently pay to the SIP data normalizers might be comparable to what market participants could pay to competing consolidators under the amendments, and thus could be another potential source of income for the new competing consolidator business. Based on its knowledge and expertise, the Commission believes that current SIP data normalizers operate on a price schedule where they charge 6% over the current SIP data fees. This pricing schedule and 2018 total SIP data fees indicate an estimated potential revenue of approximately $21 million to be available for competing consolidators.[2074]

The third component of the estimated potential revenues for competing consolidators is the current SIP data connectivity fees paid to the exchanges operating the exclusive SIPs. As discussed above, the exchanges operating the exclusive SIPs charge connectivity fees to SIP data users who directly connect to the exchanges to receive SIP data. Under the Rule, market participants who will use consolidated market data products and who will not self-aggregate will likely pay connectivity fees to competing consolidators instead of the exchanges. The SIP data connectivity fees that market participants currently pay to the exchanges might be paid to competing consolidators under the amendments, and thus, could be another potential source of revenue for the new competing consolidator business.[2075] The Commission estimates that the 2018 SIP data connectivity revenues range from approximately $13 [2076] million to $18 million.[2077]

[2070] *See supra* note 2065 for additional caveats.

[2071] *See supra* Section V.B.2(d) for a discussion on the current exclusive SIP's operating expenses.

[2072] The Commission estimates the UTP operating expenses to be approximately $7.4 million as of the end of 2018, based on an estimated 6% rate of increase. This rate of increase is calculated as the change of information services revenues Nasdaq reported in its 2018 and 2019 Form 1 filings and the Commission assumes that a similar rate of increase applies to Nasdaq's SIP operating expenses. Nasdaq's Form 1 filings describe that its market data revenues (excluding connectivity revenues), including from SIP data, are recorded under the information services item of its consolidated income statement. According to its 2018 and 2019 Form 1 filings, Nasdaq's information services revenues increased from approximately $230 million at the end of 2017 to approximately $243 million at the end of 2018, an approximately 6% increase. *See* 2018 Nasdaq Form 1 filing, *available at https://www.sec.gov/Archives/edgar/vprr/1800/18002770.pdf* (last accessed Sept. 7, 2020); 2019 Nasdaq Form 1 filing, *available at https://www.sec.gov/Archives/edgar/vprr/1900/19003684.pdf* (last accessed Sept. 7, 2020).

[2073] One commenter stated that ''[t]he primary ability needed to act as a self-aggregator is technical skill.'' *See* AHSAT Letter at 3. The Commission believes that it is very unlikely for the market participants that currently receive data from SIP data normalizers to choose to become a self-aggregator under the amendments given the substantial investment and costs needed to become a self-aggregator. Thus, under the amendments, these market participants will likely purchase their market data from competing consolidators, and not self-aggregate. *See supra* Section V.B.2(c) for a discussion of the different levels of technical expertise and sophistication market participants have. *See supra* Section V.B.2(b) for a discussion of SIP data normalizers and their subscribers.

[2074] For this estimation, the Commission is using the publicly available SIP revenue information. The total SIP data revenues in 2018 were approximately $164 million for Tape A, $94 million for Tape B, and $132 million for the UTP SIP. Of these revenues, 10% for Tape A, 9% for Tape B, and 12% for UTP were revenues from non-display users. The Commission believes that market participants who purchase data from SIP data normalizers are unlikely to be non-display users, thus the SIP revenues from non-display users should be excluded from this calculation. In 2018, the total SIP data revenues without non-display users is approximately $349 million. The 6% margin over these data revenues will indicate an approximately $21 million potential annual revenue that might be available for competing consolidators. *See infra* note 2191 for the CTA and UTP Plans' Q2 2020 Quarterly Revenue Disclosures.

[2075] Today the exchanges operating the exclusive SIPs offer connectivity products that bundle SIP connectivity with other exchange connectivity services. It is not possible to tell how much of the connectivity fees cover SIP connectivity and how much of them cover connectivity services for other exchange products such as proprietary data feeds. For example, one exchange stated that ''users can connect to Regulation NMS equities and options feeds disseminated by the SIP using either of the co-location local area networks. Users do not pay an additional charge to connect to the NMS feeds: It comes with their connection to the local area network.'' *See* NYSE's Notice of Filing of Proposed Rule Change to Amend the Exchange's Price List Related to Co-location Services, *available at https://www.sec.gov/rules/sro/nyse/2019/34-86865.pdf* (last accessed Sept. 8, 2020). For this reason, the Commission's estimates include several assumptions.

[2076] Neither of the exchanges operating the exclusive SIPs disclose their connectivity revenues as a separate item on their Form 1 filings. However, one of the commenters disclosed its connectivity revenues to be $167.6 million in 2018. *See* Nasdaq Letter IV at 29. To estimate the portion of this connectivity revenue that comes from subscribers of SIP data, the Commission uses the ratio of non-display SIP data revenues with respect to that the exchange's overall market data revenues (excluding connectivity fees). The Commission uses a revenue ratio based on non-display SIP data revenues within the overall market data revenues, because non-display data subscribers are the most likely connectivity purchasers for SIP data. Nasdaq's information services revenues (which covers its market data revenues, excluding its connectivity revenues) at the end of 2018 were approximately $243 million. *See supra* note 2072 for Nasdaq's 2019 Form 1 filings. In the same time period, its total non-display SIP revenues were approximately $9 million. *See infra* note 2191 for the CTA and UTP Plans' Q2 2020 Quarterly Revenue Disclosure. In other words, Nasdaq's total non-display SIP data revenues were approximately 4% of its overall market data revenues, excluding the connectivity revenues. For the lower bound estimation, the Commission assumed that the other exchange operating an exclusive SIP has the same amount of connectivity revenue from SIP data as Nasdaq ($6.4 million), bringing the lower bound of the total SIP data connectivity revenues that might be available to competing consolidators to approximately $13 million ($6.4 million times 2).

[2077] For the upper bound estimates, the Commission calculates the following numbers.

Continued

Finally, the Commission also believes that a number of firms may switch from using proprietary data feeds to using consolidated market data products provided by competing consolidators.[2078] The Commission believes that a reasonable range of firms who could switch to using consolidated market data products from using proprietary data feeds is 10 to 15. A typical firm using non-display feeds typically requires feeds from 10 exchanges,[2079] which the Commission estimates would cost approximately $1.1 million per year, per use case.[2080] The Commission also believes that the typical broker-dealer firm would have 2 use cases, so that the total spent on these proprietary data feeds would be $2.2 million. Using the 6% fee charged by normalizers discussed above, the Commission believes that there is between approximately $1.3 million and $2 million in revenue available to competing consolidators from this market segment.

If these 10 to 15 firms switch from using proprietary market data obtained from direct connections to the exchanges to using a competing consolidator, then they will no longer pay connectivity fees to the exchanges for their data access.[2081] As in the case of connectivity fees for the exclusive SIPs, the Commission believes that the connectivity fees for the proprietary feed connections to which these market participants cease to subscribe represents potential revenue for competing consolidators. The Commission estimates that the connectivity fees associated with these 10 to 15 dropped connections total approximately $27 million to $40 million.[2082]

The Commission believes that even though the $78 to $97 million estimated potential annual revenue is an underestimate, it is still large enough to support multiple competing consolidators. The estimated ongoing costs per competing consolidator range from $6.6 million to $8 million (including the ongoing Regulation SCI costs),[2083] leaving substantial room for profits for multiple competing consolidators even after incurring initial costs.

Finally, some commenters argued that most market participants interested in consolidated market data might become self-aggregators, which might shrink the customer base available to competing consolidators preventing the emergence of a healthy competing consolidator market.[2084] While acknowledging that some market participants might become self-aggregators,[2085] the Commission believes the market will still support multiple competing consolidators. A variety of market participants will likely demand the entirety or a subset of consolidated market data, including market participants who currently rely on SIP data as well as market participants who might switch from the exchanges' proprietary data feeds to consolidated market data.[2086] However, only a small portion of these are permitted to and will likely choose to be self-aggregators. For instance, few, if any, of the market participants who currently rely only on SIP data will become self-aggregators under the amendments because of the extensive investment and technical expertise that is needed to become a self-aggregator.[2087] Additionally, of the market participants who might switch from using the exchanges' proprietary data to consolidated market data, only certain market participants and with certain limitations are permitted to self-aggregate under the amendments.[2088] Other market participants who are not permitted to self-aggregate but who are consumers of the exchanges' proprietary data will need to subscribe to a competing consolidator if they switch to using consolidated market data.[2089] On the other hand, the Commission acknowledges that while the number of potential self-aggregators might be small their overall trading volume might be large, because these market participants are also likely some of the highest trading-volume broker-dealers and registered investment advisors.

e. Competing Consolidators' Ability To Offer Differentiated Products

The last factor that may affect the reasonableness of the assumption that a sufficient number of competing consolidators will enter the market is the ability to offer differentiated products, determined by the demand for differentiated products and the feasibility of supplying differentiated products. The greater the ability to offer differentiated products, the more

First, the Commission estimates Nasdaq's connectivity revenues the same way, approximately $6.4 million in 2018. Second, the Commission assumed that, in 2018, NYSE had the same amount of total connectivity revenue as Nasdaq ($167.6 million). *See supra* note 2072 for NYSE's 2019 Form 1 filings. To estimate the portion of this connectivity revenue that comes from subscribers of SIP data, the Commission similarly used the ratio of non-display SIP data revenues with respect to that the exchange's overall market data revenues (excluding connectivity fees). In 2018, NYSE's non-display data revenue from the SIPs were approximately $5 million and its overall market data revenue for the same period (excluding the connectivity revenues) were approximately $68 million ($236 million overall data services revenues minus the $167.6 million connectivity revenues). This indicates an approximately 7% revenue ratio. The Commission, then, estimated that NYSE's SIP data connectivity revenues in 2018 were approximately $12 million (7% × $167.6 million). This brings the upper bound of the total SIP data connectivity revenues that might be available to competing consolidators to approximately $18 million ($6.4 million plus $12 million).

[2078] *See infra* Section V.C.4(a) for additional discussion of this point, including how the expanded content of core data will be part of the reason firms may switch. These details were also discussed in the Proposing Release 85 FR at 16853.

[2079] Specifically, those exchanges are NYSE, NYSE American, NYSE Arca, Nasdaq, Nasdaq BX, PSX, Cboe BYX, Cboe BZX, Cboe EDGA, and Cboe EDGX.

[2080] *See* Katsuyama Letter II; Letter from John Ramsay, Chief Market Policy Officer, Investors Exchange LLC, to Brent J. Fields, Secretary, Commission (Feb. 4, 2019).

[2081] *See supra* Section V.B.3(c) for discussion of connectivity services.

[2082] This estimate follows a similar methodology as in note 2076. The Commission assumed that a given percentage of total proprietary data feed revenue comes from customers who also make up the same percentage of proprietary data connectivity revenue. The Commission estimates that 10 to 15 proprietary data customers, each with 2 non-display use cases, represent approximately $21.9 million to $32.9 million in proprietary data revenue. Using the revenue numbers from Section V.B.2(e), the Commission estimates that this is approximately between 8% and 12% of total exchange proprietary data revenue ($21.9 million/$269.0 million; $32.9 million/$269.0 million). The assumption that these customers make up the same percentage of total exchange connectivity revenue yields that these customers are responsible for between $26.6 million and $40.0 million of total exchange connectivity revenue (8% × $327 million; 12% × $327 million). In this calculation, the connectivity revenue that pertains to the exclusive SIPs is subtracted from total connectivity revenue to produce the base of proprietary data connectivity revenue. The conservative estimate of the upper bound on SIP connectivity revenue discussed in note 2077 of $18 million was used in both cases (10 and 15 switching users) to yield $327 million for proprietary connectivity revenue.

[2083] *See infra* Sections V.C.2(d) and V.C.2(e)(ii) for a discussion about the ongoing cost potential competing consolidators might incur. *See also infra* note 2256 for the total direct cost numbers.

[2084] *See, e.g.,* NYSE Letter II at 17; Nasdaq Letter IV at 8, 24; Nasdaq Letter V at 7; STANY Letter at 7; IDS Letter I at 15.

[2085] One commenter stated that they would expect some of their ''members to consider becoming self-aggregators pursuant to the Proposal.'' *See* FIA PTG Letter at 1–2.

[2086] *See infra* Section V.C.4(a) for a discussion on some market participants' potential switch to consolidated market data.

[2087] *See supra* note 2073.

[2088] *See supra* Section III.D for a discussion on the market participants that can be self-aggregators and the conditions under which they can share data.

[2089] One commenter said that ''many non-broker-dealer market participants subscribe directly to proprietary data feeds from exchanges'' and that they will likely want to use consolidated market data. *See* MFA Letter at 3. One asset manager commented that they would expect much of their ''use case for direct feeds would be eliminated if the SEC's rule is implemented as proposed, and if there is a competitive consolidated tape offering with the processor physically located in the same data center as the broker/dealers'' they employ as agents. *See* NBIM Letter at 4.

competing consolidators are likely to register until no economic incentives are left for new entry. In fact, the ability to differentiate may be necessary to ensure multiple competing consolidators can serve the market for the following reasons. As discussed above, the production of consolidated data involves relatively higher fixed costs (*e.g.,* connectivity to the exchanges, data storage, technical infrastructure needed to process large amounts of data), and lower variable costs (*e.g.,* costs of delivering the processed data to each customer).[2090] In such markets, the firms have additional incentives to increase the number of their customers in order to spread the fixed cost across a larger base of consumers. Without differentiation, the fixed cost nature of the market, and resulting economies of scale, could result in only one competing consolidator, because the largest competing consolidator would be able to offer the most competitive price.

The Commission believes that differentiation will likely be possible both because market participants demand different market data products and services and because competing consolidators will have the incentives and ability to offer differentiated products to service those diverse needs.

Market participants' demand for consolidated market data products is heterogeneous because there are many different investor types (*e.g.,* retail investors, small banks, market participants focused on value investment) that have differing investment strategies, and therefore, different data needs.[2091]

Additionally, competing consolidators will have the incentives and ability to differentiate their products to meet their customers' diverse needs. The Commission believes that competing consolidators will have strong incentives to offer differentiated products because of its potential implications for their survival in the market place.[2092] By offering products that are responsive to each type of customer's specific needs, competing consolidators can specialize and reduce their costs with this specialization. They can then pass these costs savings on to their customers as lower consolidation and dissemination fees and as a result capture market share. For example, competing consolidators could meet investors' diverse demand by offering different data products that range from the entirety of consolidated market data to subsets of consolidated market data such as top of book products.[2093] In addition, some competing consolidators could differentiate themselves by specializing in lower latency data for a segment of the market where trading strategies require high speed data access. Other competing consolidators could target data users who might prefer not to have the lowest latency product if the higher latency products came with a lower price or additional analytics. Competing consolidators could offer a range of user interfaces and analytics (*e.g.,* various ways to display consolidated data, or provide forecasting services) that appeal to different data users or could even offer an analytical environment to customize analytics (*e.g.,* offer software tools allowing market participants to analyze and summarize consolidate data). Differentiation along these dimensions will allow competing consolidators to offer different services at potentially different prices to different types of end users.

Competing consolidators will also have the ability to differentiate because the amendments do not restrict the type or variety of products they can offer, which will be determined by competitive forces. Additionally, the amendments do not require competing consolidators to offer the entirety of consolidated data, potentially allowing them some fixed cost savings (*e.g.,* on their connectivity and processing costs) if they offer narrower data content than the entirety of consolidated market data. However, there is some uncertainty about the extent to which competing consolidators can differentiate, because how fees are set by the effective national market system plan(s) might affect the feasibility to offer such diverse products.[2094] For example, while with differentiation competing consolidators can save on costs and lower their consolidation and dissemination fees, in the absence of differential prices for data content, competing consolidators' differentiated products will have smaller corresponding price differences from their customers' perspective. This is because the biggest component of the overall data fees (*i.e.,* data content, consolidation and dissemination, and connectivity fees) that the market participants pay will likely be data content fees that will go to the effective national market system plan(s). Thus, cost savings passed onto customers in terms of lower consolidation and dissemination fees will make a limited difference when customers are comparing overall data fees. As a result, potential competing consolidators will have a narrower price band within which to differentiate themselves and price their products.

Some commenters expressed concern that competing consolidators will not offer differentiated products.[2095] Some commenters said that market participants' ability to receive differentiated products depends on the choices of the Operating Committee(s) of the national market system plan(s) and competing consolidators, and that, the absence of differentiation will recreate the status quo.[2096] Another commenter stated that competing consolidators will not differentiate because this business will rely on economies of scale (*i.e.,* achieving cost savings by increasing their scale), not on economies of scope (*i.e.,* achieving cost savings by increasing their product offerings).[2097] The Commission believes that competing consolidators will offer differentiated products for two reasons.

First, while the Commission cannot be certain of whether such fees would provide discounts for those who wish to receive subsets of consolidated market data or based on usage categories,[2098] the Commission believes that some form of differential pricing for consolidated market data is the most likely outcome as discussed above.[2099] With differential pricing for the data content underlying consolidated market data, competing consolidators will have greater opportunity to offer differentiated products to market participants.[2100] Likewise, exchanges continuing to offer connectivity at different latencies with different corresponding prices would further promote product differentiation by competing consolidators. This is because differential connectivity fees will lead to different fixed costs for competing consolidators (*e.g.,*

[2090] Some commenters agreed. *See, e.g.,* Angel Letter at 3, 19; NBIM Letter at 2. *See also supra* Section V.B.3(a).

[2091] Several commenters agreed with the Commission. *See, e.g.,* BestEx Research Letter at 5; NYSE Letter II at 9; IEX Letter at 9; MEMX Letter at 5.

[2092] *See infra* Section V.C.2(b) for a discussion on the relationship between differentiation and prices.

[2093] Several commenters agreed with the Commission that investors have diverse market data needs. *See, e.g.,* IEX Letter at 9; MEMX Letter at 5; NYSE Letter II at 9; Angel Letter at 9.

[2094] *See infra* Section V.C.2(a)(i)e for a discussion of the influence of fees on the ability to differentiate.

[2095] *See, e.g.,* NYSE Letter II at 4; Data Boiler Letter I at 79.

[2096] *See* NYSE Letter II at 4; Nasdaq Letter IV at 25.

[2097] *See* Data Boiler Letter I at 79.

[2098] *See infra* Section V.C.2(b)(ii) for further discussion of these fees.

[2099] *See supra* Section V.C.2(a)(i)b for a discussion on the potential new fee structures under the amendments.

[2100] *See supra* Section V.C.2(b) for an additional discussion on differentiated products and data fees.

competing consolidators specialized in serving higher latency customers can purchase slower or lower capacity connectivity products and lower their fixed costs), and thus, different consolidation and dissemination and connectivity fees can be charged to their customers. Finally, competing consolidators are not required to consolidate and disseminate the entirety of consolidated market data, for example if they want to concentrate on a customer segment that prefers narrower data content. All of these—differential data content fees, the exchanges' differential connectivity fees, and the lack of a requirement to process and provide the entire data content of consolidated market data—will allow a larger price band over which potential competing consolidators can differentiate and price their products to serve their customers' diverse needs. On the other hand, this differentiation can still take place, in a more limited way, even if the effective national market system plan(s) do not implement any differential data content fees.

Second, the Commission believes that, for competing consolidators, scale and differentiation and specialization are complements not substitutes, as suggested by one of the commenters.[2101] Competing consolidators could expand their scale and market share to be able to spread their fixed costs over a larger set of customers than they otherwise would, by relying on their differentiated product offerings, similar to how the third party data aggregators operate today. For example, current third party data aggregators can be focused on more or less latency sensitive segments of the market and use this differentiation as a way to reach a larger set of customers than they otherwise would. The Commission believes that this business model will carry over into the new competing consolidator business, and could similarly differentiate across a variety of product characteristics such as latency, data content, analytics, and user interfaces.

Finally, in the absence of differentiation, the market might end up with only one competing consolidator;[2102] however, the Commission believes this is a low probability outcome for the reasons discussed above.

(ii) Risk of Few Competing Consolidator Registrants

As discussed in the previous section, there are several factors that may affect the number of competing consolidators entering the market. These factors determine the number of competing consolidators, which in turn determines the level of competition and ultimately the magnitude of benefits from the final amendments. While the Commission recognizes uncertainty in some of these factors, the Commission believes that it is reasonable to assume that there will be a sufficient number of competing consolidators to achieve the benefits of the rulemaking and that the risk that the anticipated benefits of the amendments will not materialize because of insufficient competition among competing consolidators is low.[2103]

The assumption that there will be a sufficient number of competing consolidators entering the market affects some economic effects of the decentralized consolidation model. Generally, many of the benefits and competitive considerations below depend on this assumption. For example, the Commission believes that competition among competing consolidators will lead to lower fees paid by market participants for consolidated market data products,[2104] larger gains in efficiency in the delivery of consolidated market data products and market data communication innovations,[2105] as well as a reduction in data consolidation and dissemination latencies.[2106] In addition, some of the costs discussed below also depend on this assumption. For example, after the transition ends, the decentralized consolidation model will decrease regulatory compliance costs imposed by Regulation SCI on existing exclusive SIPs that may register as competing consolidators, by changing their systems from ''critical SCI systems'' to ''SCI systems.'' [2107]

Some commenters questioned the Commission's assumption that there will be a sufficient number of competing consolidators and argued that there is not sufficient industry support for competing consolidators.[2108] On the other hand, several commenters indicated an interest in becoming a potential competing consolidator [2109] and one commenter predicted that several of the other current market participants will come forward to become one.[2110]

The Commission continues to believe that the risk that the anticipated benefits of the amendments will not materialize because the likelihood of insufficient competition among competing consolidators is low. Specifically, based on its analysis, as well as its experience and judgment, the Commission believes that there will initially be at least two competing consolidators and entry into the competing consolidator market space will likely continue until no economic incentives are left for any new competing consolidators to enter. The Commission believes that the most likely outcome is three or more competing consolidators with at least one competing consolidator that is not affiliated with either one of the exchanges currently operating the exclusive SIPs or an exchange that has sufficient proprietary data revenue that would create conflicting profit incentives.[2111] The Commission believes that this scenario will likely lead to vigorous competition and, as a result, will be enough for the predicted benefits to materialize.

a. Likelihood of Zero or One Competing Consolidator

In this section, the Commission analyzes the likelihood of zero or one competing consolidators registering and believes that the risk of either of these outcomes is low because of the strong incentives to enter. As such, and also because of the transition period requirements, the risk that the amendments will not achieve their benefits because only one or no competing consolidators register is low.

One commenter stated that the EU has been attempting to create a market for competing consolidators, but ''no consolidators have signed up. By declaring that the risk of few or zero consolidators is low, the Commission appears to be signaling ignorance of the

[2101] *See* Data Boiler Letter I at 56.

[2102] *See infra* Section V.C.2(a)(ii)a for a discussion on the probability and potential results of having a single competing consolidator operate in the market.

[2103] One of the commenters did not ''find any fault'' with the Commission's assessment over the potential competitive outlook of the competing consolidator market. The commenter stated that ''[t]he Department finds no fault with the SEC's preliminary determination that the risk is low that either no new SIP Data consolidators enter or only very few enter.'' *See* DOJ Letter at 5.

[2104] *See infra* Section V.C.2(b).

[2105] *See infra* Section V.C.2(c).

[2106] *Id.*

[2107] *See infra* Section V.C.2(e)(ii) for a discussion on the heightened requirements for ''critical SCI systems'' versus standard requirements for ''SCI systems.''

[2108] *See, e.g.,* Nasdaq Letter IV at 2, 3, 23, 24, 47; NYSE Letter II at 13, 16; TechNet Letter II at 2; Angel Letter at 20; IDS Letter I at 3, 7. *See also supra* note 615.

[2109] *See, e.g.,* ACTIV Financial Letter at 1; McKay Letter at 2; NovaSparks Letter at 1; MIAX Letter at 1 for an expression of their interest in registering as competing consolidators.

[2110] *See* NovaSparks Letter at 1.

[2111] *See infra* Section V.C.2(a)(ii)a for a discussion on conflicting profit incentives of some potential competing consolidators.

experience of other countries.'' [2112] The Commission does recognize the risk of no entry, but believes that strong incentives to enter render this risk low and that the European experience is not relevant to the U.S. because the regulatory framework in Europe is very different from that in the U.S.[2113]

There is some risk of no entity entering the new competing consolidator business for two reasons and if no entity enters as a competing consolidator, none of the Commission's predicted benefits will materialize. First, the potential registrants with some of the lowest entry barriers are also the same market participants who expressed a strong preference to maintain the current status quo.[2114] Second, potential registrants who expressed interest in becoming competing consolidators also expressed some concern about not being able to compete with any potential competing consolidators affiliated with the exchanges operating the exclusive SIPs, because they might not be competing on a level playing field.[2115]

However, the Commission believes that this risk is low. Even if the two exchanges operating the exclusive SIPs choose not to become competing consolidators, there are several other potential entrants that stated that they are interested in becoming a competing consolidator.[2116] For example, one or more of the exchanges that do not currently operate an exclusive SIP have incentives to, and are likely to, enter the new competing consolidator business.[2117] Entry into the competing consolidator business would provide these exchanges new data processing and dissemination, as well as connectivity, revenues. Additionally, being an entrant in the first wave could give a competing consolidator some first mover advantage—even if small—to capture a part of the market that is currently served by the exclusive SIPs. The incentive to have a first mover advantage will only be available to competing consolidators during the initial registration period. In particular, the provision that temporarily precludes registration once the initial registration period closes would provide an incentive to register early, during the initial registration period.[2118] Furthermore, entry costs are going to be lowest during this initial transition period,[2119] making it more attractive to register before this temporary relief expires.

In the unlikely event that only a single competing consolidator enters the market, very few of the Commission's benefit predictions may materialize. The Commission believes that market participants may receive some benefits such as a degree of latency reduction and some cost savings from only needing to connect to a single data provider instead of the two exclusive SIPs. However, overall, most of the predicted benefits depend on the new competing consolidator business being a competitive market, and therefore, will not likely materialize if only a single competing consolidator registers.

The Commission believes that a single competing consolidator scenario is also a low probability outcome. The Commission believes that both of the exchanges operating the exclusive SIPs have strong incentives to enter [2120] the new competing consolidator market because under the amendments, the exclusive SIPs will no longer be the exclusive consolidators and disseminators of market data and this will lead to potential revenue losses for the exchanges operating the exclusive SIPs.[2121] The exchanges operating the exclusive SIPs will be incentivized to enter during the initial registration period to start recouping some or all of their potential losses, because competing consolidators that do not enter during the initial wave will not be able to register and operate until the Commission opens up the registration process again.[2122] Additionally, the two exchanges operating the exclusive SIPs have entry costs, profit potentials, and economic interests similar to each other. Thus, neither exchange may leave the new consolidated market data business entirely to the other one and not pursue the chance to recoup some or all of their potential losses from no longer having the exclusive rights to consolidate and disseminate market data. Finally, as mentioned above, there are several other market participants who already have expressed an interest in becoming a competing consolidator, expanding the potential pool of initial entrants.[2123]

b. Likelihood of Two Competing Consolidators and Impact on Benefits

The Commission believes that the likelihood that only two market participants enter as competing consolidators is slightly higher than the likelihood of zero or one.[2124] This will

[2112] *See* Angel Letter at 20.

[2113] The Commission does not believe that lack of potential consolidated tape providers (the EU equivalent of competing consolidators) in Europe has any implications for the U.S. markets or the predictions of the amendments because the regulatory framework within which the European market participants operate is very different from the U.S. Most significantly, the relevant European regulation, MiFID II, ''does not mandate the establishment of a CT [consolidated tape] in the EU and does not oblige trading venues and APAs [approved public arrangements] to submit transaction data to a CTP [consolidated tape provider] for consolidation. The latter solution is the one chosen by the legislation in the US.'' Under the European regulatory framework, both the supply of and demand for market data would be uncertain, making it an economic calculation very different from the one the potential competing consolidators will make in the U.S. *See* European Securities and Markets Authority, *MiFID II/MiFIR Review Report No. 1,* at 35, *available at https://www.esma.europa.eu/sites/default/files/library/mifid_ii_mifir_review_report_no_1_on_prices_for_market_data_and_the_equity_ct.pdf* (last accessed Sept. 1, 2020). For additional discussion on how the European market data framework is different from the one in the U.S., *see* Philip Stafford, *EU-backed study calls for new body to track equities trades,* FINANCIAL TIMES (Oct. 7, 2020), *available at https://www.ft.com/content/616acec6-cfc4-44d4-95c0-6053a041e0d7.*

[2114] *See, e.g.,* Equity Markets Association Letter at 2; NYSE Letter II at 24; Nasdaq Letter IV at 5. The two exchanges operating the exclusive SIPs stated that the exclusive SIP model performs very well and does not need to be replaced with the decentralized consolidation model.

[2115] One commenter said that its letter discusses ''the significance of establishing a level playing field by ensuring fair and equal access to exchanges and the need to extend these principles to the legs of the market data distribution system over which an exchange (or an exchange affiliate) may exercise direct or indirect control.'' *See* McKay Letter at 2. *See also* ACTIV Financial Letter at 2; MIAX Letter at 1.

[2116] *See, e.g.,* ACTIV Financial Letter at 1; McKay Letter at 2; NovaSparks Letter at 1; MIAX Letter at 1 for an expression of their interest in registering as competing consolidators. One market participant submitted a comment letter to an NYSE filing fee where the market participant stated that ''Virtu plans to establish a competing consolidator to provide competitive market data products.'' *See* letter from Douglas A. Cifu, Chief Executive Officer, Virtu Financial, to Vanessa A. Countryman, Secretary, Commission, dated Aug. 28, 2020, *available at https://www.sec.gov/comments/sr-nyse-2020-05/srnyse202005-7707480-222891.pdf. See also* IEX Letter at 2, 3.

[2117] One of the commenters, an exchange, expressed an interest in becoming a competing consolidator. *See* MIAX Letter at 1. Additionally, in the past, the same exchange was an active contender to run one of the exclusive SIPs. The announcement made by the law firm conducting the tender offer stated that ''The UTP Operating Committee short-listed four firms as the finalists for the RFP bid: CenturyLink, MIAX Technologies, Nasdaq and Thesys Technologies'' *available at https://www.jandj.com/sites/default/files/library/UTP_SIP_Processor_Announced_2014.pdf* (last accessed Sept. 7, 2020).

[2118] *See supra* Section III.H for a discussion on details of the transition period.

[2119] The requirements of Regulation SCI will not apply to competing consolidators during an initial phase in period after the effective date of this rulemaking. *See supra* Section III.F for a discussion of the amendments to Rule 1000 of Regulation SCI.

[2120] Throughout this section, ''entry by an exchange operating an exclusive SIP'' refers to either the exchange or one of its affiliates becoming a competing consolidator.

[2121] *See infra* Section V.C.2(d) for a discussion of the indirect costs of the decentralized consolidation model.

[2122] *See supra* Section III.H for a discussion on the transition and initial registration period.

[2123] *See supra* note 2109.

[2124] One commenter stated that ''[o]ne possibility is that only two consolidators will emerge (the

Continued

most likely happen if two competing consolidators affiliated with the exchanges operating the exclusive SIPs file to be the two initial entrants,[2125] because the disclosure of their identities will potentially deter other potential competing consolidators from registering. The exclusive SIPs have a lot of experience in data consolidation and dissemination, which might deter other potential competing consolidators from entering. Additionally, while several commenters expressed an interest in becoming competing consolidators, they also listed several issues they see as potential risks.[2126] Most of those risks were about the exchanges operating the exclusive SIPs not creating a level playing field for competing consolidators that are not affiliated with them. To the extent that any potential competing consolidator believes that they cannot compete with the exchanges operating the exclusive SIPs, they might not register as additional competing consolidators, leaving the market with only two competing consolidators where both are affiliated with the exchanges operating the exclusive SIPs.

In the event that the consolidated market data business is served by only two competing consolidators that are both affiliated with the exchanges operating the exclusive SIPs, some of the economic benefits of the competing consolidator model may be limited. In particular, while this result could produce lower gains in delivery efficiency, innovation, and latency differentials and less competitive pressure on data processing and delivery fees, it could bring some degree of competition and corresponding benefits relative to the exclusive SIP model.

If the only competing consolidators to enter are the exchanges operating the exclusive SIPs, the outcome could be lower gains in data delivery efficiency and innovation, and smaller reductions in data consolidation and dissemination latencies. This may be the case primarily because competing consolidators that are affiliated with the exchanges operating the exclusive SIPs would have conflicting profit incentives. For a portion of the market participants, new consolidated market data and proprietary data could be close substitutes. Thus for competing consolidators serving those market participants, the consolidated market data business may cannibalize profits from their parent company's proprietary data business. In that case, these competing consolidators would have to weigh their potential revenue gains from the competing consolidator business against their parent company's potential losses from the proprietary data business. This prospect would reduce these competing consolidators' incentives to compete in this new business line.[2127] Under this scenario, if the market is being served only by two competing consolidators both affiliated with the exchanges operating the exclusive SIPs, market participants would lack a consolidated market data product vendor without conflicting profit incentives.

Additionally, if there are only two competing consolidators both with conflicting profit incentives, there may not be strong downward competitive pressure on data processing and delivery fees. The Commission's prediction about any downward pressure on data processing and delivery fees depends on the strength of competition among competing consolidators. Having just two competing consolidators—both affiliated with an exchange, with similar economic incentives, and a shared history of serving the whole SIP data market without competing with each other—could soften competition. Specifically, these two competing consolidators might explore opportunities to differentiate in ways that limit competition, such as offering products in different sets of stocks or capturing completely different segments of the market. If market participants would not see these two competing consolidators' products as viable substitutes, they would not be able to switch between them. And this would remove most of the competitive pressure on data processing and delivery fees.

However, even the scenario with only two competing consolidators affiliated with the exchanges operating the exclusive SIPs will bring some degree of competition and corresponding benefits relative to the exclusive SIP model. Unlike the exclusive SIPs today, the exchange-affiliated competing consolidators will operate under a threat of competition from each other and from other potential entrants if an economic opportunity presents itself. In particular, the exchange-affiliated competing consolidators will still have an economic incentive to target each other's customers by introducing new data products serving those customers' needs. In addition, there will likely be some latency benefits from being able to get a consolidated feed from a single competing consolidator instead of the two exclusive SIPs. Additionally, market participants might see some decline in their consolidation and dissemination costs for equivalent data.[2128] Finally, if an economic opportunity emerges, perhaps because of supra-competitive prices charged by the existing competing consolidators that are affiliated with the exchanges operating the exclusive SIPs, another market participant might register to become a new competing consolidator, and try to capture those customers with product offerings at lower prices.

c. Likelihood of Three or More Competing Consolidators With at Least One Unaffiliated Third Party Registrant and Impact on Benefits

The Commission believes that the most likely scenario for the new data consolidation business is for there to be three or more entrants, where at least one of the newly registered competing consolidators is not affiliated with either one of the exchanges operating an exclusive SIP or an exchange with a proprietary data revenue stream enough to create conflicting profit incentives.[2129] The Commission believes that this scenario will likely lead to vigorous competition and, as a result, will be enough for the predicted benefits to materialize.

The Commission believes that in addition to the exchanges operating a current exclusive SIP, there are several market participants, such as current third party data aggregators or other intermediary product and/or service providers or exchanges that do not currently operate an exclusive SIP that would have the capability and incentives to enter the newly created

current operators of the CTA and UTP plans).'' *See* Angel Letter at 20.

[2125] The Commission believes an outcome of two competing consolidators, where one or both are unaffiliated with either of the exchanges operating the exclusive SIPs, is a very low probability one. This is because, as discussed above, the Commission believes that in such a situation both of the exchanges operating the exclusive SIPs will have incentives to enter. Thus it is unlikely that this would be a two competing consolidator scenario.

[2126] *See, e.g.,* ACTIV Financial Letter at 1; McKay Letter at 2; NovaSparks Letter at 1; MIAX Letter at 1 for the risks the commenters state about competing consolidators' ability to compete on level playing field.

[2127] One commenter stated that just having SIAC and Nasdaq UTP as competing consolidators will not create a very competitive market because it ''will do little to encourage innovation or price competition as intended by the Proposal.'' *See* MIAX Letter at 4.

[2128] One commenter agreed. *See* Angel Letter at 21.

[2129] For a competing consolidator affiliated with an exchange that has a proprietary data revenue stream, there could be conflicting profit incentives as described in Section V.C.2(a)(ii)b. The degree of this conflicting profit incentive will depend on the size of the proprietary data stream relative to the exchange's overall revenues.

competing consolidator business.[2130] Some of the commenters already expressed an interest in doing so.[2131]

Several current market participants, such as third party data aggregators or other intermediary product and/or service providers in the market data space, have the technical capabilities,[2132] customer base,[2133] and incentives a new entrant would need. Some of the potential competing consolidators that might register to enter this new business line are some of the most technically sophisticated industry participants. These market participants are currently operating in adjacent markets (*e.g.,* proprietary data aggregation business), making entry into the new consolidated data business easier. Others currently serve as normalizers of the SIP data for retail investors.[2134] They are experienced in market data processing and dissemination, and already serve a portion of the market.

These potential competing consolidators also have the incentives to enter this new competing consolidator business. For an exchange that does not currently operate an exclusive SIP, competing consolidator business would provide an opportunity to get new data consolidation and dissemination as well as connectivity revenues. For a third party data aggregator, it would be a chance to build upon its existing business. For example, if a current third party data aggregator's main revenue source is its normalized SIP data products, then registering as a competing consolidator would be the most direct way for this data aggregator to continue receiving its revenue stream. Even if a current third party data aggregator is mainly focused on the proprietary data aggregation business, becoming a competing consolidator would be a new revenue source and would not create the same conflicting profit incentives described above.

The Commission believes that if three or more competing consolidators enter the market where at least one of them is not affiliated with either one of the exchanges operating the exclusive SIPs or an exchange with sufficient proprietary data revenue to create conflicting profit incentives, this scenario will lead to vigorous competition and will be enough for the predicted benefits to materialize. The conflicting profit incentives described above stem from a competing consolidator's proprietary data customers switching to use consolidated market data products if the data content and speed of the latter become a viable substitute for them. The conflicting profit incentives would stem from the fact that the exchange would have data content revenues to lose as a result of its competing consolidator's customers switching from proprietary data to consolidated market data. But if an exchange does not have significant data content revenues to lose, they would not have such a conflicting profit incentive. A competing consolidator's revenues will mainly come from its data processing, dissemination, and connectivity services, irrespective of the data content it disseminates. Without conflicting profit incentives, such a competing consolidator will focus on expanding its revenue base by aggressively pursuing consolidated market data product clients and capturing an ever larger market share. As part of this pursuit, this competing consolidator would have an incentive to innovate to gain efficiency and speed in data processing and delivery, reduce its costs, and potentially pass on some of these cost savings to its clients to gain market share. Therefore, even if some of the potential competing consolidators have conflicting profit incentives, if at least one other competing consolidator is free from this conflict, competition will intensify.

Overall, the Commission believes that there will initially be at least two competing consolidators and entry into the competing consolidator market space will likely continue until no economic incentives are left for new entry. The Commission believes that the most likely outcome is three or more competing consolidators with at least one competing consolidator that is not affiliated with either one of the exchanges operating the exclusive SIPs or with an exchange with a proprietary data revenue stream that creates conflicting profit incentives. As the number of competitors increase, the level of competition among them will intensify until no economic incentive is left for new entry. As discussed below,[2135] intensifying competition will benefit market participants.

One commenter stated that the Commission did not consider a possible scenario of ''a relatively large number of high-cost consolidators charging high prices for NMS information.'' [2136] As discussed above,[2137] the Commission believes that a large number of high-cost competing consolidators will not be an equilibrium outcome, because while competing consolidators will have an incentive to differentiate and capture different segments of the market, they can also offer each other's products if they see an economic opportunity to do so. If a large number of high-cost competing consolidators enter this new business line, over time the more efficient of those will capture market share from the less efficient ones.[2138] This is because more efficient competing consolidators will have lower costs and therefore the ability to charge lower prices to market participants and increase their market share. The ability to differentiate will not change this dynamic, because even as competing consolidators differentiate, this real threat of competition will discipline prices and efficiency in the consolidated market data space and will drive out inefficient competing consolidators.

[2130] One commenter said that ''[t]he Commission cites only a handful of entities who sought to become data processors in the context of a guaranteed monopoly.'' *See* NYSE Letter II at 19. The Commission agrees and notes that for the 2014 UTP SIP tender 11 intent to bid letters were submitted. Similarly, for the CAT SIP tender over 30 intent to bid letters were submitted. *See* 2014 UTP SIP tender processor selection announcement, *available at https://www.jandj.com/sites/default/files/library/UTP_SIP_Processor_Announced_2014.pdf* (last accessed Aug. 12, 2020); 2017 CAT SIP tender processor selection announcement, *available at https://financialservices.house.gov/uploadedfiles/11.30.2017_mike_beller_testimony.pdf* (last accessed Aug. 12, 2020).

[2131] *See, e.g.,* McKay Letter at 2; ACTIV Financial Letter at 1; NovaSparks Letter at 1; MIAX Letter at 1 for an expression of their interest in registering as competing consolidators. *See also* letter from Douglas A. Cifu, Chief Executive Officer, Virtu Financial, to Vanessa A. Countryman, Secretary, Commission, dated Aug. 28, 2020, *available at https://www.sec.gov/comments/sr-nyse-2020-05/srnyse202005-7707480-222891.pdf.*

[2132] *See, e.g.,* McKay Letter at 1 note 1; ACTIV Financial Letter at 1 note 1; NovaSparks Letter at 1; MIAX Letter at 1.

[2133] One of the commenters said that while it would like to contemplate being a competing consolidator, any contender would need a large customer base that the commenter believes it does not have. According to the commenter, the big market data aggregators with an existing large customer base are the ones that can achieve this. The Commenter said that ''[d]ominated (sic) market data aggregators, like Bloomberg and Refinitiv, would most likely spread their fixed cost to large customer base in quickest time.'' *See* Data Boiler Letter I at 84; Data Boiler Letter II at 1.

[2134] *See supra note* 1777. Companies that normalize market data take in raw data delivered in a variety of protocols and, using feed handlers, normalize into single protocol different from the one used by the original venue. This way a data user can receive one feed using one streaming protocol. *See* Vela blog, *available at https://info.tradevela.com/definitive-guide-to-market-data#normalisation* (last accessed Sept. 17, 2020).

[2135] *See infra* Section V.C.2(c) for a discussion on the benefits of the decentralized consolidation model.

[2136] *See* Nasdaq Letter IV at 23, 24.

[2137] *See supra* Section V.C.2(b) for a discussion of fees as one of the factors to influence the strength of competition in the competing consolidator business.

[2138] In a market, more efficient companies have lower production costs and therefore can lower their prices relative to and capture market share from higher cost, thus more inefficient, companies.

Some commenters questioned the likelihood of any potential competing consolidators entering the market because of the uncertainty associated with the proposed transition period.[2139] One commenter questioned whether market participants would have incentives to make large investments before the effective national market system plan(s) sets data content fees.[2140] Another commenter stated that potential entrants would have to make large investments ''but would have no ability to earn any returns on those investments—or estimate when or if such returns would be realized—until after the Commission has elected to transition to the decentralized model.'' [2141]

The Commission believes that three aspects of the adopted transition period, discussed above,[2142] addresses the issues raised by the commenters. First, potential competing consolidators will be able to see and comment on the data content fees before deciding whether to register and become a competing consolidator. This will eliminate some of the uncertainties about the potential value of the new competing consolidator business. Second, in phase one, following the development and testing periods, potential competing consolidators will be able to start operating and earn revenues as soon as they complete their test period. Thus competing consolidators would not be making large investments to earn potential future returns at an uncertain time.[2143] Finally, the Commission will implement an initial registration period with the following two features designed to encourage entry into the new competing consolidator business space. The first feature is the limited initial registration period, which limits market participants' ability to enter the competing consolidator market until after the exclusive SIPs are retired, if they miss the first wave. This feature could encourage entry because being in the initial wave of competing consolidators could help market participants achieve a first mover advantage and capture some market share. However, the registration requirements for potential competing consolidators are the same whether they enter during the initial registration period or after the exclusive SIPs are retired. If a potential competing consolidator enters in the second wave, they will miss the opportunity to have a first mover advantage, but otherwise will go through the same registration process. The second feature is the disclosure of market participants' identities shortly after their filing of a Form CC.[2144] This feature, in combination with the first one, could encourage entry because once potential competing consolidators start to register, these disclosures will signal that there are market participants interested in becoming competing consolidators in addition to revealing their identities. This could encourage other potential competing consolidators to register instead of adopting a wait-and-see approach.

Lastly, one commenter stated that the Commission ''fails to consider the possibility that, once the new model was in place, sufficient numbers of competing consolidators could cease operations, resulting in a system that is not viable.'' [2145] The Commission acknowledges that after the new model is established, there might be some on-going entry and exit of competing consolidators, an expected economic dynamic just like in every other market place. However, the Commission believes that there is no reason for the economic conditions of the market to change drastically to lead to a wave of competing consolidator exits and a consolidated market data space without enough competition for two reasons. First, demand for consolidated market data products is not likely to dramatically decline over time, because market participants need certain consolidated market data products for regulatory compliance. Second, supply by competing consolidators is also unlikely to decline dramatically because as discussed above,[2146] a competing consolidator is required to provide 90 calendar days' notice of its cessation of operations. This advance notice will provide enough time for new competing consolidators to enter the market or existing competing consolidators to expand their products and services to meet any unmet demand stemming from a competing consolidator's exit.

(b) Analysis of the Impact on Data Fees

The introduction of the decentralized consolidation model is likely to reduce the fees market participants will pay for consolidated market data. When comparing data fees for the consolidated market data with current data fees, this economic analysis holds data content constant. In other words, the fee comparison in this analysis is between what market participants will pay under the amendments versus what they currently would have to pay to access the same content. Specifically, the analysis finds that the amendments are likely to reduce, and unlikely to increase, fees paid for the equivalent of consolidated market data as well as the fees paid for the equivalent current SIP content. This effect on fees underlies the potential for many of the benefits and costs discussed above in Section V.C.1 and below in Section V.D.1 to be realized.

(i) Fees for Consolidated Market Data Content

The Commission believes that the total fees for the equivalent of consolidated market data (*i.e.,* data content, consolidation and dissemination, and connectivity fees) are likely to decline because of the amendments, but recognizes uncertainty about how the effective national market system plan(s) will set the fees for data content underlying consolidated market data offerings [2147] and how SROs will set the fees for connectivity necessary to receive the data content underlying consolidated market data as well as how the competing consolidators will price their services. As a result of lower fees, some market participants will choose to purchase more market data content than they purchase today, such as purchasing the expanded core data. The likelihood of this outcome will depend on the difference between total fees for consolidated market data and current total fees for equivalent data content.[2148]

The Commission believes that three sets of fees may be affected as a result of this rule: Fees for data content underlying consolidated market data offerings, fees for the consolidation and dissemination of consolidated market data products, and fees for the connectivity services necessary to receive the data content underlying

[2139] *See* NYSE Letter II at 15, 16; IDS Letter I at 8, 9. *See* Proposing Release, 85 FR at 16794–95 for a discussion of the transition period.

[2140] *See* IDS Letter I at 8.

[2141] *See* NYSE Letter II at 16.

[2142] *See supra* Section III.H for a discussion on the three phases of the transition period.

[2143] *See supra* note 1356 for a discussion on the length of time it might take to reach this point in the transition to the decentralized consolidation model.

[2144] *See supra* Section III.C.7(i)(ii) for a discussion on the disclosure of an initial Form CC filer's identity.

[2145] *See* IDS Letter I at 9.

[2146] *See supra* Section III.C.7(g)(ii) for a discussion on the requirements to file a notice of cessation.

[2147] Several commenters agree. *See, e.g.,* NYSE Letter II at 19–20; STANY Letter II at 5.

[2148] The economic effect of more market participants purchasing expanded core data is discussed above in Section V.C.1(c).

consolidated market data from the SROs.[2149]

d. Data Content Fees

The Commission believes that the fees for the data content used to create consolidated market data are unlikely to increase and actually will likely be lower than today's fees for equivalent data,[2150] because the effective national market system plan(s) would have to satisfy the statutory standards that apply to such data. In addition, fees for data content underlying consolidated market data will be subject to a notice and comment period and Commission approval. As discussed above, the fees for the data content underlying consolidated market data must be fair, reasonable and not unreasonably discriminatory. One method for demonstrating compliance with such requirements is that fees are reasonably related to costs; this has been the principal method discussed by the Commission for analyzing the fairness and reasonableness of such fees for core data since the Market Information Concept Release.[2151]

The Commission believes that the fees for consolidated market data will likely be subject to downward pressure. Specifically, the new data content underlying consolidated market data (*i.e.,* depth of book data, auction information, and odd-lot information) are currently elements of proprietary data products, which are assessed under the statutory standards that apply to proprietary data and are effective on filing.[2152] However, fees for data content underlying consolidated market data will be developed and proposed by the effective national market system plan(s) and will be subject to notice and comment.[2153] As stated above,[2154] the fees for the data content underlying consolidated market data must satisfy the statutory standards of being fair, reasonable, and not unreasonably discriminatory. The Commission has historically analyzed fees for consolidated SIP data generated under the national market system plans using a standard under which fees are reasonably related to cost, while its analysis of proprietary data fees has not been limited in this manner.[2155]

Under such methodology, data content fees are likely to decrease because between 2010 and 2018, the proprietary data feed portion of the current fees for equivalent data appears to have increased at a rate that seems unlikely to have been based on costs.[2156] To the extent that the exchanges have generally not attempted to justify their proprietary data fees on a cost basis but instead relied on other justifications, their fees seem to have outpaced their costs.[2157]

The Commission believes that fees for content equivalent to the data content of consolidated market data will not increase because the downward pressure on fees noted above will not permit the fees for consolidated market data to be greater than the sum of the current fees for individual data components. Currently, market participants who want to access content equivalent to the data content of consolidated market data need to separately purchase SIP data and additional data elements from each exchange via proprietary data feeds.[2158] As discussed in the Proposing Release,[2159] the Commission understands that SRO proprietary feeds for depth of book data are more expensive than the exclusive SIP feeds.[2160] The Commission believes that

[2149] The first two fees are currently bundled into a single fee, which covers SROs' data and the exclusive SIPs' operations such as consolidation and dissemination of data. The amendments will unbundle these two components and will allow competing consolidators to provide the data consolidation and dissemination services. Under the rule, the fee for data content will be set by the effective national market system plan(s). *See supra* Section III.E.2(c) and Proposing Release, 85 FR at n. 96 for a discussion on the amendments to the provision regulating effective national market system plan(s) fee filings. Within 150 days of the effectiveness of Rule 614, the Operating Committee(s) of the effective national market system plan(s) will be required to propose the data content fees for the SROs' data required to create consolidated market data and will then file the proposed fees with the Commission for consideration pursuant to Rule 608. *See supra* Section III.H.1. Competing consolidators will likely charge a second fee for their consolidation and dissemination services, which could also include associated costs for data access at exchanges and transmission of data between data centers. The fees for data consolidation and dissemination will be determined by competition among competing consolidators. Finally, SROs currently charge connectivity fees for both exclusive SIP and proprietary data feeds. Under the amendments, SROs could charge connectivity fees to competing consolidators and self-aggregators, which must be consistent with statutory standards. Currently, connectivity fees are charged to the market participants that connect to the exchange and not to end users. *See* Proposing Release, 85 FR at n. 1017. Competing consolidators could charge connectivity fees to end users, which will be subject to competitive forces.

[2150] The Operating Committee(s) of the effective national market system plan(s) will have to propose the data content fees for the SROs' data required to create consolidated market data and will then file the proposed fees with the Commission for consideration pursuant to Rule 608, within 150 days of the effectiveness of Rule 614. *See supra* Section III.H.2.

[2151] For the purposes of this section, the Commission assumes that the Operating Committee of the effective national market system plan(s) will set fees for data content underlying consolidated market data offerings that are reasonably related to costs. *See* III.E.2(c) for a discussion of the statutory standards for fees on the data content underlying consolidated market data. *See also supra* note 21.

[2152] *See supra* Section III.B.6. These statutory standards include Section 6(b)(4) of the Exchange Act and Section 11A(c)(1)(D) and Rule 603(a) under Regulation NMS.

[2153] *See* Effective-Upon-Filing Adopting Release, *supra* note 17.

[2154] *See supra* Section III.B.6 and Section III.E.2(c).

[2155] *See supra* Section III.E.2(c); *see also* notes 1175 and 1178.

[2156] *See supra* Section V.B.2(d); *see, e.g.,* AHSAT Letter at 1; Better Markets Letter at 4.

[2157] In a comment letter, IEX provided data that the SRO markups on proprietary data may be large. In particular, IEX compared its own costs of providing proprietary market data with the fees charged by other exchanges for comparable produces and found markups of 900–1,800 percent. *See* Katsuyama Letter II; Letter from John Ramsay, Chief Market Policy Officer, Investors Exchange LLC, to Brent J. Fields, Secretary, Commission (Feb. 4, 2019) (discussing the ''all-in'' cost to trade concept advocated by other exchanges). Additionally, in a letter submitted in advance of the Market Data Roundtable, one commenter stated that ''[t]he Exchanges have formulated pricing schemes that layer in redundant costs and fees which raises the true cost of market data well above the costs of producing and distributing the data'' and that ''the Exchanges impose multiple synthetic access fees for participants to physically connect to obtain the required data; these costs bear no relation to the Exchanges' actual cost of the connectivity.'' *See* letter from Douglas A. Cifu, Chief Executive Officer, Virtu Financial, to Brent J. Fields, Secretary, Commission, dated Oct. 23, 2018, at 3, 5, *available at https://www.sec.gov/comments/4-729/4729-4558490-176196.pdf.*

[2158] Currently, fees for SIP data and proprietary data are generally charged based on the number and type of end user of the data. For example, the CTA/CQ Plan Schedule of Charges distinguishes fees by professional and nonprofessional subscribers and the number of devices. *See* CTA Plan, Schedule of Market Data Charges, *supra* note 1734; Proposing Release, 85 FR at n. 1511. The Nasdaq UTP Plan, Exhibit 2 provides separate fees for non-professionals and per device fees. *See* Proposing Release, 85 FR at n. 13 for Nasdaq UTP Plan. Similar user distinctions are made in proprietary data products. *See* Nasdaq, Price List—U.S. Equities, *available at www.nasdaqtrader.com/Trader.aspx?id=DPUSdata#tv* (last accessed Jan. 30, 2020) (showing Nasdaq TotalView usage fees, which provide fees for professional and non-professional subscribers); NYSE Proprietary Market Data Fees (as of Nov. 4, 2019), *available at https://www.nyse.com/publicdocs/nyse/data/NYSE_Market_Data_Fee_Schedule.pdf* (showing the NYSE Integrated Feed fee schedule, which distinguishes between professional and non-professional users).

[2159] *See* Proposing Release, 85 FR at 16839. *See also supra* Section I.B.

[2160] Several commenters supported this statement, some of whom stated that the fees for the exchanges' proprietary data makes it hard for them to fulfill their regulatory requirements. *See, e.g.,* AHSAT Letter at 1; Better Markets Letter at 4. But another commenter stated that this statement represents an ''apples-to-oranges'' comparison, because a DOB feed contains more information than the exclusive SIP feeds. *See* Nasdaq Letter IV at 49. The Commission is aware that there is more information in the DOB feeds than the SIP feeds; the comparison in this statement is of the SIP data fees to the proprietary data fees to explain how the two current data content components' underlying consolidated market data are priced. This is because today any market participant that wants to get data content equivalent to consolidated market data would have to pay for certain DOB feeds as well as the SIP data feeds.

a combination of these data elements, in the form of consolidated market data, is unlikely to be priced more than the sum of its parts.

Finally, the Commission would not expect fees for content equivalent to the data content of consolidated market data to be higher, because under the amendments the SROs are not required to incur significant new costs by creating a separate dedicated data feed and connectivity system. The amendments allow the SROs to use their existing proprietary data and connectivity infrastructure to provide the data content underlying consolidated market data.[2161] This provision will likely reduce the SROs' implementation costs, further limiting the probability that the fees proposed by the effective national market system plan(s) for the data content underlying consolidated market data will be higher than the current fees for equivalent data.[2162] In addition, the Commission does not believe that the rule will significantly increase SRO costs specifically for distributing data.[2163] However, the exchanges could shift the allocation of fixed exchange costs to consolidated market data from some of their proprietary data.[2164] The Commission lacks the necessary information to ascertain those impacts.

e. Consolidation and Dissemination Fees

The Commission believes that data consolidation and dissemination fees for consolidated market data products will be lower than consolidation and dissemination fees market participants currently pay to receive equivalent data for two reasons.[2165]

First, to receive data equivalent to consolidated market data today, market participants would have to pay separately for a portion of exclusive SIPs' cost to perform consolidation and dissemination of market data and a fee for consolidation and dissemination of additional data content underlying consolidated market data that are available via third-party providers of proprietary market data, who face competitive pressures. As discussed above,[2166] exclusive SIPs are not constrained by competition and thus have lower incentives to reduce their costs. By comparison, the Commission expects that competition among competing consolidators will put downward pricing pressure on these service fees, because competing consolidators will have incentives to undertake investments intended to lower costs and improve quality in the provision of consolidated market data products. Competing consolidators will be competing over market share. Unlike in today's world of exclusive SIPs, under the amendments, a competing consolidator's inefficiencies or lack of desirable products could lead to its clients switching to another consolidated data vendor and that competing consolidator losing market share or even getting driven out of the market. The Commission recognizes that the stronger the competition among competing consolidators, the harder it would be for any given competing consolidator to increase its consolidation and dissemination fees and make supra-competitive profits from these services.[2167]

Second, the fixed costs of the competing consolidators could be spread out among its subscribers, including subscribers to services provided by the competing consolidators that are not covered by the fees established by the effective national market system plan(s) such as, for example, proprietary data customers that might be purchasing their data from competing consolidators that also sell consolidated market data products. Consolidation and dissemination fees that competing consolidators will charge for equivalent data are expected to cover several associated costs, including fixed costs of hardware and software, processing to take in data, processing for consolidation (including compiling the NBBO and protected quotes), distribution of the data, and connectivity fees paid to exchanges to acquire the data for consolidation. The variable costs of the competing consolidators will be minor in comparison because additional data users will have a minimal impact on the costs of competing consolidators. Because having more subscribers could help competing consolidators spread out their fixed costs, any increase in the number of subscribers of current market data aggregators who would become competing consolidators would reduce the consolidation and dissemination fees of those aggregators in equivalent data. For example, some market participants who currently use proprietary data might switch to using consolidated market data products.[2168] Additionally, as discussed below, the availability of the new consolidated market data might allow new entry into the market making, broker-dealer, and other trading businesses.[2169] This would expand the potential subscriber pool, giving competing consolidators a chance to further spread their fixed costs. For these reasons, the Commission believes that the competition among competing consolidators will lead to lower consolidation and dissemination fees for consolidated market data products as compared to these fees for equivalent data today.

f. Connectivity Fees

The Commission believes that connectivity fees charged by competing consolidators for consolidated market data products will also be lower than connectivity fees market participants would currently have to pay to receive equivalent data. To receive data equivalent to consolidated market data today, market participants currently have to pay separately a connectivity fee to the exchanges to access SIP data and a connectivity fee to the exchanges or market data aggregators to access additional data elements that are not part of SIP data but that will be part of consolidated market data. Under the rule, the Commission expects that market participants will pay only one connectivity fee for consolidated market data products (unless they choose to have a back-up competing consolidator), set by a competing consolidator, and this connectivity fee will be subject to competition among competing consolidators. Competing consolidators will have the ability to sell potentially substitutable data products via their connectivity, subjecting their connectivity products to competition. By contrast, current exchange connectivity fees may not be as competitive because an exchange has sole control over its own connectivity

[2161] *See supra* Section III.B.9(b) for a discussion on how the SROs will provide the data content underlying consolidated market data.

[2162] *See supra* Section V.C.1(c)(iv).

[2163] *See id.*

[2164] One commenter agreed with the Commission's assessment however did not provide any analysis or data. *See* BlackRock Letter at 5. *See also infra* Section V.C.4(a) for a discussion of the likely effects of the rule on the revenues exchanges receive for proprietary data.

[2165] Some commenters agreed. *See, e.g.,* IntelligentCross Letter at 5.

[2166] Several commenters agreed. *See, e.g.,* DOJ Letter at 5; MFA Letter at 2; AHSAT Letter at 1. *See also supra* Section V.A.2.

[2167] *See infra* Section V.C.2(c) for a discussion on the benefits of the decentralized consolidation model.

[2168] One of the commenters agreed that some of the current proprietary data users might switch to using consolidated market data products. According to the commenter, a portion of those could become self-aggregators and others could be served by competing consolidators. *See* Nasdaq Letter IV at 25. *See also infra* Section V.C.4(a) for a discussion on the effects of the amendments on exchanges' proprietary data feeds.

[2169] *See infra* Section V.C.4(b) for a discussion on new potential entrants into the market maker, broker-dealer, and other latency sensitive trading businesses.

charge for its proprietary market data.[2170] Therefore, the Commission believes that connectivity fees that will be charged by competing consolidators for consolidated market data products will be lower than the connectivity fees for equivalent data today.

The Commission recognizes that SROs will charge connectivity fees to competing consolidators and self-aggregators. The exchanges could continue to set connectivity fees for data feeds as part of their SRO fee schedules, and these fees must continue to meet statutory standards.[2171] The exchanges' connectivity fees are not currently based on the number of end users, and therefore the Commission believes that the connectivity fees for consolidated market data products would not be directly passed through to the end users. SRO connectivity fees would be fixed costs incurred by self-aggregators and by competing consolidators, a cost the latter could spread out among their end users as a part of the consolidation and dissemination as well as connectivity fees.

g. Response to Comments on Fees for Consolidated Market Data

Several commenters stated that the decentralized consolidation model is unlikely to reduce data costs, including because of the richer core data content and the additional upkeep costs introduced by the decentralized consolidation model.[2172] One commenter said that the uncertainty around data reliability and fees did not provide assurances that the market data costs would decline after adoption of these amendments.[2173] Another commenter stated that given the potential data and technology input costs, competition alone cannot lower prices.[2174] Another commenter said that there will be a speed race among competing consolidators and, as a result, as their costs go up their prices will go up.[2175] One other commenter expressed sympathy for the idea of introducing competitive forces, but said that the release did not provide any proof that introducing competition from competing consolidators and self-aggregators will lower data fees and latency.[2176]

The Commission disagrees with these comments and believes that competition among competing consolidators will likely decrease consolidated market data costs for equivalent data.[2177] First, as discussed above, the Commission agrees that there is uncertainty around data content fees. However, for the reasons explained above, the Commission believes that the overall data fees (*i.e.,* data content, consolidation and dissemination, and connectivity fees) will likely be lower for equivalent data. One commenter's statement about potential fee increases due to ''richer core data content'' [2178] makes an accurate comparison to baseline SIP data fees difficult, because current SIP data fees bundle data content and consolidation and dissemination fees. While data content portion of the SIP data fees might go up because of the richer content of consolidated market data, consolidation and dissemination portion of SIP data fees could approach zero, as the exclusive SIPs will be discontinued. Thus the overall outcome is unclear, making comparisons to the current SIP data fees very difficult. A more accurate way to examine the data fees is by breaking them down into the three fee components (*i.e.,* data content, consolidation and dissemination, and connectivity) while holding data content constant, as in the Commission's analysis above. As a result of that analysis, the Commission concludes that the overall data fees (*i.e.,* data content, consolidation and dissemination, and connectivity fees) will likely be lower for equivalent data.

Second, the Commission understands that competing consolidators will have input and technology costs, but as discussed above, these are mostly fixed costs that competing consolidators will spread over their customer base. Competitive pressure will encourage competing consolidators to always look for ways to reduce their costs and try to capture market share by passing some or all of these cost savings onto their customers. Additionally, the Commission believes that this same competitive dynamic will be unchanged even if competing consolidators charge different consolidation and dissemination prices for different products, such as higher prices for lower latency products, as suggested by one of the commenters. On the other hand, current market participants whose trading strategies require low-latency data need to buy proprietary data and the exchanges may not be subject to robust competition in their proprietary data business.[2179] Similarly, the exclusive SIPs are not under competitive pressure and are unlikely to be focused on cost saving measures, as the competing consolidators will.

Some commenters stated that the Commission's belief about multiple competing consolidators offering differentiated products is in conflict with its predictions about the overall fees for consolidated market data potentially being lower than today for equivalent data.[2180] One commenter said that ''if the Commission's prediction of 12 consolidators were correct, the fixed costs associated with the two exclusive SIPs would be supplemented with the fixed costs associated with 12 consolidators, likely resulting in a substantial increase in industry fixed costs. Such an increase in fixed costs would ultimately have to be borne by industry participants, including investors, and ultimately recovered from consumers of market data.'' [2181] Another commenter relied on an academic article to make the point that competition could increase prices when product differentiation is possible.[2182] The Commission does not believe the commenters' conclusions necessarily follow for the new competing consolidator business.

First, the Commission does not believe that the market having several competing consolidators will lead to higher fixed costs for equivalent data and thus higher consolidated market data prices. What the competing consolidators' fixed costs will be is uncertain, because a portion of those fixed costs will be the connectivity fees that the SROs will file with the Commission and those are yet to be proposed.[2183] Additionally, even if the fixed costs end up being higher, that would not immediately imply higher consolidated market data prices because the demand for consolidated market data products might be higher as a result of some market participants potentially choosing to buy consolidated market data products instead of proprietary

[2170] Several commenters agreed. *See, e.g.,* Virtu Letter at 2; SIFMA Letter at 4; IEX Letter at 5–6.

[2171] For example, under Section 6(b)(4) of the Exchange Act, the rules of an exchange must ''provide for the equitable allocation of reasonable dues, fees, and other charges among its members and issuers and other persons using its facilities.''

[2172] *See, e.g.,* BlackRock Letter at 5; Cboe Letter at 23–24; Angel Letter at 21; TD Ameritrade Letter at 2; Healthy Markets Letter I at 4; STANY Letter II at 5; Nasdaq Letter III at 8; Nasdaq Letter IV at 8; Data Boiler Letter I at 2.

[2173] *See* TD Ameritrade Letter at 2.

[2174] *See* Healthy Markets Letter I at 4.

[2175] *See* Nasdaq Letter III at 8.

[2176] *See* STANY Letter II at 5.

[2177] Several commenters agreed. *See, e.g.,* BestEx Research Letter at 4; Fidelity Letter at 9; Committee on Capital Markets Regulation Letter at 3; Wellington Letter at 1; Intelligent Cross at 5.

[2178] *See* BlackRock Letter at 5.

[2179] *See supra* Section V.B.3(b) for a discussion on the current market structure for proprietary market data.

[2180] *See* Nasdaq Letter IV at 2, 25, 26; Angel Letter at 23.

[2181] *See* Nasdaq Letter IV at 25.

[2182] *See* Angel Letter at 23.

[2183] *See supra* Section V.C.2(b)(i)c for a discussion on connectivity fees and their potential impact on competing consolidators.

data feeds [2184] and potential new entry into the broker-dealer, market making, and other latency sensitive businesses.[2185] Finally, the Commission believes that, unlike in the current centralized consolidation model, competitive pressures will make it harder for competing consolidators to raise their prices to supra-competitive levels under the decentralized consolidation model. At any given point, competing consolidators are unlikely to have exactly the same incremental costs. Some of them might have cost advantages over the others, which will allow them to pass these cost advantages to customers in terms of lower prices and to compete over each other's customer segments. Those competing consolidators with a cost advantage will increase their market share by pushing out the higher cost competing consolidators from the market. Eventually the market will reach a stable level of competition where individual competing consolidators cannot raise their prices to supra-competitive levels without risking a loss of their customers to a competitor.

Second, the Commission does not believe that the comment about competition potentially leading to price increases in a market with product differentiation applies to the competing consolidator business. The comment relies on an academic paper that examines prices and competition under a duopoly market structure. The academic paper does not examine or try to understand potential price outcomes under a different market structure, such as one with several competing firms—the most likely outcome for the competing consolidator business.[2186] Therefore, it is hard to extrapolate the paper's arguments from a duopoly market to a market with more than two competitors because the competitive dynamics and the resulting price effects in a duopoly market might be very different from the competitive dynamics and the resulting price effects in a market with several competitors. The Commission acknowledges that competition may not be very strong if the new competing consolidator business ends up with two competing consolidators, especially if both of them are affiliated with the exchanges that currently operate an exclusive SIP.[2187] However, even in such a market, this academic paper's predictions will not necessarily be applicable because the two competing consolidators will have the ability to target each other's customers if they see an economic opportunity to do so. On the other hand, the paper cited by the commenter examines a research question motivated by empirical observations in industries such as the anti-ulcer drug market. Competitors in those markets have a hard time offering each other's products, given potential patent and other restrictions. However, in the consolidated market data business, firms can offer perfectly or partially substitutable products as well as each other's differentiated products if an economic opportunity to do so exists. For example, as discussed above, an economic opportunity may exist if an inefficient competing consolidator charges prices above competitive levels. Unlike a brand name drug manufacturer, competing consolidators will maintain the ability to compete over the same customer segments, even as they differentiate their products. And this ability to compete will create a threat of competition that will discipline competing consolidators' prices.

(ii) Fees for the Content of Current SIP Data

The Commission also considers the effect of the rule on fees market participants currently pay for SIP data content versus what they would pay for equivalent content under the decentralized consolidation model. The Commission recognizes that a significant proportion of market participants currently purchase only SIP data and/or the unconsolidated equivalent of SIP data.[2188] Under this rule and conditional on fees for consolidated market data, while some of these market participants will choose to purchase more data than they purchase today, other market participants may choose to continue to purchase content equivalent to current SIP data (*e.g.,* NBBO and TOB).[2189] The Commission believes that data fees paid for equivalent data could be similar to current SIP data fees or could be lower than current SIP data fees. Whether the fees are the same or lower depends on several factors: The data content fee structure proposed by the effective national market system plan(s) for NMS stocks, how competing consolidators allocate their costs of processing (*i.e.,* receiving, consolidating, and disseminating) consolidated market data, and any connectivity fees charged by competing consolidators for consolidated market data products.

a. Data Content Fees

The Commission believes that the data content fee structure proposed by the effective national market system plan(s) for NMS stocks under the decentralized consolidation model is an important factor in determining whether total data fees (*i.e.,* the sum of data content fees, consolidation and dissemination fees, and connectivity fees) for the equivalent of current SIP data could be similar or lower under this rule.[2190] Until the effective national market system plan(s) propose fees for data content underlying consolidated market data offerings, the Commission is unable to determine the extent to which this fee structure would charge lower fees for end users who wish to receive subsets of consolidated market data from competing consolidators.

The Commission also understands that the current SIP data content fees are different for different use cases.[2191] In the 2018 SEC roundtable, several exchanges agreed that their many different types of market participants and that one type of data product does not meet everybody's needs.[2192] The amendments will not change the market reality that market participants have diverse data needs. Thus the Commission believes that the effective

[2184] *See infra* Section V.C.4(a) for a discussion on the impact of the amendments on proprietary data business.

[2185] *See infra* Section V.C.4(b) for a discussion on the impact of the amendments on new entrants into broker-dealer, market making, and other latency sensitive businesses.

[2186] *See* Yongmin Chen and Michael H. Riordan, *Price-Increasing Competition,* 39 Rand J. Econ. 1042, 1056 (2008). *See also, supra* Section V.C.2(a)(ii) for a discussion of the potential scenarios for the number of competing consolidator registrants.

[2187] *See supra* Section V.C.2(a)(ii)b for a discussion on the potential softening of competition if the only two registrants for the new competing consolidator business are exchange-affiliated competing consolidators.

[2188] Several commenters agreed. *See, e.g.,* BestEx Research Letter at 2–3; State Street Letter at 2; BlackRock Letter at 1.

[2189] Some commenters agreed. *See, e.g.,* MEMX Letter at 5.

[2190] *See supra* Section V.B.2(c).

[2191] *See* CTA Plan, Q2 2020 CTA Quarterly Revenue Disclosure, *available at https://www.ctaplan.com/publicdocs/ctaplan/CTA_Quarterly_Revenue_Disclosure_2Q2020.pdf*; Nasdaq UTP Plan, Q2 2020 UTP Quarterly Revenue Disclosure, *available at https://www.utpplan.com/DOC/UTP_Revenue_Disclosure_Q22020.pdf.*

[2192] One of the round table participants said that ''there are many different types of market data consumers, from major Wall Street banks and market makers to retail online brokerages and media companies across the world and all have differing data needs.'' (*See* Oliver Albers speech on page 107, *available at https://www.sec.gov/spotlight/equity-market-structure-roundtables/roundtable-market-data-market-access-102518-transcript.pdf*). Another round table participant stated that ''[e]xchanges offer a variety of data products to meet the diverse needs of market participants.'' (*See* James Brooks' speech on page 177, *available at https://www.sec.gov/spotlight/equity-market-structure-roundtables/roundtable-market-data-market-access-102518-transcript.pdf*).

national market systems plan(s) will likely take this market reality into account when proposing the fee schedule for data content underlying consolidated market data by, for example, proposing different fees based on the scope of data content a market participant consumes or usage category or a combination of both.[2193]

Two commenters [2194] emphasized the uncertainty around the potential national market system plan(s) fee schedules, with one commenter stating that ''the Commission cannot assume that the operating committee of an NMS plan would create such a [top of book] product, or whether the costs of such a product would meet the needs of market participants who do not want or cannot consume the full consolidated market data.'' [2195] Indeed the Commission does not assume that the Operating Committee of an effective national market system plan will create a differential pricing structure that might satisfy the needs of market participants who will continue to purchase data content equivalent to the current SIP data.[2196] However, the Commission believes that this is a likely outcome based on market realities. The effective national market system plan(s) may choose different price levels based on usage category because that is the current fee practice for the exclusive SIPs. Thus it is possible this pricing method will carry over into the new market under the amendments.[2197] On the other hand, it is also possible that the effective national market system plan(s) will choose different price levels based on the scope of data content market participants consume,[2198] especially because competing consolidators are not required to offer the entire data content of consolidated market data. As a result, the Commission acknowledges that the amendments could decrease or keep at similar rates the content fees for the equivalent of SIP data.[2199] The outcome is dependent on the effective national market system data plan(s)' fee proposals.[2200]

b. Consolidation and Dissemination Fees

The fees for data consolidation and dissemination depend on how competing consolidators allocate fixed costs among subscribers receiving different subsets of data. As discussed in the Proposing Release,[2201] the Commission expects competing consolidators to offer a menu of products and services, regardless of the data content fee structure of the effective national market system plan(s). Competing consolidators could elect to charge lower consolidation and dissemination fees to subscribers receiving subsets of data compared to fees charged to subscribers receiving the entirety of consolidated market data. In fact, the Commission believes that competitive pressure could result in such a fee structure. Additionally, some competing consolidators can specialize in serving market participants that prefer to consume subsets of consolidated market data. In such a case, these specialized competing consolidators might be able to lower some of their fixed costs (*e.g.,* by signing up for a smaller, and therefore, cheaper connectivity port to take in only a subset of consolidated market data) and pass those cost savings in terms of lower consolidation and dissemination fees. Overall, the data consolidation and dissemination component of total fees charged to those who purchase content equivalent to SIP data could be lower than this component of current SIP data fees today.

c. Connectivity Fees

The fees for connectivity services paid by end users seeking to purchase only what was previously SIP data may decline for some users but could stay the same for others. Currently, some SIP data users connect to the exchanges that are the administrators of exclusive SIPs and pay connectivity fees to access the SIP data. These connectivity fees are paid directly to the exchanges and do not go to the exclusive SIPs. There are also SIP data users that do not connect to the exchanges and thus do not pay SRO connectivity fees for SIP data, but may pay fees to other market data service providers. Under this rule, subscribers may be charged a connectivity fee by competing consolidators when they subscribe to consolidated market data products. The Commission acknowledges that there is uncertainty over whether the competing consolidator connectivity fees would be similar to or smaller than what SIP data users currently pay in connectivity fees. The overall connectivity fees under this rule may be similar if competing consolidators charge connectivity fees similar to what the current SIP data normalizers charge. As discussed above [2202] and in the Proposal [2203] and given the potential connectivity options available, the Commission believes competing consolidators will be under competitive pressure, and as such, they may offer a range of connectivity fees, including based on market participants' scope of data content and speed choice. In that case, SIP data subscribers who currently pay connectivity fees to the exchanges may see their connectivity fees decline.

d. Response to Comments on Fees for the Content of Current SIP Data

Several commenters argued that data fees for retail investors will go up and that those investors will effectively be subsidizing benefits incurred by self-aggregators or other market participants who use larger data content or the entirety of consolidated market data.[2204]

The Commission acknowledges that market participants who would like to purchase a narrower data content that is equivalent to the current SIP data might pay fees similar to the current SIP data fees. This is because it is uncertain whether the effective national market system plan(s) will implement a fee schedule that has different fees based on the scope of data content a market participant consumes or usage categories, whether competing consolidators will allocate their fixed costs taking into account consolidation and dissemination bandwidth their customers use based on their data content consumption or usage category,

[2193] One commenter agreed that different types of investor place different values on market data and therefore the market data pricing schemes should take this into account. *See* Angel Letter at 9, 11, and 27.

[2194] *See* Nasdaq Letter IV at 47; NYSE Letter II at 4.

[2195] *See* NYSE Letter II at 4.

[2196] *See* Proposing Release, 85 FR at 16840–41 for a discussion on the uncertainty about data content fees.

[2197] One commenter stated that the distinction between professional and non-professional users and the corresponding price differences between those categories should be retained under the amendments. *See* Angel Letter at 9. Within 150 days of the effectiveness of Rule 614, the Operating Committee(s) of the effective national market system plan(s) will be required to propose the data content fees for the SROs' data required to create consolidated market data and will then file the proposed fees with the Commission for consideration pursuant to Rule 608. *See supra* Section III.H.1. Thus the Commission is uncertain about the potential data content fee structure the effective national market system plan(s) will propose.

[2198] One commenter said that ''[u]sage categories are complex and lack standardization in terminology across exchanges, leading to excessive audits and subjective interpretations about compliance with contractual agreements.'' *See* BlackRock Letter at 6.

[2199] *See* NYSE Letter II at 20.

[2200] The Commission has issued an order to modernize the governance of the data plans. *See* Proposing Release, 85 FR at n. 8.

[2201] *See* Proposing Release, 85 FR at Section VI.C.2(a).

[2202] *See supra* Section V.C.2(b)(i).

[2203] *See* Proposing Release, 85 FR at Section V.C.2(b)(i).

[2204] *See, e.g.,* NYSE Letter II at 20; Angel Letter at 24; TD Ameritrade Letter at 4.

and at what level competing consolidators will charge connectivity fees. Despite this uncertainty, as discussed above, the Commission believes that there are several reasons why market participants who would like to purchase a narrower data content that is equivalent to the current SIP data might pay lower fees than the current SIP data fees.[2205] The Commission does not have enough information to determine whether these fees will be lower or similar.

(c) Benefits of the Decentralized Consolidation Model Pertaining to Competing Consolidators

As discussed above,[2206] currently SIP data is collected, consolidated, and disseminated to market participants through a centralized consolidation model with an exclusive SIP for each NMS stock. The amendments will discontinue the centralized model, and instead will introduce a decentralized consolidation model. Even though the current exclusive SIPs are selected through a bidding process,[2207] the Commission believes that a competitive marketplace is more capable of producing the benefits that come from competitive forces than the process of soliciting bids for exclusive contracts.[2208] In particular, the Commission believes that the decentralized consolidation model will have four potential benefits for market participants. First, the Commission believes that the decentralized consolidation model offers the potential for gains in efficiency in the delivery of consolidated market data products to emerge over time. Second, the Commission believes that the model will promote innovation in market data delivery in the future, in a way that the current centralized consolidation model has not. Third, the Commission expects that the new model will significantly reduce content and latency differentials that currently exist between SIP data and proprietary data products. Finally, the Commission believes that the decentralized consolidation model will potentially increase market resiliency.

The Commission acknowledges that some commenters raised issues about the potential benefits of the decentralized consolidation model predicted in the Proposing Release.[2209] However, other commenters stated that the decentralized consolidation model will bring potential benefits and agreed with the Commission's earlier predictions.[2210] The analysis responds to the comments below.

(i) Gains in Efficiency, Such as Cost Savings

The Commission believes that introducing competition into the provision of consolidated market data products and dissemination services will likely reduce costs and lower prices for those services, and create incentives for innovating on product offerings more tailored to the needs of the consumers.[2211] It is therefore the Commission's expectation that the decentralized consolidation model will result in a meaningful increase in investments intended to lower costs and/or improve quality in the provision of consolidated market data products. This represents an economic benefit for the national market system, some of which will be kept by competing consolidators as profit, and some of which will be received by market participants in the form of lower fees for competing consolidator services.

Some market participants may benefit as a result of the introduction of the decentralized consolidation model if they experience a lower price for consolidated market data relative to today's price for consolidated market data, holding data content constant.[2212]

Additionally, market participants could potentially save on the cost of consolidated market data because they will only need to subscribe to one competing consolidator instead of two exclusive SIPs (*i.e.,* UTP and CTA/CTQ). To the extent market participants can subscribe to one competing consolidator, they could save money by not having to pay the costs of processing consolidated market data to two SIPs.[2213] To the extent that some market participants that receive consolidated market data products from competing consolidators that are not SCI entities choose to retain a back-up connection to a second competing consolidator, their cost savings could be lower. Finally, the amendments could improve efficiency in the consumption of market data because purchasers could receive consolidated market data products for all NMS stocks on one feed instead of three.[2214]

Several commenters raised issues about the prediction that the new decentralized consolidation model will lead to declines in market data costs.[2215] On the other hand, several commenters said that the decentralized consolidation model will lead to more efficient and lower cost market data products.[2216] As discussed in detail above, the Commission agrees with the second group of commenters and believes that competition will likely improve quality and lower market data costs.[2217]

(ii) Innovation in Data Delivery

Second, the Commission believes that the decentralized consolidation model will enable consolidated market data delivery to continue to keep up with market data communication innovations in the future, in a way that the current centralized consolidation model has not.[2218] This represents an improvement over the current system for dissemination of SIP data, in which the lack of competitors reduces the incentives of the exchanges that govern the exclusive SIPs to innovate.[2219] The Commission believes that the current system of disseminating SIP data through exclusive SIPs, which are managed by the Equity Data Plans' Operating Committees, is not well suited to keep up with the pace of innovation in data processing and communication in the market.[2220] The

[2205] *See supra* Section V.C.2(b)(ii) for a discussion on the reasons why data fees for investors who would like to purchase data content equivalent to the current SIP data might pay lower fees than the current SIP data fees.

[2206] *See supra* Section V.B.2(b) for a discussion on the current process for dissemination of market data.

[2207] *See supra* SectionV.B.3(a) for a discussion on why the SIP bidding process is not necessarily competitive.

[2208] *See supra* Section V.A.2 for a discussion of the problems with the current process and *infra* Section V.D.2 for a discussion of the effect of the amendments on competition.

[2209] *See, e.g.,* STANY Letter II at 5; Healthy Markets Letter I at 4; TD Ameritrade Letter at 2; Kubitz Letter at 1.

[2210] *See, e.g.,* DOJ Letter at 3–4; IntelligentCross Letter at 4–5; Better Markets Letter at 3; Clearpool Letter at 7; MEMX Letter at 8; Committee on Capital Markets Regulation Letter at 3; FIA PTG Letter at 1; Steinmetz Letter (comment on entire proposal).

[2211] *See* Section V.C.2(b) for an analysis of the potential for a reduction in the fees associated with of data consolidation and dissemination. *See also, e.g.,* BestEx Research Letter at 4; Fidelity Letter at 9; Committee on Capital Markets Regulation Letter at 3; Wellington Letter at 1; RBC Letter at 6.

[2212] *See supra* Section V.C.2(b) for a discussion of why data fees might decline for some participants.

[2213] One commenter agreed. *See* Angel Letter at 21. *See also supra* V.C.2(b) for a discussion of why competing consolidator fees for consolidation and dissemination are likely to be lower than current SIP fees for the same services.

[2214] One commenter agreed. *See* BlackRock Letter at 5.

[2215] *See, e.g.,* TD Ameritrade Letter at 2; Healthy Markets Letter I at 4; STANY Letter II at 5; Data Boiler Letter I at 2.

[2216] *See, e.g.,* BestEx Research Letter at 4; Fidelity Letter at 9; Committee on Capital Markets Regulation Letter at 3; Wellington Letter at 1; RBC Letter at 6.

[2217] *See supra* Section V.C.2(b) for an analysis of the amendments' impact on data fees.

[2218] One commenter agreed. *See* State Street Letter at 3.

[2219] *See supra* Section V.A.2.

[2220] *See id.*

decentralized consolidation model will place the task of determining the method of consolidation and dissemination to free market forces, which the Commission believes will make it easier to innovate rapidly and maintain competitive parity with other market participants.[2221] The end result of this improved efficiency in investment decisions by consolidators will be to improve the quality and reliability of market data consolidation and dissemination services, which will result in market participants having better data to make trading decisions.[2222] The Commission believes this will lead to better trading decisions, lower execution costs, and will help reduce information asymmetries between market participants that currently solely rely on SIP data and market participants who purchase the exchanges' proprietary data products.[2223]

One commenter disagreed, stating that the Commission is actually replacing competition with ''a government-supervised rate-setting board.'' [2224] The same commenter said that ''[t]he Commission would no longer permit competition to determine the prices of market data or to spur innovation.'' [2225] Another commenter said that market data ''should remain subject to market forces.'' [2226] The Commission disagrees with this characterization of the amendments. Under the amendments, the exchanges can continue to sell their proprietary data feeds by filing their fee schedules with the Commission, like they do today. In addition, similar to today, the effective national market system plan(s) will file data content fees with the Commission for market data. Finally, as mentioned above, unlike the exclusive SIPs, competing consolidators' consolidation and dissemination fees will be determined by market forces.[2227]

(iii) Reduce Latency Differentials

Third, the Commission expects that the new model will significantly reduce the various types of content and latency differentials between data that is currently SIP data and data currently included in proprietary data products.[2228]

The Commission's belief that there will be a significant reduction in the latency differential between consolidated market data products and proprietary data feeds is based upon the Commission's assumption that the business practices of current market data aggregators, some of which expressed interest in becoming competing consolidators,[2229] will serve as a model for how competing consolidators will operate under the decentralized consolidation model.[2230] Current market data aggregators have achieved connectivity, transmission, consolidation, and distribution speeds that are meaningfully faster than SIP data even as they process larger amounts of data than SIP data.[2231] Therefore, the Commission believes that competition among competing consolidators will keep market data consolidation and distribution speeds close to the processing speeds achieved in the market data aggregation space currently.[2232]

The Commission believes that all forms of latency discussed previously—geographic, consolidation, and transmission latency [2233]—have the potential to be the source of these reductions in the latency differential. The Commission understands that the existing market data aggregator business does not rely on the single-instance consolidator model but instead produces a separate consolidated feed at each data center. This has the potential to substantially reduce geographic latency for data centers that are not co-located with one of the existing exclusive SIPs because it means new information at a data center can be used immediately at that data center instead of being returned to the processing center first. The Commission therefore expects that the decentralized consolidation model will serve to substantially reduce geographic latency in the same way for market participants. For instance, the existing market data aggregators already have infrastructure in place to consolidate market data in the described way. And if the existing exclusive SIPs become competing consolidators, they will also have to produce separate consolidated feeds at each data center to be able to compete with other competing consolidators. Therefore, the Commission believes that the geographic latency reduction in the decentralized consolidation model can be achieved even if one existing market data aggregator enters the competing consolidator business. The benefit of the decentralized consolidation model with regard to geographic latency will not rely heavily on the assumption that a large number of consolidators would enter the market.[2234] Importantly, as discussed above,[2235] geographic latency is the biggest cause of latency differentials between current SIP data distributed by exclusive SIPs and current proprietary data feeds.[2236]

Also, the Commission understands that many current market data aggregators rely on wireless communications to receive data from various exchange data centers, using fiber connections as a backup in case of bad weather. As discussed above,[2237] wireless communications are faster than current transmission methods for SIP data. To the extent that the business practices of current market data aggregators serve as a model for competing consolidators, the Commission expects the decentralized consolidation model to reduce consolidation and transmission latency as well.[2238] Additionally, some competing consolidators could achieve lower consolidation and transmission latency by processing subsets of consolidated market data for market

[2221] Several commenters agreed. *See, e.g.,* State Street Letter at 3; ACS Execution Services Letter at 5.

[2222] *See infra* Section V.D.1.

[2223] Several commenters agreed. *See, e.g.,* BlackRock Letter at 5–6; AHSAT Letter at 3.

[2224] *See* Nasdaq Letter IV at 9.

[2225] *See* Nasdaq Letter IV at 9.

[2226] *See* WFE Letter at 1.

[2227] *See supra* Section V.C.2(b) for a discussion on competing consolidators' consolidation and dissemination prices.

[2228] Several commenters agreed with the Proposal's predictions on latency reduction as a result of the decentralized consolidation model. *See, e.g.,* IntelligentCross Letter at 4; DOJ Letter at 3–4; AHSAT Letter at 3; Wellington Letter at 1; BlackRock Letter at 5. *See also supra* Section V.B.2(b) for information on current latency differentials.

[2229] Several commenters stated that they are interested in registering as competing consolidators. *See, e.g.,* McKay Letter at 2; ACTIV Financial Letter at 1; NovaSparks Letter at 1. *See also* Press Release, Miami Int'l Holdings, Miami Int'l Holdings Announces That It Is Evaluating Registration as a Competing Consolidator (Nov. 18, 2020), *available at https://www.miaxoptions.com/sites/default/files/press_release-files/MIAX_Press_Release_11182020.pdf.*

[2230] *See supra* Section V.C.2(a) for a discussion of the factors affecting the decision to become a competing consolidator.

[2231] The Commission believes that if the existing exclusive SIPs choose to become competing consolidators in the decentralized consolidation model, the competition with other competing consolidators will incentivize them to improve their connectivity, transmission, consolidation, and distribution speeds to the levels of other competing consolidators.

[2232] *See supra* Section V.B.2(b) for a discussion on the latency differentials between SIP data and proprietary data feeds.

[2233] *See id.*

[2234] *See supra* Section V.C.2(a); V.C.2(a)(ii).

[2235] *See supra* Section V.B.2(b).

[2236] Several commenters agreed. *See, e.g.,* Cboe Letter at 23; Nasdaq Letter IV at 49; STANY Letter II at 6.

[2237] One commenter agreed and provided a technical explanation for these speed differentials. *See, e.g.,* Data Boiler Letter I at 39. *See also supra* Section V.B.2(b) for a discussion on the current process for dissemination of SIP data and proprietary data feeds.

[2238] Some commenters agreed. *See, e.g.,* ICI Letter at 10.

participants that prefer narrower data content than the entirety of consolidated market data. The Commission believes that the effect of the decentralized consolidation model on the consolidation and transmission latencies depends on robust competition among competing consolidators going forward.

The Commission believes that to the extent that the benefits of faster access to market data come from the ability to engage in more timely participation in the provision of liquidity, this effect represents an economic benefit to the equity market generally because it will provide more fair and equal access to market data and will reduce information asymmetries among market participants.[2239] In particular, to the extent that the existing advantages of having access to fast proprietary data feeds are derived from trading strategies exploiting differentials in the speed of access to market data (*i.e.,* exploiting traders in the market who currently rely solely on slower SIP data), this benefit would represent a transfer from current users of faster proprietary data to the users of consolidated market data products in the decentralized consolidation model that will now also have access to faster data.[2240]

In order for both economic benefits and transfers to be realized, at least some market participants that are new users of fast and more content-rich consolidated market data products will need to possess the technological capability to take advantage of the speed improvements the decentralized consolidation model is likely to provide. It is the Commission's understanding that such technological capabilities are costly to acquire, and this fact could reduce the amount of benefit and the degree to which individual market participants can profit (through the transfers mentioned above) from the decrease in data latency.

Several commenters disagreed with the Proposing Release's predictions on latency reduction.[2241] Some commenters stated that the existence of multiple competing consolidators will not reduce latency much because processing times are already minuscule.[2242] Other commenters argued that additional latency gains are unlikely to improve outcomes for retail and long-term investors.[2243] Other commenters argued that competing consolidators will be an extra hop on the data delivery chain and market participants receiving data from competing consolidators will always be slower than self-aggregators or proprietary data users who receive market data directly from the exchanges.[2244]

The Commission believes that the decentralized consolidation model will reduce latency rates for market data and will bring consolidated market data products' latency rates more in line with the latency rates of proprietary data feeds. This latency reduction could come from all forms of latency, including geographic latency.[2245] Even if the potential gains from processing speeds are small, competing consolidators could achieve larger latency reductions by decreasing geographic latency. Unlike the exclusive SIPs, competitive forces will incentivize competing consolidators to respond to market participants' needs. For example, for market participants whose trading strategies depend on low-latency data, some competing consolidators could create an instance of consolidated market data in every data center, significantly reducing geographic latency.[2246] Furthermore, while retail and long term investors might have less latency sensitive trading strategies, even small gains in speed can be meaningful for improving execution quality, a benefit to investors.[2247] Finally, the Commission expects the introduction of the decentralized consolidation model to reduce data latency for market participants who currently rely on SIP data but will switch to using consolidated market data products, because competing consolidators will be incentivized to provide faster data products than the exclusive SIPs. The Commission discusses the full details of the relationship between self-aggregators and competing consolidators with respect to latency below.[2248] This then will lead to a reduction in information asymmetry caused by current large latency differences among investors using SIP data versus proprietary data feeds.[2249]

One other commenter disagreed with the Commission's assessment of the decentralized consolidation model's latency benefits, stating that ''[c]competing consolidators will create a costly arms race in speed.'' [2250] The Commission believes that there is already demand for fast data in the market and the introduction of the decentralized consolidation model will not affect market participants' demand for faster data. However, the new model will affect the supply of market data speeds available to market participants. Hence, with the amendments, market participants who currently rely on SIP data will have other data options that are faster than SIP data and that are potentially a closer substitute to proprietary data feeds.

(iv) Market Resiliency

Fourth, the Commission believes that the decentralized consolidation model will eliminate the single point of failure in market data consolidation and dissemination step and potentially increase market resiliency. However, the Commission acknowledges that the provision of data content underlying consolidated market data will continue to be a single point of failure, in that one of the exchanges could experience a systems issue leading to a market-wide effect just like they could today if they experience a systems issue when delivering their data content to the exclusive SIPs.

Under the amendments, with the availability of multiple competing consolidators, there could be multiple copies of consolidated market data, which will contribute to market resiliency.[2251] Some commenters stated that having multiple competing consolidators will reduce the probability of market-wide failures and

[2239] One commenter agreed and said that ''[l]ow latency proprietary traders with independent decision engines in different data centers will always be the fastest actors in the system; however, lessening the information asymmetry between these actors and other market participants has great value.'' *See* Capital Group Letter at 4.

[2240] One commenter agreed and stated that ''[r]ace conditions are impossible to solve. Even if you're fastest by a picosecond, you are still first.'' *See* Nasdaq Letter III at 5. For a discussion of the effect of speed differentials on trading, *see also* Don Bollerman, *A NYSE Speed Bump You Weren't Aware Of,* IEX *available at https://www.sec.gov/comments/10-222/10222-395.pdf (last accessed Jan. 8, 2020).*

[2241] *See, e.g.,* Nasdaq Letter IV at 36; Cboe Letter at 23; Citadel Letter at 5; Nasdaq Letter III at 5; STANY Letter II at 6; Data Boiler Letter II at 1; NBIM Letter at 6.

[2242] *See, e.g.,* Nasdaq Latter IV at 49; Cboe Letter at 23; Citadel Letter at 5; STANY Letter II at 6.

[2243] *See, e.g.,* Nasdaq Letter IV at 41; Proof Trading Letter at 1.

[2244] *See, e.g.,* Nasdaq Letter IV at 8; Healthy Markets Letter I at 3–4; Data Boiler Letter II at 1.

[2245] Several commenters agreed. *See, e.g.,* DOJ Letter at 3–4; IntelligentCross Letter at 4; Wellington Management Letter at 1; BlackRock Letter at 5.

[2246] Several commenters agreed. *See, e.g.,* BlackRock Letter at 5; Wellington Letter at 1. Additionally, one commenter stated that ''[g]eographic latency could be addressed either through a distributed SIP or competing consolidators, therefore agreeing with the Commission. *See* Nasdaq Letter IV at 49.

[2247] *See supra* Section V.B.3(e) for discussion of latency and execution quality.

[2248] *See infra* Section V.C.4(b) for this discussion.

[2249] Some commenters agreed. *See, e.g.,* Capital Group Letter at 4; AHSAT Letter at 3.

[2250] *See* Angel Letter at 19.

[2251] *See infra* Section V.C.2(e)(i) for a discussion of how Regulation SCI could also contribute to market resiliency.

instead increase market resiliency.[2252] The Commission agrees. Currently, each exclusive SIP consolidates and disseminates unique market data and if either or both of the exclusive SIPs experience a systems problem the whole market is affected. However, under the amendments, with multiple competing consolidators serving the market, no single competing consolidator's systems issue will be a market-wide problem. At most, it will affect all of its customers or some of its customers if others retained a back-up competing consolidator.

Other commenters stated that competing consolidators will move the market from single point of failure to multiple points of failure and reduce resiliency.[2253] The Commission agrees that with multiple competing consolidators, each of their systems issues might cause problems for a certain portion of the market participants. However, that will still decrease the probability of market-wide failures in data consolidation and dissemination because all competing consolidators would have to have a simultaneous systems issue for there to be a market-wide failure in data consolidation and dissemination. That is unlike today, when a single exclusive SIP's systems issue can create a market-wide failure in data consolidation and dissemination. Additionally, with multiple competing consolidators, market participants will have a choice if they decide to retain a back-up competing consolidator based on their business needs. However, currently, for market participants that primarily rely on SIP data there is no secondary back-up consolidator option. Thus, as discussed above,[2254] the Commission does not believe that the decentralized consolidation model reduces resiliency.

Finally, one commenter expressed concerns about low-cost providers being less resilient.[2255] The Commission believes that low cost data providers would not necessarily be less resilient and, if any are less resilient, that would not necessarily lead to lower resiliency in the market because market participants could review competing consolidators' monthly disclosures and decide whether to retain a backup consolidator. First, any low cost competing consolidators that are above the five percent (5%) market data revenue threshold will be subject to Regulation SCI with geographically diverse backup requirements. Second, all competing consolidators are required to publicly disclose, on a monthly basis, their system availability and performance statistics. In a competitive market, this will encourage competing consolidators to invest in their systems to make sure that they have high rates of system ''up-time.'' Additionally, it will give market participants information to anticipate their backup needs and decide whether they need to get a backup consolidator based on their data providers' system availability and performance statistics.

(d) Costs of the Decentralized Consolidation Model

The Commission believes that the amendments are likely to have direct costs on potential competing consolidators and SROs, and indirect costs on existing exclusive SIPs, certain market participants and investors, and SROs. As explained below, the Commission estimates that the direct costs to each potential competing consolidator will be between approximately $5.6 million in ongoing annual costs, and total one-time costs of up to between approximately $1.7 million and $5.7 million, depending on entity type.[2256] Further, the Commission estimates that SROs will jointly have approximately $175,000 in direct one-time costs and approximately $102,000 in ongoing costs for the amendments to the effective national market system plan(s). Each SRO will also incur approximately $71,000 in one-time direct costs and approximately $128,000 in ongoing costs for the collection and dissemination of information. The Commission expects, however, that the amendments that introduce a decentralized consolidation model will have additional indirect costs. Some of these direct and indirect costs are likely to be passed on to investors in terms of the prices they will pay.

(i) Direct Costs to Potential Competing Consolidators

As mentioned in the Proposing Release and discussed above,[2257] the Commission believes that five types of entities may register to become competing consolidators and will have to build systems, or modify existing systems, that comply with the rules: (1) Market data aggregation firms, (2) broker-dealers that currently aggregate market data for internal uses, (3) the existing exclusive SIPs, (4) new entrants, and (5) SROs. The Commission estimates that all direct ongoing annual costs and some one-time costs will be common among all competing consolidators and that some one-time costs will vary depending on entity type.

For purposes of the PRA,[2258] the Commission estimates that direct ongoing costs for each competing consolidator will be approximately $5.63 million and consist of the following costs: Costs of $16,812 to amend Form CC prior to the implementation of material changes to pricing, connectivity, or products as well as to correct inaccurate or incomplete information;[2259] costs of $50 to obtain digital IDs for the purposes of signing the Form CC annually,[2260] costs of approximately $5.56 million associated with operating and maintaining a competing consolidator system;[2261] costs of $362 to ensure that it has posted the correct direct URL hyperlink to the Commission's website on its own website;[2262] costs of $4,360 of recordkeeping;[2263] and costs of $45,222 to prepare and make publicly available a monthly report.[2264]

The Commission estimates that direct one-time costs that are common across all competing consolidators will be

[2252] *See, e.g.,* BlackRock Letter at 5; Committee on Capital Markets Regulation Letter at 3; Clearpool Letter at 7–8; BestEx Research Letter at 5. *See also* Section III.C.2.

[2253] *See, e.g.,* NYSE Letter II at 24; Nasdaq Letter IV at 7, 8, 36; Cboe Letter at 23–24, 25; TechNet Letter II at 2; Data Boiler Letter II at 4.

[2254] *See supra* Section III.C.2.

[2255] *See* Nasdaq Letter IV at 35.

[2256] These costs do not include the costs of compliance with Regulation SCI, which are discussed below. *See infra* Section V.C.2(e)(ii). The direct cost of compliance with Regulation SCI (*i.e.,* PRA plus non-PRA costs) is approximately between $1 million and $2.4 million in ongoing costs and is approximately between $300,000 and $3 million in one-time costs, depending on entity type. Therefore, the total direct cost of the decentralized consolidation model, including the costs of compliance with Regulation SCI is approximately between $6.6 million and $8 million in ongoing costs and is approximately between $2 million and $8.4 million in one-time costs, depending on entity type. However, these costs could be lower for some competing consolidators that choose not to take in and offer the entirety of consolidated market data as well as for some that do not have to comply with Regulation SCI.

[2257] *See* Proposing Release, 85 FR at Section V.D.2; *supra* Section IV.D.3.

[2258] Direct costs cited in this section are quantified from estimates in the PRA. *See supra* Section IV.

[2259] *See supra* Section IV.D.1(b)(iii); *supra* note 1412.

[2260] *See supra* Section IV.D.1(a).

[2261] These costs are composed of labor costs of $418,290, external costs of $371,175 to operate and maintain systems to comply with Rules 614(d)(1) through (4), external costs of $168,000 to purchase market data from the SROs, and an additional annual ongoing external cost of $4,602,720 to co-locate itself at four exchange data centers. *See supra* Section IV.D.3(g)(iii).

[2262] *See supra* Section IV.D.2(b)(iii); *supra* note 1423.

[2263] *See supra* Section IV.D.4(b)(iii).

[2264] *See supra* Section IV.D.5(b)(iii); *supra* note 1543.

$189,342 and consist of the following costs: Costs $93,540 to complete an initial Form CC;[2265] costs of $50 to obtain digital IDs the purposes of signing the initial Form CC;[2266] costs of $5,604 to file material amendments to Form CC;[2267] costs of $121 to publicly post the Commission's direct URL hyperlink to its website upon filing of the initial Form CC;[2268] costs of $8,720 to keep and preserve at least one copy of all documents made or received by it in the course of its business and in the conduct of its business;[2269] costs of $80,507 to produce the monthly reports and costs of $800 for an external website developer to create the website that will post and keep the monthly reports.[2270]

The Commission estimates that the total direct costs to each market data aggregation firm or each broker-dealer that currently aggregate market data for internal uses that will decide to register as a competing consolidator will include approximately $5.63 million in ongoing annual costs, as discussed above, and total one-time costs of approximately $1.71 million. The one-time costs are composed of labor costs of $697,150;[2271] external costs of $618,750 to modify its systems to comply with Rules 614(d)(1) through (4), external costs of $14,000 to purchase market data from the SROs, an additional initial external cost of $194,000 to co-locate itself at four exchange data centers;[2272] as well as $189,342 in costs that are common to all competing consolidators, as described above.

The Commission estimates that the total direct costs to each existing exclusive SIP that will decide to enter as a competing consolidator will include $5.63 million in ongoing annual costs, as discussed above, and total one-time costs of approximately $3 million. The one-time costs per existing exclusive SIP are composed of labor costs of $1,394,300;[2273] external costs of $1,237,500 to modify its systems to comply with Rules 614(d)(1) through (4), external costs of $14,000 to purchase market data from the SROs, an additional initial external cost of $194,000 to co-locate itself at four exchange data centers;[2274] as well as $189,342 in costs that are common to all competing consolidators, as described above.

The Commission estimates that the total direct costs to each new entrant that is not an SRO or a data aggregator, in the competing consolidator space and to each SRO that will decide to enter as a competing consolidator will include approximately $5.63 million in ongoing annual costs, as discussed above, and total one-time costs of approximately $5.66 million.[2275] The one-time costs are composed of labor costs of $2,788,600,[2276] external costs of $2,475,000 to build its systems to comply with Rules 614(d)(1) through (4), external costs of $14,000 to purchase market data from the SROs, an additional initial external cost of $194,000 to co-locate itself at four exchange data centers;[2277] as well as $189,342 in costs that are common to all competing consolidators, as described above.

One commenter stated that the Proposing Release underestimates the direct costs to become a competing consolidator. The commenter said that ''[t]he Commission estimates that potential competing consolidators would incur 'total one time costs of up to between approximately $897,000 and $2.40 MM, depending on entity type.' Even the higher end of that range is a fraction of what ICE believes it would cost to build the necessary infrastructure to be a competing consolidator.''[2278] On the other hand, one commenter stated that the existing exclusive SIPs would have a competitive advantage over other potential competing consolidators, ''because they would not incur the upfront capital expenditures to build a Competing Consolidator model.''[2279] While acknowledging that some potential competing consolidators might incur lower costs than others to become a competing consolidator, the Commission is revising up its cost estimates from the Proposing Release.[2280] The Commission estimates that the direct costs to each potential competing consolidator will be between approximately $5.6 million in ongoing annual costs, and total one-time costs of up to between approximately $1.7 million and $5.7 million, depending on entity type.[2281]

(ii) Direct Costs to SROs

Separately, the Commission estimates that the SROs will jointly have approximately $175,000 in direct one-time costs and approximately $102,000 in ongoing costs for the amendments to the effective national market system plan(s).[2282] These costs include the costs SROs will incur when conducting an assessment of competing consolidator performance and developing an annual report of such assessment to be provided to the Commission. Additionally, each SRO will incur approximately $71,000 in one-time direct costs[2283] and approximately $128,000 in ongoing costs for the collection and dissemination of information necessary to generate consolidated market data required by Rule 603(b).[2284]

One commenter mentioned that the amendments will ''require the SROs to continue to incur costs associated with managing an NMS plan while overseeing and reporting on competing consolidators.''[2285] The requirement that the SROs conduct an assessment of and report on competing consolidators' performance is new and the Commission did not include ongoing direct costs from this requirement to the SROs in the Proposing Release. However, with the amendments, the Commission revises its estimates to include $102,165 of ongoing direct costs jointly incurred by the SROs.[2286] The SROs and the Operating Committee will have access to information made publicly available by competing

[2265] *See supra* Section IV.D.1(a); *supra* note 1402.

[2266] *See supra* Section IV.D.1(a).

[2267] *See id.*

[2268] *See supra* Section IV.D.2(a)(iii).

[2269] *See supra* Section IV.D.4(a)(iii).

[2270] *See supra* Section IV.D.5(a)(iii).

[2271] *See supra* Sections IV.D.3(b)(iii), IV.D.3(c)(iii).

[2272] *Id.*

[2273] *See supra* Section IV.D.3(d)(iii).

[2274] *Id.*

[2275] The Commission believes that competing consolidators that are affiliated with exchanges will choose to operate under the provisions of the exemption. *See supra* Section V.C.2(a)(i)a.

[2276] *See supra* Section IV.D.3(e)(iii).

[2277] *Id.*

[2278] The commenter also stated that ''the capital expenditure costs to build the NMS network were estimated at $3.8 million, and the ongoing costs to maintain and operate the NMS network are estimated to be $215,000 annually.'' *See* IDS Letter I at 13. The Commission believes this is informative but not directly applicable to the costs that potential competing consolidators could incur when building or modifying their systems to operate as a competing consolidator for two reasons. First, unlike the potential competing consolidators with one of their main functions being data consolidation, the NMS network is not a system that consolidates market data. Second, the NMS network costs include the transmission of options data, which competing consolidators will not consolidate or disseminate.

[2279] *See* MIAX Letter at 2–3.

[2280] *See* Proposing Release, 85 FR at 16843 for a discussion on the costs to becoming a competing consolidator.

[2281] *See supra* note 2256 for a discussion on costs including the costs to comply with Regulation SCI.

[2282] *See supra* Section IV.D.6(c).

[2283] *See supra* Section IV.D.7(a)(iii); *supra* note 1553.

[2284] *See supra* Section IV.D.7(b)(iii); *supra* note 1559.

[2285] *See* NYSE Letter II at 28.

[2286] This ongoing direct cost number is calculated using the PRA ongoing burden hours for maintaining the required timestamps, conducting assessments of competing consolidators, preparing an annual report, maintaining the list of the primary listing exchange for each NMS stock, and calculating gross revenues (Attorney at $417 for 245 hours equals $102,165). *See supra* Section IV.D.6(c).

consolidators, which could be used as part of their assessment of competing consolidators. The SROs can mitigate some of their costs by using this information.

The commenter also stated that the Commission ''also places on exchanges the costs of calculating and disseminating certain regulatory data (such as LULD bands) to competing consolidators and self-aggregators.'' [2287] The commenter said that the cost to obtain data from other exchanges needed to perform these calculations should be considered by the Commission. The Commission disagrees that calculation of the regulatory data required by this rule will impose any major new data costs on the exchanges and the Commission's estimates of the costs to collect and disseminate this certain regulatory data are included in the estimates of direct costs to the SROs. The national securities exchanges currently aggregate market data obtained from the exclusive SIPs and from proprietary data feeds to perform several exchange functions, including order handling and execution, order routing, and regulatory compliance. Therefore, if they continue to use the same proprietary data for their regulatory data calculations, there would not be major new costs. To the extent they can use the new consolidated market data to perform the regulatory data calculations, the exchanges can become self-aggregators [2288] and benefit from potentially lower data content costs.

(iii) Indirect Costs to the Exclusive SIPs

The Commission believes that the amendments may impose a substantial cost for existing exclusive SIPs in terms of loss of data processing revenues because exclusive SIPs will no longer be exclusive consolidators and disseminators of market data, and at least one of the exclusive SIPs—Nasdaq UTP—will no longer be paid out of the plan for its processing costs.[2289] The Commission believes that the exclusive SIPs' loss of revenue will be mitigated by the opportunity to become competing consolidators. If the exclusive SIPs decide to become competing consolidators, they will compete for business with each other and with other competing consolidators. This competition may lead to revenue that is lower than their current revenues. This potential decrease in revenue will represent a transfer of resources to other competing consolidators and to market participants potentially increasing social welfare. On the other hand, if the exclusive SIPs decide to become competing consolidators, their experience with this market may give them a competitive advantage and help mitigate their potential revenue losses. The exclusive SIPs have the benefit of having been in this business for a long time. They have significant connectivity to market participants and vendors and can leverage their existing customer base and established relationships with vendors and purchasers at firms. Additionally, as mentioned below, the CTA SIP received some improvements from recent investments.

(iv) Direct and Indirect Costs to Certain Market Participants and Investors

The Commission believes that the amendments are likely to have indirect costs—such as potentially paying for unused data content and implementation costs of switching from SIP or proprietary data to consolidated market data—to certain market participants and investors.

First, the Commission believes that there will be an implementation cost for market participants to switch from using current exclusive SIP providers or proprietary data feeds to using competing consolidators. This cost is likely to vary among types of market participants; for instance, existing purchasers of proprietary DOB data products are likely to assume limited additional costs while new customers of consolidated market data products from competing consolidators will need, for example, to establish new connectivity and integrate a larger set of data into their operations. This implementation cost will include administrative costs for subscribing to a new provider of the data, as well as any infrastructure investments that may be needed to handle the data as delivered by the competing consolidator. One of the commenters stated that the cost to replace or integrate a new data feed might be approximately $1 million and that ''[s]maller firms would try to do the same at lower cost.'' [2290] The Commission is uncertain whether the cost number mentioned in this comment letter covers costs to get this new feed from a competing consolidator or from the exchanges directly. The Commission believes that the ultimate size of these costs will likely vary by market participant. For example, for market participants that currently use proprietary data feeds and that will continue to use their existing systems and infrastructure after switching to consolidated market data, these costs are likely lower. On the other hand, for market participants who need to build brand new systems and infrastructure to be able to receive consolidated market data, these costs could be higher and closer to the number the commenter states.

Additionally, one of the current exclusive SIPs, SIAC, processes and disseminates the academic TAQ dataset. If SIAC discontinues its SIP business, there may be interruptions to the availability of this data, which will create a cost for both the academic community and investors that otherwise benefit from academic and regulatory use of this dataset and the research derived from it. On the other hand, other data vendors also provide comprehensive historical data products and that may become more readily or more affordably available from competing consolidators, especially because competing consolidators do not have to take in all data content underlying consolidated market data and offer a data product with the entirety of consolidated market data.[2291] The Commission is uncertain and acknowledges the possibility that TAQ may no longer be available and consolidated market data products may not be affordable to the academic community.[2292] The Commission is unable to quantify the incremental social welfare cost of the interruption of availability of the TAQ dataset.

Some commenters stated that the decentralized consolidation model will increase costs for market participants because they would have to contract with a backup competing consolidator to avoid disruptions should their primary competing consolidator experience a disruption.[2293] One commenter said that ''[i]n a world of multiple consolidators, business continuity concerns will force many market participants to subscribe to more than one consolidator as a backup.'' [2294] Other commenters stated that in absence of a backup, a competing consolidator's customers would be significantly impacted by a disruption of their original data source.[2295]

[2287] *See* NYSE Letter II at 20–21.

[2288] *See supra* Section III.D.2(a) for a discussion on the scope of the definition of self-aggregator.

[2289] This does not apply to CTA/CQ Plan that, as discussed above, is paid differently. *See supra* Section V.B.2(d).

[2290] *See* Data Boiler Letter I at 79–80.

[2291] *See, e.g.,* MayStreet, Market Data, *available at http://maystreet.com/products/market-data/* (last accessed Jan. 2, 2020).

[2292] One commenter stated that ''NYSE's TAQ product is licensed to the academic community at a steep discount to its true cost.'' *See* Wharton Letter at 2.

[2293] *See, e.g.,* Angel Letter at 20; NYSE Letter II at 24; FINRA Letter at 4.

[2294] *See* Angel Letter at 20.

[2295] *See* NYSE Letter II at 24; Nasdaq Letter IV at 8, 36.

Under the amendments, market participants will not be required to incur the costs of retaining a back-up competing consolidator, though some may choose to do so after evaluating the needs of their business and their customers. Currently, many market participants that rely on proprietary data use SIP data as their back-up [2296] and market participants that rely on SIP data do not have a back-up option besides the exclusive SIPs' geographically diverse back-up system as required by Regulation SCI. Under amendments, market participants subscribing to ''SCI competing consolidators'' will similarly benefit from the requirements that those competing consolidators have geographically diverse backup and recovery capabilities, pursuant to Regulation SCI.

On the other hand, market participants that will receive consolidated market data products from competing consolidators that are not SCI entities might decide to maintain a connection to a back-up competing consolidator (*i.e.,* from a secondary source) based on their business needs. The Commission is uncertain what costs may be associated with the need for backup competing consolidators in the decentralized consolidation model, but does not believe they are necessarily higher than costs to maintain backups today. This is because the new competing consolidator business might generate a secondary market where some competing consolidators compete to provide backup options, which might lower backup costs.[2297] For example, some competing consolidators might provide a backup option with narrower data content and higher latency, similar to the current SIP data. But unlike the exclusive SIPs providing the current SIP data, these competing consolidators would be under competitive pressure and would be more likely to provide cheaper backup data and connectivity options than the SIP data. New backup costs will likely differ for different market participants and will be affected by the new competitive competing consolidator market as well as the new market data fees, both of which will have pricing decisions to make about the provision of backup services. The costs may also depend on decisions competing consolidators may make regarding the resiliency of their own products and what backup requirements would be necessary for their customers in light of such decisions.

(v) Indirect Costs to SROs

One commenter said that the Proposing Release ''requires SROs to 'make available' to every competing consolidator and self-aggregator 'all data necessary to generate consolidated market data'—but does not make clear how SROs would be compensated for the cost of delivering such market data information.'' [2298] The Proposing Release discusses that the SROs will receive data content fees and connectivity fees as well as how the various fees will need to be filed.[2299] As discussed above, the SROs are allowed to provide their core data to competing consolidators and self-aggregators via the existing proprietary data feeds, a combination of proprietary data feeds, or a newly developed core data feed.[2300] While the SROs are not required to, if they choose to offer core data via a newly developed core data feed, they might incur some development costs to provide that new data feed. However, the Commission believes that the SROs may not have an incentive to develop a dedicated core data feed because they could incur costs of doing so.[2301] For example, if an SRO developed a dedicated core data feed, the SRO would have to take steps to ensure that any proprietary data feed is not made available on a more timely basis (*i.e.,* by any time increment that could be measured by the SRO) than a core data feed. This means that if the core data feed were slower than the proprietary data feeds, the exchange would need to throttle any order-by-order proprietary data feeds.[2302] An exchange lowering its proprietary data speeds might also increase the number of market participants that might switch from using the exchange's proprietary data feeds to consolidated market data, providing an incentive for exchanges to not create a slower dedicated core data feed.

One commenter said that one of the exchanges ''invested $4 million to build a new, dedicated network for consolidated tape data that will allow exchanges and subscribers to access CTA SIP data more quickly'' [2303] and that this investment is undermined with the discontinuation of the centralized consolidation model.[2304] The Commission understands that the commenter was planning to recover that investment cost with future revenue. The Commission acknowledges that the final amendments will impose a cost for SROs from losing SIP data content and access fees. However, the Commission believes that this loss of revenue will be offset by the data content and access fees paid to SROs by competing consolidators. Additionally, the exclusive SIPs' loss of consolidation and dissemination revenue will be mitigated by the opportunity to become competing consolidators.

One commenter stated that the rules would ''eliminate'' the incentive for exchanges to compete for order flow in order to increase the amount of time that exchange offers the NBBO and thus increase its share of the equity plan(s) revenues, because the rule eliminates the exclusive SIPs.[2305] The Commission disagrees with this commenter's description of the effects of the rule. Nothing about the final rules prohibits the national market system plan(s) from continuing to share NMS data revenues according to rules that reward exchanges for time during which the exchange has the NBBO quote. Further, any changes to the revenue allocation formula can be adopted as Plan amendments, which would then have to be filed with the Commission pursuant to Rule 608 and would be subject to notice and comment and Commission review. Therefore, the Commission does not believe that these rules will effect exchange incentives to compete for order flow in the way described by this commenter.

(vi) Multiple NBBOs

Finally, the Commission recognizes that the decentralized consolidation model may result in multiple NBBO quotes observed by different market participants due to different aggregation methods used by competing consolidators. However, currently market participants may already observe

[2296] One commenter said that some of the ATSs use SIP data ''as a backstop'' to their proprietary data feeds. *See* BestEx Research Letter at 3.

[2297] One commenter said that ''[t]he existence of multiple SIP vendors will allow firms to choose the best offering for their purposes and others as backstops, reducing the reliance on a single SIP feed vendor.'' *See* BestEx Research Letter at 5.

[2298] *See* NYSE Letter II at 21.

[2299] The fees for consolidated market data content will be established by the effective national market system plan(s) and file with the Commission under Rule 608. Each SRO will have to file with the Commission any proposed new fees for connectivity to its individual data that underlies consolidated market data pursuant to Section 19(b) of the Exchange Act and Rule 19b–4 thereunder and any proposed connectivity fee must satisfy the statutory standards. *See* Proposing Release, 85 FR at 16769, n. 433.

[2300] *See supra* Section III.B.9. *See also supra* note 795 for a discussion on how competing consolidators and self-aggregators are permitted to choose among the data feed options offered by the SROs to provide consolidated market data.

[2301] None of the commenters indicated that they would provide a dedicated core data feed instead of using their existing proprietary data infrastructure.

[2302] *See supra* Section III.B.9(b).

[2303] *See* NYSE Letter II at 10–11.

[2304] *See id.* at 13.

[2305] *See* Nasdaq Letter IV at 29.

multiple NBBO quotes.[2306] Therefore, the Commission believes that the decentralized consolidation model will result in no meaningful difference with respect to the existence of multiple NBBOs.

Several commenters disagreed with this conclusion, raising concerns related to the possibility of multiple NBBOs being observed as a result of the final rules.[2307] In particular, commenters expressed the view that there would be significant costs to the market as a result of this possibility and expressed concern that these costs were not discussed in the Commission's proposal.[2308] These commenters stated that the emergence of multiple NBBOs would complicate market structure;[2309] hinder market surveillance and enforcement by SROs, including by adding reprogramming costs for surveillance systems and creating the likelihood of uneven enforcement;[2310] decrease the accuracy and standardization of Rule 605 statistics;[2311] introduce new sources of differing NBBOs through differences in NBBO calculation method among competing consolidators;[2312] confuse investors, including retail investors, who might see more than one NBBO for the same stock at the same time;[2313] and complicate and increase the cost of compliance with best execution obligations.[2314]

The Commission continues to believe that the possibility of multiple NBBOs resulting from the decentralized consolidation model does not represent a significant cost. In the case of each specific issue raised, the potential difficulties that multiple NBBOs could create are already handled by the market (including SROs) today, because of the fact that multiple NBBOs at a given instant in time are a staple of today's financial markets.[2315]

Specifically, the Commission does not believe that the potential for multiple NBBOs as a result of the decentralized consolidation model will complicate market structure. The market today has already developed adaptations to deal with the fact that meaningful differences in the observations of market participants about the prevailing NBBO can emerge.[2316] As a result, the market structure in place today will be able to handle the potential multiple NBBOs resulting from the decentralized consolidation model in much the same way as it handles existing multiple NBBOs today.

The Commission believes that the decentralized consolidation model will not increase costs or impair the evenness of enforcement and surveillance by SROs. The fact that order routing decisions made at the same time but at different data centers will necessarily be based on different observations of the market is understood by SROs today, and surveillance programs and enforcement inspections already take this into account.[2317] In fact, such programs already deal with the even larger discrepancy in market snapshots that emerge from the use of proprietary data feeds as a substitute for SIP data feeds in the routing of orders.[2318]

The Commission does not believe that the decentralized consolidation model will contribute to confusion or a lack of standardization in the calculation of Rule 605 statistics. In the process of calculating Rule 605 statistics, firms must use the quote prevailing at the time the order is received. As discussed above, it is inevitable even today that different market centers will have different quotes in the space of small but meaningful time intervals given the amount of time it takes new quotes to travel to the geographically dispersed data centers where orders are received.[2319] This remains true even if all market participants are using only a single source for the NBBO.

The Commission does not believe that it is possible to ''calculate'' the NBBO in more than one way. That is, we do not believe that, for a given set of quotes in the market at a given instant in time, it is possible to arrive at different conclusions as to what is the NBBO depending on different methods for determining the NBBO. Therefore, differences in aggregation methodology employed by competing consolidators and self-aggregators are unlikely to introduce further differences in the NBBO perceived by the various market participants by offering alternative ''calculations'' of the NBBO for a given moment in time.

The Commission does not believe the decentralized consolidation model will cause confusion for investors through the propagation of multiple NBBOs. Those investors who have the technology and sophistication to detect differences in the NBBOs produced by different competing consolidators are, today, already aware of the potential for such differences and how to deal with them. On the other hand, those investors who typically do not have such latency-sensitive concerns (such as retail investors) are unlikely to detect differences in quotes, even if they are looking at multiple competing consolidator feeds.

The Commission does not believe that the decentralized consolidation model will complicate and increase the cost of complying with best execution obligations through the propagation of multiple NBBOs. Since multiple NBBOs from different competing consolidators and self-aggregators will not represent a change from current market practice,[2320] the Commission does not believe this introduces changes to the cost of compliance with best execution obligations.

(e) Economic Effects of Competing Consolidators Being Subject to Regulation Systems Compliance and Integrity

During the initial transition period all competing consolidators will be subject to the requirements of Rule 614(d)(9), which include requirements substantially similar to some of the key provisions of Regulation SCI.[2321] After

[2306] *See supra* Sections V.B.2(b), V.B.2(f).

[2307] *See supra* Section III.B.10(b) for a discussion of the comments on complexity and confusion resulting from multiple NBBOs.

[2308] *See, e.g.,* Joint CRO Letter at 2 (''Moreover, we are surprised and concerned by the Commission's limited analysis of the Proposal's potential downstream impacts on the regulation of U.S. markets, particularly those resulting from multiple competing consolidators and self-aggregators, as this analysis appears incomplete.'').

[2309] *See, e.g.,* Nasdaq Letter IV at 3 (''A particularly worrisome result is that product differentiation among competing consolidators will render a single ''gold source'' National Best Bid and Offer (''NBBO'') a relic of the past.''); Angel Letter at 18–19.

[2310] *See, e.g.,* Nasdaq Letter IV at 37 (''Even with these changes, the risk of differential treatment among similarly situated market participants will increase because an NBBO that applies to one market participant will simply not apply to another, creating a risk of uneven enforcement of the Exchange Act by introducing the subjective review of which NBBO to apply.''), Joint CRO Letter at 4 (''Throughout the Proposal, hundreds of questions are posed to commenters, but none solicited feedback from SROs on the Proposal's impact on surveillance, any increased risk to investor protection, or whether reprogramming our systems to accommodate the proposed rules would create any burdens or complications for us.'').

[2311] *See, e.g.,* Nasdaq Letter IV at 20; NYSE Letter II at 24.

[2312] *See, e.g.,* TD Ameritrade Letter at 12.

[2313] *See, e.g.,* Fidelity Letter at 10; TechNet Letter II at 2.

[2314] *See, e.g.,* Nasdaq Letter IV at 3.

[2315] *See supra* Section V.B.2(f).

[2316] *See supra* Section V.B.2(f) for a discussion of these adaptations to deal with multiple NBBOs.

[2317] *See supra* Section V.B.2(f) for additional discussion of this point.

[2318] *See supra* Section III.B.10(d) for a discussion of the comments on impact of multiple NBBOs on surveillance and enforcement.

[2319] *See supra* Section V.B.2(f).

[2320] *See supra* Section V.B.2(f), discussing current market practice with respect to obtaining NBBOs.

[2321] *See supra* Section III.F. Competing consolidators that are affiliated with exchanges that do not operate under the limited exemptive relief would be subject to Regulation SCI. However, the

Continued

the initial transition period, competing consolidators that are below the five percent (5%) market data revenue threshold will continue to be subject to Rule 614(d)(9), while competing consolidators above the threshold will be ''SCI competing consolidators'' and will be subject to the requirements of Regulation SCI.[2322] The Commission expects that, under this approach, the requirements of Regulation SCI will apply to most competing consolidators following the initial transition period.[2323]

The Commission believes that the requirements of Rule 614(d)(9) and Regulation SCI will help prevent market disruptions due to one or more competing consolidators' systems issues or cybersecurity incidents and reduce the severity and duration of any effects that may result if a systems issue or cybersecurity incident were to occur for a competing consolidator. The requirements of Rule 614(d)(9) will also impose direct and indirect costs on various entities. The requirements of Regulation SCI will also impose additional direct and indirect costs on competing consolidators that meet the threshold for being an SCI competing consolidator, as well as some indirect costs on other market participants because of their specific business relationships with SCI competing consolidators. However, competing consolidators will not need to incur the incremental costs associated with being an SCI competing consolidator until the end of the initial one year transition period or until they meet the threshold requirements for being an SCI competing consolidator.

(i) Benefits To Expanding Regulation SCI To Include Competing Consolidators

Currently, the exclusive SIPs are SCI entities and the benefits discussed in Regulation SCI currently apply to them and to market participants.[2324] Because many of the requirements of Rule 614(d)(9) are similar to the requirements of Regulation SCI and because competing consolidators that meet the five percent (5%) market data revenue threshold will be SCI entities,[2325] the Commission believes that the benefits of Regulation SCI will apply to competing consolidators and will continue to apply to market participants, *i.e.,* maintain the status quo, if the exclusive SIPs cease operating as exclusive plan processors. This section discusses the benefits that will apply to competing consolidators and will continue to apply to market participants from the requirements of Rule 614(d)(9) and the addition of the definition of SCI competing consolidator to Regulation SCI.[2326]

The Commission believes that at least three benefits from Regulation SCI will continue to apply to market participants from the requirements of Rule 614(d)(9) and the addition of the definition of SCI competing consolidator to Regulation SCI.[2327] First, the requirements of Rule 614(d)(9) and the addition of the definition of SCI competing consolidator to Regulation SCI will help prevent market disruptions due to one or more competing consolidators' systems issues or cybersecurity incidents. Second, they will help reduce the severity and duration of any effects that may result if a systems issue or cybersecurity incident were to occur for one of these competing consolidators. This may also help prevent potential catastrophic events that might start out as a minor systems problem but then quickly spread across the national market system, potentially causing damage to market participants, including investors. Third, they will help ensure effective Commission oversight of competing consolidators' systems.

First, the requirements of Rule 614(d)(9)(ii) and the addition of the definition of SCI competing consolidator to Regulation SCI will help prevent market disruptions by strengthening the infrastructure and improving the resiliency of the systems of new competing consolidators who are not currently SCI entities.[2328] The Commission believes that some potential new competing consolidators may already have policies and procedures in place to maintain and test critical systems. However, the Commission believes that requirements of Rule 614(d)(9)(ii) and the addition of the definition of SCI competing consolidator to Regulation SCI will strengthen these policies and procedures, which will help improve the robustness of critical systems.

Second, the requirements of Rule 614(d)(9)(iii) and the addition of the definition of SCI competing consolidator to Regulation SCI will help reduce the severity and duration of any effects that may result if a systems issue or cybersecurity incident were to occur for one of the new competing consolidators who are not currently SCI entities. For example, Rule 614(d)(9)(iii) and Rule 1002(a) of Regulation SCI, will require a competing consolidator to notify the public and take corrective action if a system disruption, system intrusion, or cybersecurity incident occurs. This may reduce the length of these events and thus reduce the negative effects of those interruptions on the competing consolidator and market participants.

Additionally, Rule 1001(a)(2) of Regulation SCI, which, among other things, will require an SCI competing consolidator to maintain geographically diverse backup and recovery systems that are reasonably designed to achieve next business day resumption and will help SCI competing consolidators restore their systems more quickly in the event of a disruption. The Commission acknowledges that Rule 614(d)(9) does not contain this geographically diverse backup requirement. Therefore, competing consolidators will not be subject to the requirement during the initial one year transition period and competing consolidators below the SCI threshold level will not be subject to it thereafter. Lack of a geographically diverse backup may reduce the reliability of a competing consolidator's systems. However, as discussed above, because of competitive pressures, competing consolidators that are not subject to Regulation SCI may still choose to develop robust backup systems in order to attract subscribers.[2329] Additionally, the Commission believes most competing consolidators will meet the threshold to be SCI competing consolidators. Therefore, the Commission does not believe that the lack of a requirement for a geographical diverse backup system under Rule

Commission believes that all competing consolidators that are affiliated with exchanges will choose to operate under the limited exemptive relief for competitive reasons. *See supra* Section V.C.2(a)(i)a.

[2322] *See id.*

[2323] *See supra* Section IV.G.

[2324] *See* SCI Adopting Release, *supra* note 1233, at 72404.

[2325] *See supra* Section III.F.

[2326] More specifically, the benefits discussed in this section are not measuring a change from the baseline but are discussing the benefits that will continue to apply to market participants from the requirements of Rule 614(d)(9) and the addition of the definition of SCI competing consolidator to Regulation SCI.

[2327] As discussed in detail above, the Commission believes that some entities who will become competing consolidators are already subject to Regulation SCI. The Commission believes that many of the benefits described below will not apply to these entities, because they already are required to have systems that meet the requirements for Regulation SCI. Instead, the Commission believes that many of the benefits from the requirements of Rule 614(d)(9) and the addition of the definition of SCI competing consolidator to Regulation SCI will come from new entities who become competing consolidators who are not currently subject to Regulation SCI. *See supra* Section IV.F.4.

[2328] Commenters agreed that applying Regulation SCI to competing consolidators would improve their resiliency and reliability. *See, e.g.,* Clearpool Letter at 9; MEMX Letter at 8; Fidelity Letter at 10.

[2329] *See supra* Section III.F.

614(d)(9) will significantly increase the risk of market participants being exposed to a competing consolidator system disruption.[2330]

The requirement for competing consolidators to establish procedures to disseminate information about system disruptions to responsible personnel, competing consolidator subscribers, the public, and the Commission will help reduce the duration and severity of any system distributions that do occur for one of the new competing consolidators who are not currently SCI entities. The procedures will help these competing consolidators quickly provide the affected parties with critical information in the event that it experiences a system disruption. This could allow the affected parties to respond more quickly and more appropriately to the incident, which could help shorten the duration and reduce the effects of a system event. This could also potentially help prevent an event that might start out as a minor systems issue from becoming a catastrophic problem that quickly spreads across the national market system, potentially causing damage to market participants, including investors.

Additionally, the requirement, under Rule 614(d)(9)(iv) and Rule 1004(c) of Regulation SCI, for a competing consolidator to conduct testing of its business continuity and disaster recovery plans with its designated participants and other industry SCI entities will help detect and improve the coordination of responses to system issues that could affect multiple market participants in the NMS stock market. This testing will help prevent these system disruptions from occurring and help reduce the severity of their effects, if they do occur.

Third, Rule 614(d)(9) and the addition of the definition of SCI competing consolidator to Regulation SCI will help ensure effective Commission oversight of new competing consolidators who are not currently SCI entities. Both Regulation SCI and Rule 614(d)(9)(iii)(C) will require a competing consolidator to notify the Commission [2331] and provide the Commission with updates if it experiences a systems disruption or systems intrusion that has more than a *de minimis* impact.[2332] Each quarter, an SCI competing consolidator will have to inform the Commission of any planned material changes to its SCI systems and the security of indirect SCI systems. Each year an SCI competing consolidator also will have to provide the Commission with an SCI review of their compliance with Regulation SCI. This information will help ensure effective Commission oversight by enhancing the Commission's review of these competing consolidators and helping make the Commission aware of potential areas of weakness in the competing consolidator's systems that may pose risk to the entity or the market as a whole.

Additionally, the Commission believes that an exclusive SIP that becomes a competing consolidator may realize an incremental benefit relative to the baseline from lower SCI-related costs.[2333] Because the Commission assumes that enough competing consolidators will enter the market to provide for multiple viable sources of consolidated market data products,[2334] the Commission believes that an exclusive SIP will not need to incur the additional costs associated with being subject to the heightened requirements applicable to ''critical SCI systems'' if it chooses to operate a competing consolidator after the initial transition period.

(ii) Costs of Expanding Regulation SCI To Include Competing Consolidators

Competing consolidators will incur both direct and indirect compliance costs related to Rule 614(d)(9) and the addition of the definition of SCI competing consolidator to Regulation SCI.[2335] Although all competing consolidators will initially be subject to Rule 614(d)(9) during the initial transition period, the Commission believes that, after the transition period, many competing consolidators will be above the SCI competing consolidator threshold and eventually need to bear the higher costs Regulation SCI.[2336] Because Regulation SCI imposes some indirect requirements on other market participants interacting with SCI entities (*e.g.,* vendors providing SCI systems to SCI entities), those market participants will also incur indirect costs from SCI competing consolidators.

Competing consolidators will incur initial and ongoing direct PRA and non-PRA compliance costs related to Rule 614(d)(9) and Regulation SCI. These costs will vary based on whether the competing consolidator is an SCI competing consolidator or whether it is subject to the provisions of Rule 614(d)(9).[2337]

The Commission believes that the 2018 estimates of initial PRA costs for new SCI entities and ongoing PRA costs for all SCI entities under Regulation SCI are largely applicable to SCI competing consolidators because the requirements are the same for all SCI entities and because the 2018 burden estimates were based on the Commission's experience over three years subsequent to Regulation SCI's adoption in 2014 including, for example, Commission staff's experience in conducting examinations of SCI entities and receiving and reviewing notifications and reports required by Regulation SCI.[2338] The 2018 SCI PRA Extension includes estimates distinguishing between new versus existing SCI entities. The Commission believes that, using the same new versus existing SCI entity framework, entrants that could become SCI competing consolidators can be divided into three groups: The existing exclusive SIPs; entrants that are existing SCI entities but with no direct experience operating in the consolidated market data business and needing to perform a new function with

[2330] As discussed above, market participants who subscribe to a competing consolidator that is not an SCI entity (or that does not have a sufficiently resilient backup system) may choose to subscribe to another competing consolidator as a backup in order to ensure they can still operate if their competing consolidator experiences a system disruption. *See id.* Market participants may incur additional costs for this. *See supra* Section V.C.2(d).

[2331] Regulation SCI requires SCI entities to notify the Commission immediately upon any responsible SCI personnel having a reasonable basis to conclude that an SCI event has occurred. Similarly, Rule 614(d)(9)(iii)(C) requires competing consolidators to promptly notify the Commission upon responsible personnel having a reasonable basis to conclude that a system disruption or systems intrusion has occurred. The requirement for immediate or prompt notification, as applicable, does not apply to such events that a competing consolidator reasonably estimates would have no, or a *de minimis,* impact on the competing consolidator's operations or on market participants. *See e.g.,* Rule 614(d)(9)(iii)(B)–(C); Regulation SCI Rule 1002(b)(5).

[2332] An SCI competing consolidator will be required to notify the Commission on Form SCI, and a competing consolidator that is not an SCI competing consolidator will be required to notify the Commission on Form CC. Additionally, each quarter SCI competing consolidators will be required to submit a report to the Commission on Form SCI of systems disruptions or systems intrusions that had no or a *de minimis* impact.

[2333] The systems of the exclusive SIPs are ''critical SCI systems'' and are subject to heightened requirements. For example a critical SCI system needs to maintain backup systems that are designed to allow them to resume operations within two hours of a system outage (SCI entities only have the requirement to resume operations the day following a system outage). *See* Proposing Release, 85 FR at Section IV.B.2(f).

[2334] *See supra* Section V.C.2(a) for a discussion of this assumption.

[2335] Direct compliance costs will include both costs that included in the PRA burden estimates as well as compliance costs that are not reflected in the PRA (''non-PRA''). *See supra* Section IV.D (for a discussion of the PRA burden estimates).

[2336] *See supra* Section IV.G.3.

[2337] *See id.*

[2338] *See supra* note 1567. Two commenters stated that the Commission underestimated the costs of Regulation SCI in the Proposing Release. *See* IDS Letter I at 13 and STANY Letter II at 6–7. As discussed in detail above, the Commission disagrees with these commenters and believes it did not underestimate the costs associated with Regulation SCI. *See supra* Section IV.G.2.

new SCI systems (*e.g.,* a national securities association or national securities exchanges that do not currently operate an exclusive SIP); and entrants that are not currently subject to Regulation SCI (*e.g.,* third-party aggregators that are not currently subject to Regulation SCI). The Commission estimates that the exclusive SIPs will not have any initial PRA costs related to Regulation SCI from becoming a competing consolidator because they are already SCI entities and would be operating a substantially similar business and performing a similar function in their role as competing consolidators.[2339] Because they would be entering an entirely new business and performing a new function with new SCI systems, SCI entities without direct experience operating in the consolidated market data business will each incur an initial PRA cost of approximately $326,000, which is approximately 50% of the Commission's initial cost estimates for an entirely new SCI entity.[2340] SCI competing consolidators that are not currently subject to regulation SCI will each incur an initial PRA cost of approximately $625,000, which is the same estimated initial paperwork cost as those estimated for new SCI entities.[2341] The Commission estimates that all SCI competing consolidators will each incur ongoing annual PRA costs of approximately $804,000, which is the same as the ongoing costs for existing SCI entities estimated in the 2018 SCI PRA Extension.[2342]

Although the requirements of Rule 614(d)(9) are similar to some of the key provisions of Regulation SCI, Rule 614(d)(9) does not contain all of the provisions of Regulation SCI and will have lower compliance costs than Regulation SCI.[2343] For example, Rule 614(d)(9) does not contain a provision similar to the requirement for geographically diverse backup and recovery capabilities that is contained in Rule 1001(a)(2) of Regulation SCI. Therefore, the Commission estimates that the requirements of Rule 614(d)(9) will have initial and ongoing PRA costs that are approximately 33% of the PRA costs for compliance with all of the provisions of Regulation SCI.[2344] The Commission estimates that competing consolidators that are below the SCI competing consolidator threshold will each incur initial PRA costs of approximately $217,000 and ongoing annual PRA costs of approximately $268,000.

As SCI entities, SCI competing consolidators will also incur direct non-PRA related compliance costs. In 2014, the Regulation SCI adopting release estimated that an SCI entity will incur an initial non-PRA cost of between approximately $320,000 and $2.4 million.[2345] Additionally, an SCI entity will incur an annual ongoing non-PRA cost of between approximately $213,600 and $1.6 million.[2346] The Commission believes that similar to the PRA cost estimates, these non-PRA related costs are also largely applicable to SCI competing consolidators. But the Commission is uncertain about the actual level of costs SCI competing consolidators will incur, because these costs could differ based on the type of potential entrant that becomes an SCI competing consolidator. The Commission believes that there are two reasons why SCI competing consolidators' non-PRA costs are likely to be on the lower end of these cost estimates.

First, these cost estimates include costs of having part of an SCI entity's system be a ''critical SCI system,'' and therefore be subject to certain heightened resilience and information dissemination provisions of Regulation SCI. SCI competing consolidators' systems are not included within the scope of ''critical SCI systems.'' [2347] The Commission believes that if SCI competing consolidators' systems are subject to the standard requirements of Regulation SCI, they will not have to incur compliance costs of the heightened requirements for ''critical SCI systems.'' To the extent that the incremental costs of being subject to the heightened requirements for ''critical SCI systems'' versus the standard requirements for ''SCI systems'' is small, these cost savings will be low.

Second, among all of the SCI entities, SCI competing consolidators have relatively simpler systems and fewer functions, and thus will have compliance costs closer to the lower end of the above non-PRA cost estimates. The above non-PRA cost estimates provide an average for all SCI entities, without distinguishing between different categories of SCI entities. However, the Regulation SCI adopting release explains that compliance costs will depend on the complexity of SCI entities' systems and they would be higher for SCI entities with more complex systems.[2348] SCI competing consolidators will likely have simpler systems and fewer functions relative to some of the other SCI entities, such as exchanges. As a result, the Commission believes that SCI competing consolidators' compliance costs are likely to be on the lower end of the average non-PRA cost estimates for all SCI entities.

Because Rule 614(d)(9) does not contain all of the provisions of Regulation SCI, the Commission believes that Rule 614(d)(9) will have lower initial and ongoing non-PRA compliance costs than Regulation SCI.[2349] Similar to the PRA cost estimates, the Commission estimates that the requirements of Rule 619(d)(9) will have initial and ongoing non-PRA costs that are approximately 33% of the non-PRA costs for compliance with all of the provisions of Regulation SCI. The Commission estimates that competing consolidators below the SCI competing consolidator threshold will each incur an initial non-PRA cost of between approximately $107,000 and $800,000.[2350] Additionally, competing consolidators below the SCI competing consolidator threshold will also each incur an annual ongoing non-PRA cost of between approximately $71,000 and $533,000. The Commission is uncertain about the actual level of costs competing consolidators below the SCI competing consolidator threshold will incur, because these costs could differ based on the state of the systems of the entrant that becomes a competing consolidator. Should a competing consolidator meet the threshold to become an SCI entity after the initial transition period, there would be additional costs at that time in order to comply with Regulation SCI, which will vary depending on the type of competing consolidator.[2351]

Additionally, the Commission believes that some competing consolidators' subscribers associated

[2339] *See supra* note 1572 and accompanying text.

[2340] These cost estimates are based on the 2018 SCI PRA Extension. *See* 2018 SCI PRA Extension, *supra* note 1567. *See also supra* Section IV.G discussing PRA burden estimates related to compliance with Regulation SCI and *supra* note 1573 and accompanying text.

[2341] *See supra* note 1575 and accompanying text.

[2342] *See supra* Section IV.G.

[2343] *See supra* Section III.F.

[2344] *See supra* note 1589 and accompanying text (discussing the PRA burden estimates for Rule 614(d)(9)).

[2345] SCI Adopting Release, *supra* note 1233, at nn. 1943–44.

[2346] *Id.* at nn. 1945–46.

[2347] *See supra* Section III.F.

[2348] SCI Adopting Release, *supra* note 1233, at 634.

[2349] *See supra* Section III.F.

[2350] SCI Adopting Release, *supra* note 1233, at nn.1943–44.

[2351] The Commission believes that the initial implementation costs for these entities to comply with Regulation SCI will approximately be the difference between their initial PRA and non-PRA costs under Rule 614(d)(9)(iv) and the initial PRA and non-PRA burdens based on their entity type, as described above in this section.

with the testing of business continuity and disaster recovery plans will incur Regulation SCI-related connectivity costs. Rule 1004 of Regulation SCI sets forth the requirements for testing an SCI entity's business continuity and disaster recovery plans with its designated members or participants. Rule 614(d)(9)(iv) requires competing consolidators that are not affiliated with exchanges that do not meet the threshold requirements for being an SCI competing consolidator to participate in the testing outlined in Rule 1004 of Regulation SCI. Competing consolidators and their designated subscribers would be subject to these same costs.[2352] The Regulation SCI adopting release estimated connectivity costs as part of these business continuity and disaster recovery plans to be approximately $10,000 per SCI entity member or participant.[2353] The Commission believes that these connectivity cost estimates will also be applicable to competing consolidators' designated subscribers.

The Commission believes that competing consolidators and various other market participants will incur certain indirect costs related to compliance requirements for SCI competing consolidators. The Commission believes that the costs to comply with Regulation SCI discussed above will also fall on third-party vendors employed by SCI competing consolidators to provide services used in their SCI systems. Regulation SCI requires that any system provided by a vendor to an SCI entity and used by that entity in its SCI system must also comply with Regulation SCI requirements. The Commission believes that all costs discussed above for competing consolidators to comply with Regulation SCI will also fall on third-party vendors employed by competing consolidators in the course of providing consolidated market data. Examples of such vendors may include communications firms employed by SCI competing consolidators to transport data from exchanges to the SCI competing consolidator's aggregation servers at various data centers. If many third-party vendors are employed by SCI competing consolidators in their consolidated market data business, the size of this cost may be significant.

Additionally, the Commission believes there is the potential for these costs to cause vendors to end certain existing business relationships with market participants who become SCI competing consolidators. It is possible that third-party vendors will not want to incur the costs that SCI competing consolidators may impose to assure that the SCI competing consolidator can comply with Regulation SCI requirements, and as a result be unwilling to provide services to the SCI competing consolidator's consolidated market data business. To the extent that this occurs, SCI competing consolidators will incur costs from having to find new vendors, form a new business relationship, and adapt their systems to the infrastructure of the new vendor. SCI competing consolidators may also elect to perform the relevant functions internally. To the extent that SCI competing consolidators either find new vendors or perform the functions internally, it will represent an increased inefficiency in the market, since presumably the current market data vendors are the most efficient means of performing these functions.

The Commission believes that the technology supporting some of the services provided by vendors to current data aggregators (notably communications, such as microwave transmission) require significant expertise in order to be competitive and are difficult to replicate. To the extent this is the case, and to the extent that Regulation SCI requirements prevent SCI competing consolidators from using these vendors, the ability of SCI competing consolidators to provide consolidated market data in a manner that rivals current third-party aggregation practices may be significantly reduced.

(f) Economic Effects of the Decentralized Consolidation Model Pertaining to Self-Aggregators

As discussed above a number of market participants currently purchase proprietary data products from the exchanges and consolidate this data for their internal use or regulatory compliance.[2354] To permit self-aggregation under the decentralized consolidation model, the Commission defines a new type of market data user, self-aggregators.[2355]

Market participants that currently effectively self-aggregate and that decide to become self-aggregators under the decentralized consolidation model will have two choices. First, they may decide to limit the use of exchange data to the creation of consolidated market data, in which case they will be charged for data content underlying consolidated market data pursuant to the fee schedules of the effective national market system plan(s) for NMS stocks. In this case, market participants will likely benefit from lower data fees as compared to current fees they pay for proprietary data and connectivity products.[2356]

Second, they may decide they need data beyond the scope of consolidated market data, in which case they will be additionally charged for the proprietary data and connectivity services pursuant to the individual exchange fee schedules. In this case, the potential price gain will be limited to the price decline for the portion of the data corresponding to the consolidated market data. The Commission is uncertain about the extent of this effect.

Market participants that currently effectively act as self-aggregators and that will choose to become self-aggregators under the decentralized consolidation model may incur some costs switching from proprietary data to consolidated market data. They could incur these costs especially if the exchanges provide components of the consolidated market data with feeds and connections other than what these market participants currently use and market participants choose to receive the data via those new feeds and connections.[2357] Market participants could also incur some costs even if they choose to use their existing proprietary feeds and connections to receive consolidated market data, but, they do not currently consume all proprietary data needed to create consolidated market data.[2358] However, since these market participants already have the infrastructure to receive proprietary data products from the exchanges, the Commission expects these costs to be minimal. Additionally, self-aggregators may choose not to receive the entirety of consolidated market data, which could mitigate some of these costs.

Some commenters stated that the introduction of a self-aggregator category will maintain the latency gap between different market participants.[2359] One comment said that ''the Proposal would continue this two-tiered structure—with participants that can afford to act as self-aggregators able to obtain and use that data faster than

[2352] *See supra* Section III.F.

[2353] *See* SCI Adopting Release at n. 2065.

[2354] Some commenters agreed. *See, e.g.,* MEMX Letter at 7; NYSE Letter II at 18. *See also supra* Section III.D.

[2355] *See supra* Section III.D.2 for a definition of a self-aggregator.

[2356] *See infra* Section V.C.4.

[2357] *See supra* note 795 for a discussion on competing consolidators' and self-aggregators' permission to choose the feeds through which they receive the data content underlying consolidated market data from the SROs.

[2358] *See supra* note 795 for a discussion on the competing consolidators' and self-aggregators' option to choose how they receive consolidated market data or a subset of it.

[2359] *See, e.g.,* NYSE Letter II at 23; Nasdaq Letter IV at 8; FINRA Letter at 8.

those relying on competing consolidators.'' [2360] Another commenter said that even having multiple competing consolidators would not reduce the latency gap because competing consolidators ''would not be able to distribute consolidated data as quickly as the direct exchange feeds and their customers would not be able to consume it as quickly as self-aggregators.'' [2361] Another commenter stated that receiving data from competing consolidators will be a ''two-step process'' and can never be as fast as getting data directly from the exchanges, a ''one-step process.'' [2362] On the other hand, one commenter said that self-aggregators might enjoy a minor latency advantage and that they do not ''believe this latency advantage would be material and therefore should not be an issue.'' [2363] The Commission discusses the relationship between self-aggregators and competing consolidators and the related latency below.[2364]

Some commenters stated that the decentralized consolidation model will increase costs for market participants because they would have to contract with a backup competing consolidator to avoid disruptions should their primary competing consolidator experience a disruption.[2365] The Commission believes these issues apply to self-aggregators as well, in that self-aggregators may wish to obtain a backup feed in addition to their self-aggregated feed. To the extent this is the case the Commission believes that the primary means of obtaining a backup feed is likely to be through a competing consolidator, and as such the discussion of the associated costs discussed in Section V.C.2(d)(iv) applies to self-aggregators as well.

(g) Other Conforming Changes

The Commission is adopting conforming changes for some of the previous Commission or SRO rules and regulations, which themselves can have economic effects. This section discusses the conforming changes and corresponding economic effects.

(i) Amendments to Regulation SHO

As described in Proposal section III.D.1, the Commission is adopting amendments to Regulation SHO to adjust the process of determining whether a Short Sale Circuit Breaker has been triggered and disseminating such trigger information. First, the primary listing exchange will decide how to obtain the consolidated data necessary to determine whether a Short Sale Circuit Breaker should be triggered. Second, the primary listing exchange will be responsible for notifying competing consolidators and self-aggregators rather than a single plan processor. The first change allows the primary listing exchange to select the most cost-effective means of fulfilling its responsibilities. The second change could entail some compliance costs for competing consolidators but is necessary to ensure that all competing consolidators are on a level playing field. The resulting compliance costs for exchanges are included in the Commission's general compliance estimate above.[2366] The resulting compliance costs for competing consolidators are included in the Commission's estimate of the general costs to becoming a competing consolidator above.[2367]

In addition, the Commission defines ''primary listing exchange'' in Regulation NMS and amends the definition of ''listing market'' in Regulation SHO to refer to the new definition of primary listing exchange. The Commission believes that this change will have no direct economic effects, other than harmonizing Regulation SHO with Regulation NMS.

(ii) Effective Changes to Responsibilities Under the Limit Up Limit Down Plan and Market Wide Circuit Breaker Rules

The definition of ''regulatory data'' requires the primary listing exchange to be the entity responsible for monitoring, calculating, and disseminating certain information necessary to implement the LULD Plan and the MWCB rules. These functions are currently the responsibility of a single exclusive SIP, however, the Commission requires that the primary listing exchanges be responsible for disseminating information regarding Price Bands and Limit States and the primary listing exchange with the largest portion of S&P 500 Index stocks be responsible for determining whether an MWCB has been triggered. While the Commission believes that these amendments could result in implementation and ongoing costs for primary listing markets that currently do not operate a SIP, these amendments ensure a single set of Price Bands and a consistent message that MWCBs have triggered. As discussed above, the Commission believes that the additional cost of calculating the information necessary to implement the LULD Plan and MWCB rules would not be burdensome and these costs are included in the general compliance cost the Commission has estimated for SROs above.[2368]

Some commenters said that the Commission overlooks additional costs imposed on SROs from these additional responsibilities and latency differentials.[2369] The Commission acknowledged in the Proposing Release that the amendments might lead to some implementation and ongoing costs for the primary listing exchanges that do not operate an exclusive SIP. Additionally, the Commission does not believe that the decentralized consolidation model would make it more difficult for SROs to conduct their market surveillance with respect to the LULD Plan and MWCB rules, because there are currently latency differentials to consider when SROs conduct market surveillance. The amendments will not bring significant changes to this market reality.

3. Economic Effects of Form CC

As discussed above in Section III.C.7, Rule 614 will prohibit a person, other than an SRO, from acting as a competing consolidator unless that person files with the Commission an initial Form CC and the initial Form CC has become effective.[2370] Rule 614 will require the public disclosure of Form CC, which itself will require disclosures regarding a competing consolidator's services, fees, and operations, as well as metrics related to the performance of the competing consolidator. As a result, Rule 614 will provide transparency regarding the services and performance of competing consolidators for investors who might purchase the products and services of a competing consolidator. The Commission believes that the information contained in Form CC and the resulting transparency will help market participants make better-informed decisions about which competing consolidator to subscribe to

[2360] *See* NYSE Letter II at 23.

[2361] *See* Nasdaq Letter IV at 8.

[2362] *See* FINRA Letter at 8.

[2363] *See* Clearpool Letter at 10.

[2364] *See infra* Section V.C.4(b).

[2365] *See, e.g.,* Angel Letter at 20; NYSE Letter II at 24; FINRA Letter at 4.

[2366] *See supra* Section IV.D. *See also supra* Section V.C.2(d).

[2367] *See supra* Section IV.D.

[2368] *See supra* Section IV.D.

[2369] *See, e.g.,* NYSE Letter II at 20–21; Joint CRO Letter at 3.

[2370] A competing consolidator that is affiliated with an exchange that is operating under the provisions of the limited exemptive relief will need to be registered as a competing consolidator under Rule 614 and be in compliance with the disclosure and other substantive regulatory requirements applicable to competing consolidators in Rule 603, Rule 614, and Form CC. *See supra* Section III.C.7(a)(iv). The Commission believes that competing consolidators that are affiliated with exchanges will choose to operate under the provisions of the exemption. *See supra* Section V.C.2(a)(i)a.

in order to achieve their trading or investment objectives.[2371]

Additionally, the Commission believes that the process for the Commission to declare an initial Form CC ineffective will improve the quality of information the Commission receives from competing consolidators, which will allow the Commission to better protect investors from potentially incomprehensible or incomplete disclosures that would misinform market participants about the operations and services of a competing consolidator.

(a) Public Disclosure of Form CC and Other Competing Consolidator Information

Form CC will require competing consolidators to publicly disclose four sets of information on the Commission website.[2372] First, Form CC will require competing consolidators to disclose general information, along with contact information. Second, Form CC will require competing consolidators to disclose information regarding their business organizations. Third, Form CC will require competing consolidators to disclose information regarding their operational capabilities. Fourth, Form CC will require competing consolidators to disclose information regarding their services and fees. Rule 614 also includes requirements for amendments to Form CC under defined circumstances and a notice of cessation of operations at least 90 calendar days before the date the competing consolidator ceases to operate as a competing consolidator. Form CC, any amendments to it, and any notices of cessation will be made public via posting on the Commission's website. Rule 614(d)(5) also has a disclosure requirement about competing consolidators' performance metrics on their own websites. Additionally, Rule 614(d)(6) will require competing consolidators to disclose operational information on their websites related to vendor alerts, data quality and systems issues, and clock drift in the clocks they use to create timestamps. Generally, these requirements promote transparency and competition among competing consolidators and effective regulatory oversight within a streamlined approach to avoid significant barriers to entry.

The business organization disclosures will give market participants a window into the ownership as well as the organizational structures of competing consolidators. The Commission believes that this information will help market participants make better-informed decisions about which competing consolidator to subscribe to as well as how to avoid any potential conflicts of interest. For example, if a broker-dealer is considering subscribing to a competing consolidator for consolidated data and any other potential additional services such as analytics, they may search for a competing consolidator that is not owned by a competitor or an affiliate of a competitor in the broker-dealer space. Purchases of data and additional market intelligence services between two competitors could potentially create conflicts of interest. Thus, the required disclosure of a competing consolidator's business organization—which will, for example, clarify the ownership information—will provide transparency on its potential conflicts of interest.

The information on operational capabilities will provide market participants detailed information about each competing consolidator's product portfolio and technical capabilities. Since market participants vary in their data and technical capability needs, information on competing consolidators' operational capabilities will allow market participants to make better-informed purchase decisions. For example, market participants who trade frequently and who need robust backup systems might choose competing consolidators with those capabilities. Whereas other market participants who have longer term investment strategies with potentially less frequent trades might prefer competing consolidators with less aggressive backup systems. Form CC disclosures will facilitate a better match between market participants' needs and competing consolidators' offerings, and will also help to ensure consistent disclosures between competing consolidators.

One commenter stated that the disclosure of ''all procedures'' in the operational capability section of Form CC could disclose a competing consolidator's proprietary tech, or ''secret sauce,'' which could discourage innovation.[2373] The Commission disagrees with this commenter and does not believe that the disclosures required on Form CC will discourage innovation because the disclosures are not detailed enough to give away a competing consolidator's proprietary information or ''secret sauce.''[2374]

With the consistent disclosures on services and fees, market participants will be able to compare and contrast the various services provided and the corresponding fees asked by competing consolidators. Market participants may then make better purchase decisions, based on their individual needs. Additionally, the service and fee transparency resulting from these disclosures will promote competition in similar products and/or services across different competing consolidators, which may result in similar prices, and will help to protect market participants from unfair and unreasonable prices.

The Commission believes that the requirement for competing consolidators to amend Form CC prior to implementing material changes to their pricing, products, or connectivity options will provide transparency into changes in the operations of competing consolidators and better inform subscribers and other market participants about significant changes in the fees and services offered by a competing consolidator. This will allow subscribers to a competing consolidator to better evaluate if it will continue to serve their business needs. Additionally, it will facilitate effective oversight by the Commission.

Similarly, the Commission believes that the requirement for a notice of cessation will also benefit subscribers to the competing consolidator, because it will give them advanced notice before the competing consolidator ceases to operate. Thus those subscribers will have more time to find another competing consolidator to supply them with consolidated market data.

The fact that the information on Form CC will be in a single location instead of dispersed across the competing consolidators' own websites should aid market participants by introducing only minimal search costs when evaluating and comparing potential competing consolidators to decide which one best suits their business interests.

As discussed above,[2375] the Commission believes the rule will cause each competing consolidator to incur approximately $93,540 in implementation compliance cost in order to collect the information required to fill out and file an initial Form CC as well as $16,812 in ongoing costs in order to file amendments to an effective Form CC. One commenter believes the

[2371] Commenters agreed the public disclosure of the information contained in Form CC and performance metrics would help investors evaluate competing consolidators and decide which one to subscribe to. *See, e.g.,* Clearpool Letter at 9; ACS Execution Services Letter at 6.

[2372] *See supra* Section III.C.7(a)(ii). Competing consolidators will also need to include on their websites a hyperlink to the Commission's website containing information their Form CCs. *See supra* Section III.C.7(j)

[2373] *See* Data Boiler Letter I at 55.

[2374] *See supra* Section III.C.8(e)(ii).

[2375] *See supra* Sections IV.D.1(a); IV.D.1(b)(iii); V.C.2(d); *supra* note 1402.

costs associated with Form CC are overly burdensome and will present a serious barrier to entry for potential competing consolidators.[2376] The Commission disagrees with this commenter. While the Commission acknowledges that the costs associated with preparing and filing an initial Form CC and amendments to an effective Form CC may pose a minor barrier to entry for potential competing consolidators, the Commission does not believe that the costs associated with Form CC are large enough to pose a serious barrier to entry.[2377]

Competing consolidators will also experience implementation costs because initial Form CC and any amendments to Form CC will be filed electronically with the Commission. The Commission believes that requiring Form CC to be filed electronically will reduce filing costs compared to requiring the competing consolidator to file paper forms.

To file a Form CC, competing consolidators will need to access EFFS.[2378] Each competing consolidator will have to file an application and register each individual who will access EFFS on behalf of the competing consolidator. The Commission believes that each competing consolidator will initially designate two individuals to access EFFS, with each application taking 0.15 hours for a total of 0.3 hours per competing consolidator. On an ongoing basis, each competing consolidator will add one individual to access EFFS for amendments, adding 0.15 hours per competing consolidator. To make a submission into EFFS, the competing consolidator must download a proprietary viewer.

Because EFFS is not available to the public, when the Commission makes an effective Form CC available to the public, the Commission will transform the data into an unstructured format, meaning that it is not machine-readable. Market participants that seek to use the Form CC data to evaluate and compare competing consolidators will bear the costs of locating, comparing, and evaluating the information on the Commission's website and take steps to put the information ''side by side'' for comparison purposes.

The Commission believes that the public disclosure of performance metrics and additional information will introduce transparency to the operations of competing consolidators. These metrics should allow subscribers and potential subscribers to better evaluate the performance and current and future capabilities of a competing consolidator. Market participants, based on their individual needs, will be able to review competing consolidators' performance statistics and choose ones that will best serve their trading needs. While the requirements to post the monthly performance metrics and operational information on websites will introduce transparency, they will not completely eliminate costs incurred when market participants want to compare competing consolidators because collecting the information will involve market participants expending some resources to go to each competing consolidator's website.

Competing consolidators will also incur implementation and ongoing compliance costs in order to setup and maintain systems required to calculate and produce the information for the performance metrics as well as other information the competing consolidator will be required to post to its website.

Each month, competing consolidators will be required to post the monthly performance metrics and operational information on their own websites. Excluding the cost of preparing the information, the Commission estimates an average competing consolidator will incur a one-time cost of $2,651 (6 hours (for website development) × $308.50 per hour (blended rate for a senior systems analyst ($285) and senior programmer ($332)) + $800 for an external website developer to develop the web page = $2,651) for posting the required information to a website, and will incur an ongoing annual cost of up to $3,702 (1 hour (for website updates) × $308.50 per hour (blended rate for a senior systems analyst ($285) and senior programmer ($332)) × 12 monthly postings = $3,702) to update the relevant web page each month. Because the monthly performance metrics and operational information may be posted in any format the competing consolidator finds most convenient, market participants that seek to use the data to evaluate and compare competing consolidators will bear the costs of locating, comparing, and evaluating the information on each competing consolidator's website.

The Commission believes that the operational information that competing consolidators will be required to publicly disclose on their websites will create a mechanism for market participants to hold competing consolidators accountable for any systems issues they may experience. One strong accountability mechanism market participants have is their purchasing power. The disclosure requirements will alert market participants to any system breaches or any data quality or systems issues a competing consolidator experiences. Market participants could hold competing consolidators accountable by abandoning competing consolidators that repeatedly experience system issues and gravitating toward competing consolidators that demonstrate more reliable systems through their disclosures. This demand shift could cause competing consolidators with less reliable systems to exit the market.

In addition to the requirements of Rule 614(d)(9) and Regulation SCI promoting competing consolidators to develop resilient systems,[2379] the requirement that competing consolidators publicly disclose information on systems issues as well as performance metrics regarding system availability could also encourage competing consolidators to make investments that will ensure the resiliency of their systems. These disclosures will help market participants determine which competing consolidators have more reliable systems. Competing consolidators who display more reliable systems with greater system availability will attract more subscribers. This should incentivize competing consolidators to invest in better backup systems or other technology that will improve the resiliency of their systems and increase their system uptime.

The Commission believes that information from the disclosures in Form CC and the performance metrics and operational information competing consolidators will provide on their websites will promote effective regulatory oversight of competing consolidators and increased investor protection by providing the Commission and relevant SROs with information about competing consolidators. With this information, the Commission and the SROs could identify competing consolidators that are not properly complying with the final amendments or parts of them. The Commission and SROs, then, could utilize this information to help prioritize examinations and possibly help identify potential issues.

The Commission believes that the public disclosure of the information in

[2376] *See* ACTIV Financial Letter at 3.

[2377] *See supra* Sections IV.D.1 and V.C.2(d)(i) for discussions of cost estimates for competing consolidators related to Form CC. *See also supra* Section V.C.2(a)(i) for discussions of competing consolidator barriers to entry.

[2378] As discussed further below, those competing consolidators that are existing SCI entities are already required to use EFFS to make Form SCI filings, and therefore would not incur the access costs discussed here. *See infra* Section V.E.5.

[2379] *See supra* Section V.C.2(e)(i).

Form CC on the Commission's website and the public disclosure of performance metrics and operational information on competing consolidators' websites could also increase competition between competing consolidators and also expose some competing consolidators to certain competitive effects.[2380] If the public disclosures show that certain competing consolidators have higher fees or poorer performance, it may result in those competing consolidators losing subscribers and earning lower revenues. Similarly, competing consolidators who display lower prices or superior system performance may be able to attract more subscribers and earn more revenue. The public disclosure of the fee and performance information on the Commission and competing consolidator websites will facilitate competing consolidator comparison and will also promote competition. Greater competition between competing consolidators could in turn incentivize competing consolidators to innovate—particularly in terms of their technology—so that they can attract more subscribers.[2381]

As discussed above, Rule 614(d)(9)(iii)(C) will require a competing consolidator that is not an SCI competing consolidator to notify the Commission and provide the Commission with updates on Form CC if it experiences a systems disruption or intrusion.[2382] The Commission believes that this information will help ensure more effective Commission oversight of competing consolidators by helping make the Commission aware of potential areas of weakness in the competing consolidator's systems that may pose a risk to the entity or the market as a whole.[2383]

(b) Commission Review and Process for Declaring Initial Form CC Ineffective

The Commission believes that the process of reviewing an initial Form CC will allow the Commission to evaluate, among other things, the completeness and comprehensibility of a competing consolidators' disclosures and, if necessary, declare the Form CC ineffective. To be a consolidated market data provider, a competing consolidator is required to have a Form CC that has become effective pursuant to Rule 614(a)(1)(v). Thus, for competing consolidators that submit low quality and potentially inaccurate data, the Commission's review and declaration of their Form CC ineffective could start an iterative cycle of increasingly better information provision, until the competing consolidator can have an effective Form CC. The Commission believes that this public disclosure and review process will improve the quality of information the Commission receives from competing consolidators, which will allow the Commission to better protect investors from potentially incomprehensible or incomplete disclosures that will misinform market participants about the operations of the competing consolidator. Additionally, an entity cannot operate as a competing consolidator without an effective Form CC. The Commission's review will be designed to ensure that the competing consolidators serving the investors will be the ones that meet the Commission's qualification requirements.

The Commission believes that the filing requirements of Form CC and the Commission review period could impose costs on competing consolidators. The Commission believes that declaring a Form CC ineffective could impose costs on a competing consolidator—such as delaying the start of operations while the competing consolidator refiles its Form CC—and could impose costs on individual market participants and the overall market for competing consolidators resulting from a potential reduction in competition. However, competing consolidators and market participants will not incur these costs unless the competing consolidator filed a deficient Form CC. Therefore, the Commission believes that a competing consolidator will be incentivized to file Form CC disclosures that are complete and comprehensive to avoid bearing the costs of refiling a Form CC filing or of having its Form CC declared ineffective.

The Commission recognizes that the registration process will create uncertainty about whether the form will be declared ineffective. This uncertainty may create a disincentive for entities to become competing consolidators, which could potentially reduce competition in the competing consolidator market.[2384]

4. Economic Effects From the Interaction of Changes to Core Data and the Decentralized Consolidation Model

The Commission believes that the final amendments would have a number of economic effects that are only possible as a result of a combination of the expanded content of core data and latency reductions due to the introduction of the decentralized consolidation model.[2385] Specifically, the Commission believes that the combination of these factors would affect proprietary data feed business; market participants who choose to engage in market making, smart order routing, and other latency sensitive trading businesses; the Consolidated Audit Trail; and data vendor business.

(a) Economic Effects on the Proprietary Data Feed Business

The Commission believes that the expanded content of core data and latency reduction due to the introduction of the decentralized consolidation model could make consolidated market data a reasonable alternative to exchange proprietary data feeds for some market participants. This would have the effect of providing these market participants with a potentially lower cost option (relative to proprietary feeds) for low-latency, high-content market data. The lower cost of either self-aggregating consolidated market data or obtaining a competing consolidator's data feed will come at the expense of losing the full set of data currently available via proprietary feeds, because the consolidated market data definition does not include all data elements currently available via proprietary data feeds.[2386] Nevertheless, some market participants may find that the expanded content of core data makes the trade-off worth it and may choose to drop their proprietary feed subscriptions in favor of the consolidated market data.

This effect will represent a transfer from exchanges who sell proprietary data feeds to the market participants who would save money by either self-aggregating consolidated market data or subscribing to a competing consolidator's data feed. In the latter case, a portion of the benefit is also transferred to the competing consolidator in the form of additional business. The Commission believes that a transfer from the exchanges to market participants may help market participants enhance their product and

[2380] A commenter agreed the public disclosure of Form CC and monthly performance metrics would enhance competition between competing consolidators. *See* Clearpool Letter at 9.

[2381] *See infra* Section V.D.2 discussing the potential effects of the proposal on competition.

[2382] *See supra* Section III.F.

[2383] *See supra* Section V.C.2(e)(i).

[2384] *See infra* Section V.D.2 (discussing the potential effects of the proposal on competition).

[2385] *See supra* Section V.C.2(c) discussing the effect of the decentralized consolidation model on consolidated market data latency.

[2386] Commenters agreed that switching to new consolidated market data would come with this expense of losing some data compared to the proprietary data feeds. One commenter stated that it would be unable to remain competitive even after the final amendments are in place without continuing to purchase proprietary data feeds. *See* Virtu Letter at 2. *See also* Clearpool Letter at 3, supporting the idea that there may be broker-dealers who will still need proprietary feeds.

service offerings to their customers. Additional business and revenues for competing consolidators may enhance competing consolidators' efforts to offer higher quality products and a wider range of product offerings.[2387]

It is possible that changes to the pricing and customer base of core and proprietary data feeds may not have a uniform impact across all exchanges. Some exchanges currently have more proprietary feed revenue than others, and some exchanges may currently rely more on revenue from SIP data fees than other exchanges. To the extent that an exchange receives a large share of revenue from its proprietary feed business, the impact of these potential reductions in proprietary feed subscriptions could be large for that exchange. To the extent that an exchange receives only a small portion of its revenue from proprietary feed subscriptions, the impact of these potential reductions in subscriptions could be small for that exchange.

The Commission also notes that the exchanges' revenues from connectivity services may increase or decrease, depending on any new data connectivity fees that the exchanges may propose for data content use cases. The connectivity fees for consolidated market data must be fair and reasonable and not unreasonably discriminatory.[2388] If these new connectivity fees are higher than current fees, there is a possibility that the exchanges' overall revenue from connectivity services would increase. It is also possible that exchanges could lose revenue from existing customers reducing the number of ports or the amount of bandwidth they purchase as they switch to competing consolidators for some use cases. The overall effect on the exchanges' connectivity revenues is uncertain, and the impact on connectivity revenues could differ across different exchanges.

The Commission believes that these competitive pressures on the exchange proprietary feed and connectivity business could also have the effect of causing the exchanges to lower the fees they charge for these services in an effort to stay competitive with the consolidated market data. This effect represents a transfer from the exchanges to the customers of these services. To the extent that existing customers of these services invest the money saved from lower fees in new products (such as expanding brokerage services) this effect will also have benefit of encouraging the creation of new products and services. To the extent that the lower fees for these services enable new market participants to subscribe to these feeds and offer the services that these feeds are required for (such as high quality execution brokerage services), this effect will also represent a benefit in the form of new competition in the broker-dealer business.

One commenter stated that the final amendments would have the effect of increasing proprietary data fees, because ''demand is inelastic.'' [2389] The Commission acknowledges that if some market participants no longer purchase proprietary data feeds after the rule is implemented, those who continue to purchase proprietary data feeds are likely to value those feeds more than the ones who no longer make these purchases. This means that the exchanges could infer that their remaining proprietary customers might actually be willing to pay more for the data then their old customer base, and consequently attempt to increase proprietary fees. However, the Commission believes that the need to remain competitive against new consolidated market data could overwhelm the effect of knowing that remaining customers might be willing to pay more. If this is the case, then the exchanges will instead lower their prices for proprietary data.

If exchanges increase proprietary fees as a result of these potential insights into the demand elasticity of the remaining customer base after the rules are implemented, it will result in a transfer from those market participants who continue to purchase proprietary data to the exchanges, while any market participants who stop purchasing proprietary data as a result of the fee increases will represent an economic cost. The Commission is uncertain as to whether fees will increase or decrease for proprietary data.

The Commission believes, however, that if a small latency differential between competing consolidator feeds and the proprietary data feeds remains, then the above effects are likely to be small, owing to the nature of high speed competition.[2390] However, this limitation would only be for the case where current subscribers to proprietary data feeds switch to using a competing consolidator feed. In the case of those proprietary feed subscribers who become self-aggregators, the Commission believes that it is unlikely that this would result in a latency differential compared to receiving proprietary data.[2391] It is also possible that the data that would remain exclusive to proprietary feeds would also reduce the incentives for market participants to switch to using consolidated market data only, further reducing the size of the above effects.

In the event that proprietary data feed subscribers are willing to switch to receiving new consolidated market data products and a latency differential remains between these feeds and feeds provided by competing consolidators, the effects discussed in this section would apply only to those market participants who become self-aggregators. The Commission believes that the set of current subscribers of proprietary feeds willing to become self-aggregators may be smaller than the set of current subscribers willing to switch to using a competing consolidator, as it is possible that subscribing to a competing consolidator would be more convenient or less costly. To the extent this is the case, the size of the effects described in this section will be reduced. Furthermore, these self-aggregators may continue to enjoy a latency advantage over customers of competing consolidators.

To the extent that the changes to proprietary feed subscriptions described above are realized, the exchanges would have corresponding losses in revenue or profit from the provision of proprietary data. Since the Commission is unable to determine how many broker-dealers or other market participants would no longer want to use proprietary data feeds as a result of this rule, it is unable to determine the size of this potential reduction in revenue or profit.

One commenter stated that if the exchanges' revenues from market data are reduced, the price of trading services would likely increase, because the loss of revenue ''will have to be offset.'' [2392] The Commission disagrees with this commenter because a reduction in total revenue in and of itself does not necessarily make it optimal for a firm to increase its prices. The Commission expects that prices are set to optimize the amount of profit the firm can extract

[2387] *See supra* Section V.C.2(c).

[2388] *See supra* note 1134.

[2389] *See* Data Boiler Letter I at 2. For further support that proprietary fees could increase, *see* Clearpool Letter at 3.

[2390] *See supra* Section V.B.2(b).

[2391] More generally, the final rule could enable some reduction in the latency differential between current market participants to the extent that such market participants would be willing to make the necessary technology and personnel investments to take advantage of the latency reductions provided by the decentralized consolidation model. Thus, while some differences in latency may remain, the barriers to entry for market participants to compete in the latency sensitive businesses at various levels of sophistication and competitiveness would be reduced. *See also* Sections V.B.2(f) and V.C.4(b) for further discussion of this point.

[2392] *See* Nasdaq Letter IV at 30.

from the market, and given that this has been done an increase in prices today would not increase profit. A reduction in revenue by itself does not change any of these considerations. All firms must balance a loss in customers against an increase in the revenue received per customer when considering a price increase, and in order for it to be optimal to increase prices, something about this balance must change. Thus, the Commission does not believe that a reduction in total revenue for exchanges will necessarily make it optimal for them to adjust any of their fees, including fees for trading services.

This commenter also added that this scenario of increases in trading fees would follow ''if the all-in price of trading is already at the competitive level. . . .'' [2393] It is not clear that this assumption is met in the market today. The Commission has discussed above the competition that exists in the market for trading services,[2394] and separately, discussed indicia that the market for proprietary data may not be subject to robust competition.[2395]

To the extent that exchanges would find it profitable to increase their trading fees following the implementation of this rule, the Commission believes that the market for trading services is subject to competition, as discussed above, and, as a result, any potential for fees to increase will be constrained by this competition.[2396]

A commenter stated that without profit from selling market data, exchanges would lack the funds necessary to finance improvements to their trading systems, including innovations in order types.[2397] The Commission disagrees because it believes the exchanges only fund improvements and innovations in their trading businesses that have a positive net present value, because this would be consistent with the behavior of any firm seeking to maximize profit. While the Commission acknowledges that alternative sources of funding to internally held cash may be more expensive (or less convenient) sources of financing, the Commission nevertheless believes that the exchanges will continue to be able to finance their best investment opportunities, which are the same projects the exchanges finance today. This is because such opportunities will represent a profit opportunity to both the exchanges and potential sources of financing.

(b) New Entrants Into the Market Making, Broker-Dealer and Other Latency Sensitive Trading Businesses

The Commission believes that the final amendments may lead to new market participants entering the market making, smart order routing broker-dealer, and other latency sensitive trading businesses.[2398] This is because the final amendments may help to reduce the information asymmetries between those who choose to rely on proprietary data feeds and those who rely on the feeds from the exclusive SIPs.[2399] For instance, it is possible that currently there are broker-dealers who might want to compete in the business of sophisticated order routing but choose not to because of the cost of the market data necessary to be competitive. To the extent that the final amendments make consolidated market data a viable data product for smart order routing, the Commission believes that these changes could induce these broker-dealers to enter the business.[2400] This would have the benefit of increasing competition in the sophisticated order routing broker-dealer business.

The Commission believes that access to this new, faster consolidated market data could encourage new entrants into the automated market maker business. This would not only improve the competitiveness of this business but also may increase liquidity in the corresponding markets.

If these new entrants use a competing consolidator, and if a small latency differential between competing consolidator feeds and the proprietary data feeds remains, then this effect of encouraging new entrants is likely to be small.[2401] If instead these potential new entrants were to become self-aggregators, then this effect of encouraging new entrants is not likely to be small, because the Commission believes that there is unlikely to be a significant latency differential between being a self-aggregator and using proprietary data feeds.[2402] However, if self-aggregation is required to be a new entrant in these businesses, the number of potential new entrants could be small, since using a competing consolidator may be more convenient or less costly than self-aggregating.[2403] It is also possible that potential participants in the sophisticated SOR, automated market making, and other latency sensitive trading businesses may find that they cannot compete effectively without using the data that would remain exclusive to proprietary feeds. To the extent this is the case, the effects discussed above would be further limited.

One commenter stated that the final amendments would create new information asymmetries because of the possibility that competing consolidators could customize their products, which would lead to differences in information between their customers. This commenter stated that this is in contradiction to the claim that information asymmetries will be reduced.[2404] The Commission does not believe that the possibility of a reduction in information asymmetry in the market is negated by the potential for product differentiation by competing consolidators. New consolidated market data, aggregated in a decentralized consolidation model, will present the opportunity for improvement in the quality of market data received today for those market participants capable of exploiting these improvements. These improvements are relative to the exclusive SIP feeds today. For these market participants who can take full advantage of expanded core data and the decentralized consolidation model, the improvements to their utilization of market data are likely to be more significant than the differences that might emerge between competing consolidators product offerings that improve over the current exclusive SIP feeds. Thus, such market participants will represent a reduction in information asymmetries between users of core data and users of proprietary data. On the other hand, the Commission believes that those market participants who elect to use any low cost, or display feed, options offered by competing consolidators are likely to be participants who currently do not make use of sophisticated market data access. Thus, for these market participants,

[2393] *See* Nasdaq Letter IV at 30.

[2394] *See supra* Section V.B.3(d) for a discussion of competition in the market for trading services.

[2395] *See supra* Section V.B.3(b) for a discussion of the market for proprietary data products.

[2396] *See supra* Section V.B.3(d).

[2397] *See* Nasdaq Letter IV at 50.

[2398] One commenter stated that the rule would encourage participation in equity markets. *See* IEX Letter at 9.

[2399] One commenter said it would enhance competition, although not completely eliminate the two-tiered structure of the data market. *See* Virtu Letter at 2.

[2400] These would be broker dealers who have not entered these businesses because, currently, the only way to obtain the benefits associated with the new, expanded core data and decentralized consolidation model is to subscribe to proprietary data feeds.

[2401] *See supra* Section V.B.2(b).

[2402] This is because the Commission believes that self-aggregators will use substantially the same technology and methods to perform the self-aggregation function, including the same vendors for such technology, as are used today by those market participants who aggregate the proprietary data feeds.

[2403] For related discussion on latency advantages, *see supra* note 2391.

[2404] *See* Nasdaq Letter IV at 48.

information asymmetries with respect to latency will be no worse than they are currently, though these market participants may still benefit from the expanded content.[2405]

In addition, many of the differences between competing consolidator products (and their use by market participants) will be driven by differences in what those market participants find most useful for their trading needs, and differences in the ability to process and take advantage of new consolidated market data products distributed by competing consolidators, and these differences exist today.[2406]

One commenter stated that the decentralized consolidation model would exacerbate the differences in advantage and information between market participants and perpetuate a ''multi-tiered'' market structure. The commenter pointed out the likelihood that different competing consolidators would likely develop products with different levels of performance and charge different prices for them. This commenter concluded that this would result in the promotion of even more tiers of separation in market data access than the two tiers separating those who can afford proprietary data and those who cannot.[2407] Commenters also stated the rule would not reduce the difference that currently exists between those who access market data in a fast, sophisticated manner and those who do not. Specifically, these commenters stated that the self-aggregator option available in the final rules will enable the advantages of the fastest users of market data to remain, because these self-aggregators would inevitably have a significant speed advantage over competing consolidators.[2408]

The Commission disagrees with these commenters, and believes that the rule will reduce the differences between existing tiers of market data access, and that the self-aggregator option is essential in producing this outcome. This is because the distinctions between market data access capabilities that exist today are driven by more than just the price and availability of data (as explained further below), and so to the extent such differences remain they will not be a result of these rules. Additionally, the final rules will likely reduce one of the key cost barriers for market participants interested in self-aggregation, thereby reducing the advantage held by those market participants that can afford and choose to pay for it today.

In the context of market data access broadly, there exist many differences in the approaches taken to obtain, process, and use market data.[2409] These differences arise because of differentiation across many aspects of the market data access processes, and the Commission does not expect these differences to go away as a result of these rules. Furthermore (and as explained above [2410]), it is the Commission's understanding that some of these differences exist because the strategies employed by market participants do not all require exactly the same level of sophistication in market data processing to run effectively, as such some participants will be unwilling to change how they consume real time data even if given the opportunity to do so.[2411] What this means is that any discussion of multiple tiers of market data access must be understood within the context of the complex differences in data use across market participants that exist today.

At the same time, there are market participants, within each of the levels of sophistication for market data access described above,[2412] who may be able to significantly improve their ability to compete as a result of the rule, both at their current level of capability and beyond. This is because core data will now be delivered according to the decentralized consolidation model, which introduces an incentive structure that will likely result in improvements to latency; and because core data will now contain additional content.[2413] To the extent that these rules result in greater affordability of high quality market data, firms may find they are able to use the savings obtained from substituting away from proprietary feeds to invest in the technology and personnel necessary to increase the level of sophistication at which they use market data. These investments may take the form of purchasing the highest quality, lowest latency aggregation technology from a competing consolidator (which may be priced at a premium compared to lower performing products) or investing in the infrastructure necessary to self-aggregate.[2414] In either case, market participants have a greater opportunity to improve their quality of market data access, and therefore, the competitiveness at each level of market participation may be increased.

Also, the Commission does not believe that the self-aggregator option will further solidify the advantages held by sophisticated users of market data. To the contrary, the Commission continues to believe that the self-aggregator option assists in promoting the ability of a wider array of market participants to improve their access to market data. The Commission believes that the advantages of self-aggregators today come in part from the significant costs to self-aggregation, which prevent other market participants from becoming self-aggregators themselves and thereby preserves self-aggregators as the only market participants with such high quality information. To the extent that it happens that self-aggregation is necessary in order to obtain the maximum possible latency advantages,[2415] the exclusive advantage this offers will be reduced, because, whereas today one must purchase proprietary data feeds in order to employ this methodology of self-aggregation, under the final rule, the end user can purchase consolidated market data and employ this methodology through the self-aggregator

[2405] *See supra* Section V.C.1 for a discussion of the benefits of the expanded content of core data to market participants.

[2406] *See supra* Section V.B.2(c).

[2407] *See* Nasdaq Letter IV at 8 (''Finally, the Commission ignores the likelihood that different consolidators will provide differing levels of service, replacing an allegedly two-tiered market with a multi-tiered market. Even if multiple competing consolidators end up racing against each other to produce unique or superior data products or to distribute data more quickly, they would likely charge premiums for better products and faster services. If so, whatever concerns the SEC may have now about market participants needing to pay high costs to access the best and fastest data will not be solved by its Proposal; to the contrary, the Proposal would only make this problem worse.'').

[2408] *See, e.g.,* FINRA Letter at 8, NYSE Letter II at 23.

[2409] *See supra* Section V.B.2(c), where additional details of the various approaches are described.

[2410] *See supra* Section V.B.2(c).

[2411] For example, the Commission believes that retail investors have no need for sub-millisecond improvements in latency, but do need timely and complete market data in order to make investment decisions.

[2412] *See supra* Section V.B.2(c).

[2413] Furthermore, the Commission believes it is likely that at least some competing consolidators will provide all core data in their product offerings. *See supra* Section V.C.1(c) for additional discussion of this point.

[2414] It is the Commission's understanding that much of the infrastructure necessary to self-aggregate data today can be purchased from third-party vendors, so that in practice, the experience of purchasing the lowest latency access to consolidated market data may be similar whether the market participant choose to use a competing consolidator or to self-aggregate new consolidated market data.

[2415] *See, e.g.,* NBIM Letter at 4 (''In our experience, therefore, broker/dealers that do not undertake data aggregation in-house, and do not use the fastest connectivity available, will in general not be consistently competitive. This does not preclude using third-party technology to do the data aggregation, as long as it is done in-house to avoid incremental latency.'').

option.[2416] This has the effect of reducing the costs to employ such technology, because the fees for new consolidated market data will likely be lower than the fees for proprietary data. Thus, rather than institutionalizing the advantages enjoyed by current users of the self-aggregation methodology, we expect the self-aggregator option in the decentralized consolidation model will reduce the barriers to entry into this level of market data access for other market participants.

While the final rules will not eliminate levels of sophistication in the utilization of market data, it will likely reduce the cost of moving between levels.[2417] With lower costs to increase sophistication, the information asymmetry between the two tiers of market data access, of those who can afford and choose to purchase proprietary data and those who do not, will be reduced. This may lead to new entrants into the market making, executing broker-dealer, and latency sensitive trading businesses.

One commenter stated that the rule would put ''retail investors who subscribe to a competing consolidator at a disadvantage relative to those traders who can afford to self-aggregate and generate their own 'NBBO' more quickly than retail investors reliant on third parties to obtain the NBBO.'' [2418] The Commission disagrees that retail investors in particular would be put at a disadvantage compared to self-aggregators as a result of the rule. As discussed above,[2419] currently, retail investors typically access the market using display and per quote feeds, which are not competitive in terms of speed with typical market data feeds. Investors who use such feeds understand that it is not possible to compete on speed and make their investment decisions based on other kinds of strategies. Thus, differences measured in microseconds, even if they resulted from this rule, would be meaningless to retail investors at the moment when they are making investment or trading decisions. Furthermore, retail investors, like many professional investors, do not execute their own trades but instead leave that function to their broker-dealer. For example, retail broker-dealers route their customers' orders to exchanges, ATSs, or wholesalers, the latter of which may route the order to the exchanges itself. Once the order has reached such market participants, the execution decisions are made in a much more sophisticated fashion (and microsecond differences matter), but crucially, these players will be able to exploit the fastest competing consolidator or self-aggregator options available on behalf of their retail clients. At this level of market data access, the Commission believes that that market participants will make decisions about what sort of competing consolidator product to use (or whether to self-aggregate) based off of competitive business considerations, that the final rules will make the options available cheaper than today, and that this will all work to the benefit of retail investors when these market participants work on their behalf to execute orders.

(c) Effects From the Interaction With the Consolidated Audit Trail

(i) CAT Baseline

Section 242.613 (Rule 613) of Regulation NMS requires the national securities exchanges and national securities associations (''SROs'') to jointly develop and file with the Commission a national market system plan to create, implement and maintain a consolidated audit trail (''CAT'').[2420] At the time of adoption, and even today, trading data was and is inconsistent across the self-regulatory organizations and certain market activity is difficult to compile because it is not aggregated in one, directly accessible consolidated audit trail system. The goal of Rule 613 was to require the SROs to create a system that provides regulators with more timely access to a sufficiently comprehensive set of trading data, enabling regulators to more efficiently and effectively reconstruct market events, monitor market behavior, and identify and investigate misconduct. Rule 613 thus aims to modernize a reporting infrastructure to oversee the trading activity generated across numerous markets in today's national market system.

On November 15, 2016, the Commission approved the national market system plan required by Rule 613 (''CAT NMS Plan'' or ''Plan'') that was filed by the self-regulatory organizations.[2421] In the CAT NMS Plan, the SROs described the numerous elements they proposed to include in the CAT, including, (1) requirements for the plan processor responsible for building, operating and maintaining the Central Repository,[2422] (2) requirements for the creation and functioning of the Central Repository, (3) requirements applicable to the reporting of CAT Data by SROs and their members. ''CAT Data'' is defined in the CAT NMS Plan as ''data derived from Participant Data, Industry Member Data, SIP Data, and such other data as the Operating Committee may designate as 'CAT Data' from time to time.'' [2423]

The CAT NMS Plan requires SROs and their members to record and report various data regarding orders by 8:00 a.m. the day following an order event.[2424] The Plan requires industry members to record timestamps for order events in millisecond or finer increments with a clock synchronization standard of within 50 milliseconds.[2425] The CAT NMS Plan Processor, FINRA CAT, is then required to process the order data into a uniform format, link the entire lifecycle of each order, and combine it with other CAT Data such as SIP Data.[2426] The Plan Processor is also required to store CAT Data to allow the ability to return results of queries on the status of order books at varying time intervals.[2427] Regulators, such as the Commission and SROs will use the resulting CAT Data only for regulatory purposes such as reconstructing market events, monitoring market behavior, and identifying and investigating misconduct.[2428] At this time, the Commission has little information about what specific data, in addition to CAT Data, such as proprietary depth of book and auction data, the SROs currently intend to include in their enhanced surveillance systems.[2429]

(ii) Economic Effects on CAT

The Commission recognizes that the final rules could affect the Consolidated Audit Trail, resulting in benefits to investors from improved regulatory

[2416] This of course depends on the extent to which the end user finds the content of new core data a viable substitute for proprietary data.

[2417] These costs are the costs discussed in moving along the continuum of market data utilization methods in Section V.B.2(c). Also, market participants may be able to improve their use of market data under the final rules even if they currently utilize proprietary market data, because they may be able to substitute new core data for proprietary data. If they do switch, the likely cost savings they will obtain may enable them to invest in other aspects of the data access process, thereby improving their ability to compete with more sophisticated market participants.

[2418] *See* Nasdaq Letter IV at 41.

[2419] *See supra* Section V.B.2(c).

[2420] *See supra* note 1220.

[2421] *See id.*

[2422] The Central Repository is the repository responsible for the receipt, consolidation, and retention of all information reported to the CAT. *See* CAT NMS Plan, *supra* note 1220, at Section 1.1.

[2423] *See id.* The Operating Committee is the governing body of the CAT NMS Plan.

[2424] *See id.* at Sections 6.3 and 6.4.

[2425] *See id.* at Section 6.8.

[2426] *See id.* at Section 6.5.

[2427] *See id.* at Section 6.5(c)(ii).

[2428] *See id.* at Section 6.5(g); CAT NMS Plan Approval Order, *supra* note 1220, at 84833–34.

[2429] *See* 17 CFR 242.613(f) (Rule 613(f)) of Regulation NMS.

oversight, costs to CAT from potentially switching from a current SIP to a competing consolidator, costs to CAT from integrating consolidated market data into the CAT Data model, and costs to SROs of updating their enhanced surveillance systems to use consolidated market data provided by the CAT.[2430] Specifically, the Plan Processor for the Consolidated Audit Trail, FINRA CAT, is required to incorporate all data from SIPs or pursuant to an NMS plan into the Consolidated Audit Trail. If the Commission were to approve these amendments, the CAT NMS Plan Operating Committee could choose to purchase such data from a different entity and would be required to purchase the expanded consolidated data.

The Commission believes that the incorporation of the expanded data into CAT will improve regulatory oversight to the benefit of investors. As explained in the Approval order for the Consolidated Audit Trail, the expected benefits of the CAT include ''improvements in regulatory activities such as the analysis and reconstruction of market events, in addition to market analysis and research . . . , as well as market surveillance, examinations, investigations, and other enforcement functions,'' and derive from improvements in four data qualities: Accuracy, completeness, accessibility, and timeliness.[2431] Accuracy refers to whether the data about a particular order or trade is correct and reliable. Completeness refers to whether a data source represents all market activity of interest to regulators, and whether the data is sufficiently detailed to provide the information regulators require. Accessibility refers to how the data is stored, how practical it is to assemble, aggregate, and process the data, and whether all appropriate regulators could acquire the data they need. Timeliness refers to when the data is available to regulators and how long it would take to process before it could be used for regulatory analysis.

The Commission believes that the expanded consolidated data from the final rules could improve the completeness and accessibility of CAT Data.[2432] In particular, the final rules will improve the completeness of CAT Data because CAT Data would contain quotes smaller than 100 shares, depth of book information, and auction information. While the CAT will contain query functionality capable of recreating limit order books, the depth of book information will allow regulators to see the displayed order books that others see around the time of the order events. While the Commission does not know if SROs plan to incorporate depth of book and auction information into their enhanced surveillance systems or other regulatory activities using CAT Data, the proposal will improve the accessibility of consolidated market data for SRO and Commission CAT-related uses because SROs would have access to such data in a standardized format through the Consolidated Audit Trail instead of through the variety of formats currently used in proprietary data. The final rules will also improve accessibility because the SROs and Commission would have such data on the same system as CAT Data.

The Commission believes that the improvements in completeness and accessibility would facilitate more efficient regulatory activities using CAT Data that will benefit investors. In particular, the final rules could make broad-based market reconstructions using CAT Data more efficient by increasing the depth of information that could be incorporated into such reconstructions with current CAT Data. The Commission believes that depth of book information, quote information in sizes less than 100 shares, and auction information are all valuable in a broad-based market reconstruction. Further, the improvements would allow for more targeted surveillances and risk-based examinations using current CAT Data. For example, the depth of book information will be valuable when building surveillances to detect spoofing or in investigating spoofing because spoofing often involves creating a false impression of depth at prices outside of the best bid or offer. In addition, the auction information will facilitate auction market reconstruction to evaluate manipulation concerns and inform policy. Quote information in sizes less than 100 shares will facilitate analysis by regulators of broker-dealers' best execution practices by providing potential execution prices that are better than the current NBBO in stocks priced over $250.[2433]

The Commission recognizes that the interaction between the final rules and the Consolidated Audit Trail could also create additional costs. Such additional costs are likely to be borne by SROs and their members. These costs could include switching costs, additional data costs, and data storage and processing costs. The proposal will result in switching costs if the Central Repository has to obtain the data from a different source. The source of the switching costs could be from changing data input formats and technical specifications, which would require one-time implementation costs. The Commission recognizes that the SIP technical specifications change a few times a year such that the switching costs associated with the proposal would be the costs in excess of the regular costs incurred when the SIP technical specifications change.[2434] The Commission at this time, cannot judge whether switching data providers would result in higher or lower on-going data intake costs but data intake costs presumably could be factored into the selection of a competing consolidator. Also, in order to continue to receive certain quotation and transaction data for OTC equities currently included in the SIP feeds, CAT would have to obtain such data from a different source, and would have to incur any associated costs in doing so.[2435] The Commission recognizes that increasing the amount of data managed and analyzed by CAT will increase the costs of data storage and processing to integrate the expanded data with other CAT Data. However, the Commission does not expect the final rules to substantially increase the costs of operating the CAT because any marginal increase in cost associated with consolidated market data will be dwarfed by the processing costs already

[2430] *See supra* Section IV.B.5 for a more detailed discussion of how the proposal would alter the requirements of the Consolidated Audit Trail NMS Plan.

[2431] *See* CAT NMS Plan Approval Order, *supra* note 1220, at 84802–803.

[2432] The Commission believes the final rules will not affect the accuracy or timeliness of CAT Data. The Commission does not believe that the proposal would alter the accuracy of timestamps of trades and quotes. While some competing consolidators might offer data that more accurately represents the data observed by certain market participants at the time of an order event, the Commission does not expect that all market participants would observe the exact same data at that order event, much like the case today. In addition, industry member clock synchronization and timestamps on the order events in CAT Data are not fine enough for the latency improvements to affect the accuracy of assigning an order event to the consolidated market data likely observed at the time of the order event. Finally, the order data in CAT is not required to be reported until 8:00 a.m. the day following an order event. Hence, because latency improvements from the proposal would be measured in microseconds, the Commission does not believe that the final rules will improve the timeliness of CAT Data.

[2433] *See supra* Section V.C.1(b)(i) for data showing that odd-lot quotes in higher priced securities often improve upon the current NBBO.

[2434] *See* CTA, Technical Documents, *available at https://www.ctaplan.com/tech-specs* (last accessed Jan. 30, 2020) (showing the SIP tech specs version history, which identifies the changes over the years); UTP Data Feed Services Specification, *available at http://www.utpplan.com/DOC/UtpBinaryOutputSpec.pdf* (showing the SIP tech specs version history, which identifies the changes over the years).

[2435] *See supra* Sections II.C.2(c) and V.C.1(a) for a discussion of these potential costs.

incurred by CAT, which includes processing for all options quotation activity among other order lifecycle events and is significantly larger in size than consolidated market data.

The Commission recognizes that the final rules will result in SROs incurring costs to integrate additional CAT Data into their surveillances. Even if the SROs would otherwise include depth of book and auction information in the CAT-related surveillances, they would incur costs in changing their surveillances to use the data in CAT rather than using data from proprietary feeds.

The Commission also considered whether the requirements in CAT will impose costs as a result of CAT's effect on the competition among competing consolidators. Because the Commission does not believe CAT will significantly affect the competition among competing consolidators,[2436] it will not impose additional costs resulting from this effect.

The Commission believes that CAT implementation milestones will not be impacted by the final rules given that sufficient lead time will be available and integration efforts could be scheduled as part of standard release planning. The Commission believes that switching market data providers and expanding consolidated market data within CAT will require limited resources relative to the current implementation activities. Further, any resources devoted by SROs to updating their surveillances are separate from the efforts to implement CAT.

(d) Effects on Data Vendors

The Commission believes that the final amendments would have an effect on the broad financial data services industry. To the extent that the amendments lead to cheaper (relative to proprietary data feeds) and higher content consolidated market data products, the Commission expects that costs to data vendors would go down and the ability of such vendors to grow their customer base would increase. It is also possible that data vendors may increase the range and quality of products they offer using the new expanded core data and that new firms enter the data vendor business. To the extent that the risk of price increases for core data is realized instead, the Commission believes these businesses could potentially face higher costs, which when passed on to clients could cause their customer base to shrink. In the event that these outcomes are severe, it is possible that some data vendors could exit the market. The Commission is uncertain about the potential size and scope of these effects because it is unable to determine both the role of these costs in producing the products supplied by the data services industry and the extent to which the enhanced quality of new core data could play a role in the quality of their products.[2437]

D. Impact on Efficiency, Competition, and Capital Formation

1. Efficiency

The Commission believes that the adopted amendments will have a number of different effects on efficiency. In particular, the Commission believes that the amendments will lead to more efficient gains from trade, improve the efficiency of order execution for some market participants, improve price efficiency, and affect how efficiently core data is distributed. The rest of this section discusses these different effects of the amendments on efficiency.

As discussed above, the Commission believes that the expansion of core data under the final amendments would increase transparency for market participants who do not currently access proprietary DOB feeds and allow them to more easily find liquidity that they can trade against.[2438] Currently, some of these market participants may not trade because they cannot see the quotes available to them, either through a lack of information about odd-lots, depth of book, or auction information. The Commission believes that the final amendments will alleviate some of this information shortage and will allow traders to more easily find counterparties. This may result in more voluntary trades occurring between market participants, which could lead to more efficient gains from trade, since these are trades which currently do not take place only because of a lack of information.[2439] However, if the inclusion of additional odd-lot, depth of book, or auction information does not induce additional voluntary trading from market participants who do not currently access proprietary DOB feeds, then the final amendments may not produce more efficient gains from trade.[2440]

The Commission believes that the expansion of core data could also improve the efficiency with which some market participants, or their broker-dealers, execute orders. As discussed above, by adding odd-lot, depth of book, and auction information to core data, the final amendments will reduce information asymmetry between broker-dealers and other market participants who subscribe to proprietary data feeds and users of current SIP data. This could improve the ability of broker-dealers and other market participants who currently do not have access to this information to trade against those market participants who do. As a result, this could improve the efficiency with which they execute their orders by allowing them to select a better trading venue or method of executing their order. Furthermore, for market participants who currently rely on exclusive SIPs for their order executions, the reduction in latency provided by the decentralized consolidation model could reduce the risk that their orders are picked off, which could reduce their adverse selection costs. This could potentially reduce their transaction costs and allow them to more efficiently achieve their investment or trading objectives or those of their clients.[2441]

As discussed previously, the Commission believes that there is some potential for new broker-dealers to become competitive in the market for sophisticated order execution as a result of this rule because they may be able to use the expanded content and lower latency of core data to develop SORs or other tools that allow them to compete more effectively with broker-dealers who currently base order execution decisions off of proprietary DOB data.[2442] To the extent that this happens, the clients of these broker-dealers could see their orders executed more efficiently and their execution costs reduced.

The current lack of certain odd-lot quote, depth of book, and auction information in SIP data could affect price efficiency. The gap in information between data provided by exclusive SIPs and proprietary data products may cause prices in some securities to be less efficient, *i.e.,* to deviate further from fundamental values, if market

[2436] *See infra* Section V.D.2 for a discussion of the interaction between the proposal and CAT on competition among competing consolidators.

[2437] One commenter stated that this information ''should be essential'' to the Commission's analysis. *See* Nasdaq Letter IV at 47. The Commission requested comment on the costs of market data vendors and the effect of new core data on their products and did not receive any. Data vendors are not required to disclose information to the Commission about the costs of their business at a level of detail sufficient to improve the Commission's understanding beyond what is said here. The assertions the Commission does make in this section about the effect of the rule on market data vendors do not depend on this information.

[2438] *See supra* Sections V.C.1(b), V.C.1(c).

[2439] *Id.*

[2440] *Id.*

[2441] *Id.*

[2442] *See supra* Section V.C.4(b).

participants with access to proprietary data products do not incorporate this information into prices quickly enough through their trading or quoting activity. However, the Commission does not know the extent of this possible effect, but it believes the effect could be larger in less actively traded securities where the gap in information between SIP data and proprietary data products is larger.

The Commission believes that, to the extent that there is information in the new core data elements that is not currently reflected in market prices, the final amendments may improve price efficiency.[2443] In particular, the introduction of odd-lot quote, depth of book, and auction information into core data could result in the information becoming impounded in prices more rapidly and accurately as a result of the more widespread dissemination of this information. As the Commission understands that the most sophisticated traders already have access to this information and likely already compete to profit from it, the Commission expects that the size of this gain in price efficiency would be small because this information is already impounded quickly into prices.

Finally, under the current rule, the exclusive SIPs operate like public utilities in their consolidation and distribution of the NMS stock data.[2444] The changes will unbundle the data fees for consolidated market data from the fees for its consolidation and distribution.[2445] The decentralized consolidation model will subject the fees charged by competing consolidators for the consolidation and distribution of consolidated market data to competition. The Commission believes that the decentralized consolidation model will lead to consolidated market data being distributed in a timelier, efficient, and cost-effective manner. The Commission believes that the changes to the consolidation and distribution of consolidated data is economically similar to the restructuring of public utilities and may have an impact on the efficiency with which the consolidation and distribution is carried out. In particular, as discussed above, the decentralized consolidation model is anticipated to produce better investment to lower costs and improve quality in the consolidation and distribution of consolidated market data, as well as promote better price competition (all of which translates into a more efficient allocation of capital) than the bidding process currently in place.[2446]

The Commission acknowledges the uncertainty in this conclusion.[2447] The literature on the economics of restructuring public utilities does not provide clear guidance. Some papers show efficiency gains from regulatory restructuring,[2448] yet others claim no efficiency gains or efficiency declines after regulatory restructuring of public utilities.[2449] The likely impact of the adopted changes rests on the strengths and weaknesses of the existing exclusive SIP model.

The Commission believes that the existing exclusive SIP model has an important weakness: It does not provide sufficient competitive incentives.[2450] SIPs have significant market power in the market for core and aggregated market data products and, as a result, do not need to compete to capture demand for their products. The Commission believes that the adoption of the decentralized consolidation model will open up the consolidation and distribution services to data consolidators that will need to vigorously compete to capture some demand for the data they provide. This need to compete for market share will create incentives to reduce costs. As discussed above, the Commission believes that this competition could incentivize competing consolidators to pass on some of those cost savings to customers by charging lower service fees in order to capture market share.[2451] The focus to capture market share might also lead to technological improvements for competing consolidators to be able to differentiate themselves in the eyes of the customers and generate demand.[2452] The Commission believes that these improvements in data provision technology and the introduction of competitive forces on fees for the consolidation and distribution of consolidated market data could result in a more efficient allocation of capital.

Additionally, the decentralized consolidation model could allow market participants to receive consolidated market data more efficiently. Instead of having to receive separate consolidated market data feeds from two exclusive SIP plan processors, UTP and CTA/CQ Plans, market participants will have the option to receive all of their consolidated market data from one competing consolidator.[2453] This could allow market participants to achieve efficiencies in the design and in making modifications to their systems for the intake of consolidated market data because they will only have to configure their systems to intake consolidated market data from one source.

2. Competition

As discussed previously, the Commission believes this rule will have a substantial impact on competition. The Commission identifies seven markets or areas of the market for which the rule would have a substantial impact on competition. The Commission acknowledges that the seven markets or areas may not be a comprehensive list of all markets or areas for which the rule might have an impact on competition. However, the Commission believes that competition in these seven markets or areas are most likely to be impacted substantially by this rule.

[2443] *See supra* Section V.B.2(a).

[2444] *See* Proposing Release, 85 FR at n. 390.

[2445] *See supra* Section V.C.2(c).

[2446] *See id.*

[2447] One commenter stated that this information ''should be essential'' to the Commission's analysis. *See* Nasdaq Letter IV Letter at 47. The Commission continues believe there is uncertainty in its conclusion, but does not believe this precludes the conclusion entirely.

[2448] *See, e.g.,* Kira R. Fabrizio et al., Do Markets Reduce Costs? Assessing the Impact of Regulatory Restructuring on US Electric Generation Efficiency, 97 Am. Econ. Rev. 1250 (2007).

[2449] *See, e.g.,* Severin Borenstein, *The Trouble with Electricity Markets: Understanding California's Restructuring Disaster,* 16 J. Econ. Persp. 191 (2002).

[2450] *See supra* Section V.B.3(a) discussing SIPs market power.

[2451] *See supra* Section V.C.2(b). However, the Commission also acknowledges the possibility that fees for the consolidation and distribution of consolidated market data may remain the same or increase, because consolidated market data will contain more information and/or there might not be enough competition among competing consolidators.

[2452] Several studies found evidence of efficiency gains and technological improvements from restructuring in the public utilities sector. In the electricity industry, for example, the introduction of competition to the electricity generation services created strong incentives to become more cost efficient and technologically advanced to improve operating performance. If a plant could not become efficient enough to compete, it would lose business and have to exit the market. Craig and Savage (2013) establish a 9% increase in efficiency in investor-owned electricity plants in response to the restructuring and increasing competition in the electricity sector. Similarly, Davis and Wolfram (2012) argue that electricity market restructuring is associated with a 10 percent increase in operating performance for nuclear plants generating electricity. The authors state that increasing competition led to managers focusing more attention on financial costs of outages. *See* J. Dean Craig and Scott J. Savage, *Market Restructuring, Competition and the Efficiency of Electricity Generation: Plant-level Evidence from the United States 1996 to 2006,* 34 Energy J. 1 (2013); Lucas W. Davis and Catherine D. Wolfram, *Deregulation, Consolidation, and Efficiency: Evidence from US Nuclear Power,* Am. Econ. J. Applied Econ. 194 (2012).

[2453] The Commission acknowledges that market participants may subscribe to more than one competing consolidator for different core data products or as a backup feed.

First, the adopted rule fosters a competitive environment for the consolidation and dissemination of consolidated market data to replace the centralized consolidation model, which is not currently subject to competitive pressures.[2454] Under the final amendments multiple competing consolidators will be able to distribute consolidated market data products to market participants. The Commission believes that, since market participants could freely select the competing consolidator that charged the lowest distribution fee or offered better quality (*i.e.,* lower latency, a more reliable system), the competing consolidators will be subject to competitive forces and the marketplace for the consolidation and dissemination of consolidated market data products will be competitive if enough competing consolidators enter the market.[2455] As discussed above, the Commission believes that this introduction of competition could reduce the prices competing consolidators charge for the consolidation and distribution of consolidated market data products and improve the quality of consolidated market access.[2456] The Commission recognizes the risk that there could be too few competing consolidators to realize these benefits fully, in which case the adopted competitive changes may have a number of costs,[2457] including higher prices for the consolidation and dissemination of consolidated market data products, which could increase the overall prices market participants pay for consolidated market data.[2458]

One commenter stated that the above characterization of the effects of the amendments on competition represented a ''false dichotomy'' because the current marketplace already has competition in the form of competing exchanges, and notes that the Commission failed to analyze a comparison with this feature.[2459] This commenter stated that exchanges compete for order flow, and that the sale of proprietary data products is part of this competition, which offers trading services and data in return for the ''all-in costs'' of trading. This commenter stated that since exchanges compete for order flow, it is incorrect for the Commission to say that there is no competition today, and that there will be competition after the final amendments are implemented. The Commission disagrees that the above characterization is a false dichotomy. The market for the consolidation and dissemination of core data today does not have competition, but rather, exclusive processors in the form of the exclusive SIPs, from which all core data must originate.[2460] Because the final amendments are designed to expand the content and improve the dissemination of core data, the appropriate comparison is to the manner in which core data is processed today, not to the competition between exchanges for trading services.

The Commission recognizes that Rule 614(d)(9) and the addition of the definition of SCI competing consolidator to Regulation SCI could impact competitive dynamics in the competing consolidator market. If the exclusive SIPs become competing consolidators, they could gain a competitive advantage over other competing consolidators with respect to Regulation SCI compliance because they would face lower barriers to entry since they are currently SCI entities and already incur many of these costs.[2461] Comparatively, the Commission believes the costs associated with Rule 614(d)(9), along with the costs associated with later potentially being an SCI competing consolidator, could raise the barriers to entry for firms seeking to become competing consolidators who are not already exclusive SIPs.[2462] Therefore, Rule 614(d)(9) and the addition of the definition of SCI competing consolidator to Regulation SCI could result in fewer firms seeking to become competing consolidators, which could lead to less competition in the competing consolidator market. Less competition and less innovation would reduce the incentives of competing consolidators to reduce the costs and improve the speed and quality of their consolidated market data aggregation and dissemination services. Additionally, after the initial transition period, the Commission believes that the lower burdens associated with Rule 614(d)(9) could potentially give a competing consolidator below the SCI competing consolidator threshold a competitive advantage over SCI competing consolidators because it would have lower compliance costs. However, the Commission does not believe that this competitive advantage will be significant because a competing consolidator with market share below the threshold that gained market share would become an SCI competing consolidator after it crossed the threshold.

The limited exemptive relief from the rule filing requirements of Section 19(b) of the Exchange Act and Rule 19b–4 thereunder, Section 19(d), the requirements of Section 6(b), and from Regulation SCI provided to competing consolidators affiliated with exchanges will reduce the regulatory burdens that would otherwise be faced by such an entity in becoming a competing consolidator.[2463] As a result, SROs and their affiliates may find it less burdensome to operate a competing consolidator, and therefore may be more likely to enter the market, which will promote competition in the provision of consolidated market data.

Additionally, the Commission believes that the public disclosure of the information in Form CC and the performance metrics and operational information competing consolidators will provide on their websites would enhance competition between competing consolidators.[2464] The public disclosure of competing consolidator fees and performance metrics will allow market participants to more easily compare competing consolidators and select the ones that charged the lowest fees or offered the best performance. This could enhance competition between competing consolidators. For example, if the public disclosures show that certain competing consolidators have higher fees or poor performance, it may result in those competing consolidators losing subscribers and earning lower revenues. Similarly, competing consolidators who display lower prices or superior system performance may be able to attract more subscribers and earn more revenue. This, in turn, could enhance

[2454] *See supra* Section V.B.3(a).

[2455] The Commission assumes that enough competing consolidators will enter the market in order to make it competitive. *See supra* Section V.C.2(a).

[2456] *See supra* Sections V.C.2(a); V.C.2(b); V.C.2(c).

[2457] *See supra* Sections V.C.2(a); V.C.2(d).

[2458] *See supra* Section V.C.2(a).

[2459] *See* Nasdaq Letter IV at 48. *See also* Nasdaq Letter IV at 32, describing proprietary data products as competitive.

[2460] *See supra* Section V.B.3(a) (discussing the exclusive nature of the SIP processors).

[2461] *See supra* Section V.C.2(e)(ii) for a discussion of costs related to Regulation SCI and Rule 614(d)(9). *See supra* Section V.C.2(a)(i)a for additional discussion of other factors affecting the barriers to entry for competing consolidators.

[2462] SROs that do not operate an exclusive SIP could also be at a competitive disadvantage relative to an SRO that operates an exclusive SIP that became a competing consolidator, because they would face higher initial SCI related costs than an exclusive SIP would if it became a competing consolidator. *See supra* Section VI.C.2(a)(i)b.; *supra* Section V.C.2(e)(ii).

[2463] The Commission believes that competing consolidators affiliated with exchanges will choose to operate under the provisions of the exemption. *See supra* Section V.C.2(a)(i)a for additional discussion of the impact of the limited exemptive relief on barriers to entry.

[2464] *See supra* Section V.C.3.

competition by incentivizing competing consolidators to lower fees and/or innovate and make investments in their systems in order to improve system performance in order to attract more subscribers. The Commission acknowledges that the public disclosure of Form CC could harm competition by making firms reluctant to enter the competing consolidator market and reducing the incentives of competing consolidators to innovate if it discloses certain information that a competing consolidator might view as a ''trade secret'' or giving it a competitive advantage. However, the Commission believes that these effects are not likely to occur because the disclosures on Form CC are not detailed enough to allow other market participants to reproduce a competing consolidator's ''trade secret.'' [2465] Additionally, the delayed public disclosure of material amendments to Form CC should prevent another competing consolidator from replicating a competing consolidator's innovations before it has a chance to implement them.[2466]

The Commission recognizes that the registration process for Form CC could create uncertainty about whether a Form CC would be declared ineffective. This could potentially harm competition in the market for competing consolidators by raising the barriers to entry and creating a disincentive for entities to become competing consolidators. However, the Commission believes that these effects will not be significant because the Commission will not declare a Form CC ineffective without notice and opportunity for hearing. Additionally, entities whose Form CC is declared ineffective will still have the opportunity to file a new Form CC with the Commission.

The Commission considered the effect of the interaction between the proposal and the CAT NMS Plan on competition among competing consolidators, but believes that this interaction will not have a significant effect on the competitive landscape. In particular, the Commission considered two effects: First, the effect in the event that there is a bias toward an exchange-operated competing consolidator over other competing consolidators and second, any competitive advantage for the competing consolidator selected for the CAT NMS Plan. In relation to any bias, the Commission notes that the CAT NMS Plan will be only one of many potential customers of the competing consolidator, so this bias is not likely to affect the market unless the selection produces a competitive advantage. In particular, a competing consolidator could enjoy a competitive advantage only if broker-dealers believe that market surveillances would be less likely to appear to show violations if the broker-dealers made trading decisions using the same data used in SRO surveillances. However, the latency differences across the competing consolidators are likely to measure in the microseconds while the clock synchronization requirements for industry members in the CAT NMS Plan is 50 milliseconds for electronic order flow.[2467] Therefore, the Commission does not believe the CAT's choice of competing consolidator will confer any regulatory value on the competing consolidator or their broker dealer clients.

Second, the Commission believes that the expanded content and reduced latency of consolidated market data will make it a more viable substitute for proprietary data feeds.[2468] The Commission believes that this will increase competition between consolidated market data and exchange proprietary data feeds. These competitive pressures could lead to lower prices for proprietary data feeds and may reduce the data costs that market participants pay, at the expense of the SROs who charge the fees.[2469] The Commission recognizes the risk that Rule 614(d)(9) and the extension of Regulation SCI to include competing consolidators could lead to less competition in the competing consolidator market,[2470] which could reduce the incentives of competing consolidators to reduce the cost and improve the speed and quality of consolidated market data. However, the Commission believes that the risk that there will be insufficient competition among competing consolidators is low.[2471] To the extent there is not sufficient competition among competing consolidators, it could make consolidated market data less of a viable substitute for proprietary data feeds, which would reduce the competitive pressures consolidated market data would impose on proprietary data feeds.

Third, the Commission expects the new decentralized consolidation model for consolidated market data to create competitors to market data aggregators for two reasons. First, the potential revenues from becoming a competing consolidator may cause new firms to enter the market for the consolidation and distribution of market data. Second, some market participants who currently use market data aggregators that do not choose to become competing consolidators may switch to getting consolidated market data products from a competing consolidator. This could have two effects: The competition could lead to lower prices and higher quality in the market data aggregator business, but it could also lead to fewer market data aggregators if the competition from the consolidated market data system makes it no longer viable for some market data aggregators to offer their services to market participants who still wish to use proprietary data feeds.[2472] The latter could lead to higher prices in the market data aggregator space.[2473] In addition, some of these market data aggregators may choose to become competing consolidators, which could have two effects: It could cause market data aggregators to leave the proprietary feed aggregation space thereby reducing the competition in that space, or it could cause market data aggregators to use the economies of scale and the additional profits they may derive from being a competing consolidator to improve their offerings as a market data aggregator of proprietary feeds. Depending on which effect dominates, competition in the market data aggregator space could increase or decrease, which in turn could lead to lower or higher prices, respectively. The Commission recognizes that subjecting competing consolidators that fall above the market data revenue threshold to the requirements of Regulation SCI could diminish the ability of market data aggregators who become SCI competing consolidators to compete in the market

[2465] *See supra* Section III.C.8(e)(ii) for additional discussion about Form CC disclosures.

[2466] *See supra* Sections III.C.7, V.C.3.

[2467] *See* CAT NMS Plan, *supra* note 1220, at Section 6.8.

[2468] However, consolidated market data would not be a perfect substitute for the proprietary data feeds because it would not contain all the information in proprietary data feeds. For example, the expanded core data would not include full depth of book information or information on all odd-lots. *See supra* Section V.C.4.

[2469] *See supra* Section V.C.4(a).

[2470] For discussion of Regulation SCI requirements on competition, *see supra* Section V.C.2(a)(i)a.

[2471] *See supra* Section V.C.2(a)(ii).

[2472] The Commission acknowledges that fewer competitors could decrease or increase efficiency in the market data aggregator business. On the one hand, fewer competitors could reduce the incentives for market data aggregators to innovate, which could reduce efficiency. On the other hand, fewer competitors could also improve efficiency if the firms that exited the market did not aggregate market data as efficiently as the firms that remained.

[2473] As discussed above, consolidated market data would not be a perfect substitute for proprietary data feeds, so there would still be demand for proprietary data. Since not all firms' aggregate proprietary data themselves, there would still be a demand for third-party aggregators to perform this function.

data aggregator space.[2474] If a market data aggregator becomes an SCI competing consolidator, the requirements of being an SCI entity could also extend to their aggregation of proprietary market data.[2475] These requirements could raise their costs, which could reduce their ability to compete with other market data aggregators that are not competing consolidators.

Fourth, the Commission expects that the expanded content and reduced latency of core market data provided by this final rule may increase competition in the broker-dealer business by improving the ability of some broker-dealers who currently access core data to execute orders.[2476] It is the Commission's understanding that some broker-dealers that do not subscribe to all of the current proprietary DOB feeds rely solely on the exclusive SIPs today and that this makes them uncompetitive in the market for offering execution services to the most transaction-cost-sensitive market participants. The new decentralized consolidation model with expanded core data will reduce the latency and expand the information delivered to broker-dealers who subscribe to core data, possibly without raising data prices. This in turn would allow broker-dealers that subscribe to consolidated data to improve their order execution services and compete more effectively with broker-dealers who subscribe to proprietary DOB feeds. This will lead to greater competition between broker-dealers, which could benefit investors by resulting in lower prices for and higher quality of broker-dealer execution services.[2477]

Fifth, the Commission believes that the final rule could affect competition between exchanges. As discussed above, the final enhancements to core data could increase competition between consolidated market data and proprietary data feeds, which could lead to exchanges charging lower fees for proprietary market data.[2478] If these lower fees do not result in more subscribers to proprietary market data, it would lead to a decline in revenues from proprietary market data for SROs.[2479] Additionally, the amendments could affect competition in the market for exchange data connectivity. If some current subscribers to proprietary market data decide to only receive consolidated market data products from competing consolidators, they could also reduce the exchange connectivity services that they currently use. In turn, this could reduce the revenue that some exchanges earn from connectivity services. Additionally, new connectivity fees may be proposed for core data use cases, which could potentially increase or decrease the revenue exchanges earn from connectivity.[2480] It is the Commission's understanding that revenues from proprietary market data and connectivity services are a substantial portion of overall revenues for many exchanges.[2481] It is also the case that changes to the fees set by the effective national market system plan(s) for consolidated market data may result in lower revenues redistributed back to the exchanges, further contributing to a loss of revenue. It is possible that an exchange group could close some or all of its exchanges if the revenues from consolidated market data did not increase and revenues from proprietary market data and connectivity services were to decline to a level that a given exchange or exchange group is no longer able to cover operating expenses. The Commission is unable to quantify the likelihood that an exchange will cease operating because it would depend on the fees and revenue allocation for consolidated market data. However, the Commission believes that it is unlikely exchanges will be forced to leave the market.

Even if an exchange were to exit, the Commission does not believe this would significantly impact competition in the market for trading services because the market is served by multiple competitors, including off-exchange trading venues. Consequently, if an exchange were to exit the market, demand is likely to be swiftly met by existing competitors. The Commission recognizes that small exchanges may have unique business models that are not currently offered by competitors, but the Commission believes a competitor could create similar business models if demand were adequate, and if they did not do so, it seems likely new entrants would do so if demand were sufficient.

One commenter stated that exchanges might be forced to increase fees for trading services in order to offset losses that might result from changes to core data fees.[2482] The Commission does not believe that the final amendments are likely to result in an increase in trading service fees, because losing revenue does not necessarily make it optimal for a firm to increase its fees. The Commission has discussed this point in the context of lost revenue specifically in proprietary data fees above,[2483] and believes that the same logic applies to the case of lost revenue from changes to core data fees as well.

A commenter stated that the Commission did not consider the impact of ''changes to market data fees'' on SRO funding.[2484] The Commission acknowledges that if NMS data plan fees change such that revenue to SROs decline, then this could be an additional source of revenue loss to SROs from this rule. This would be in addition to the loss in proprietary data and connectivity discussed here, and the Commission believes the above discussion of the consequences of such losses, which was included in the Proposing Release,[2485] adequately analyzes the potential effects of SROs losing revenue, including from effective national market system plan data revenue. Furthermore, in response to this commenter's concern that the Commission does not recognize that there will be a ''reduction in funding from proprietary feeds,'' [2486] this discussion of the effect of the loss of proprietary data revenue above, which was included in the Proposing Release,[2487] analyzes such possibilities and their effects.

A commenter stated that the Commission failed to consider the possibility that SROs would be unable to perform their regulatory responsibilities if they were to lose revenue as a result of these final amendments.[2488] The Commission believes that this possibility is covered in the above discussion, which was included in the Proposing Release,[2489] through the discussion of the potential for exchanges to exit.

Sixth, the Commission believes that the final rule will affect competition

[2474] *See supra* Section III.F.

[2475] *See supra* Section V.C.2(e)(ii).

[2476] *See supra* Section V.C.4(b).

[2477] *See supra* Sections V.B.3(e), V.C.4(b).

[2478] *See supra* Section V.C.4(a). One commenter stated that it was ''not clear how such competition could occur, given that the Proposal is to authorize the NMS Plan to set all fees, including fees for proprietary data products, which contain core data.'' *See* Nasdaq Letter IV at 48. The amendments do not authorize the effective national market system plan(s) to set fees for proprietary data products, but instead for the data content underlying consolidated market data.

[2479] In addition to adjusting fees, SROs could also redesign their proprietary market data product lines to try and increase revenue. However, it is possible that demand for these new products would not be sufficient to offset the decline in revenues from proprietary market data.

[2480] *See supra* Section V.C.4(a).

[2481] *See supra* Section V.B.3(b).

[2482] *See, e.g.,* Nasdaq Letter IV at 4.

[2483] *See supra* Section V.C.4(a) for additional discussion of the potential for trading fees to increase.

[2484] *See* NYSE Letter II at 22.

[2485] *See* Proposing Release, 85 FR at 16860.

[2486] *See* NYSE Letter II ant 22.

[2487] *See* Proposing Release, 85 FR at 16860.

[2488] *See* Nasdaq Letter IV at 50.

[2489] *See* Proposing Release, 85 FR at 16860.

between traders.[2490] The Commission believes that traders will be affected differently based on the type of market data they use when making trading decisions. For the purposes of this discussion, traders who subscribe to different types of market data can broadly be grouped into three categories: (1) Traders who use proprietary DOB feeds received directly from the SROs and self-aggregate, (2) traders who use market data aggregators to aggregate proprietary DOB feeds, and (3) traders who use core data (currently from the exclusive SIPs and, under the final rule, competing consolidators).[2491] The Commission believes that under the final rule the core data would be of higher quality, and thus the value to traders from acquiring proprietary DOB data would decrease.[2492] As a result, it might be harder for traders who use proprietary DOB feeds (both self-aggregators and traders who use market data aggregators) to generate profits and the competition between those traders would increase. For traders who use core data, the Commission believes that the competition between those traders will increase because the final amendments will reduce the latency and expand the information included in core data, which will allow those traders to devise better trading strategies with bigger profit potential. The Commission believes that the most substantial change in competition will occur between traders who use proprietary DOB feeds (both self-aggregators and traders who use market data aggregators) and traders who use core data. As described, the final rule expands the information and reduces the latency of core data, thereby closing the gap between core data and proprietary DOB feeds. This will allow traders who use core data to compete on a more level playing field with traders who use proprietary DOB feeds. This will lead to a transfer of profits from traders who use proprietary DOB feeds to traders who use consolidated market data.

Seventh, the Commission believes that the rule changes will affect competition between off-exchange trading venues and exchanges in the market for trading services. As discussed above, the Commission believes that the amendments will reduce the latency of core data.[2493] This could improve the competitive positions of some off-exchange trading venues in the market for trading services. Off-exchange trading venues that currently rely on the exclusive SIPs to calculate the NBBO will benefit from the latency reductions in the distribution of core data provided by the competing consolidators.[2494] These venues will now receive a more timely view of the NBBO, which could improve the execution quality of trades that take place on these venues. This could make them more attractive venues to trade on and they could attract more order flow, from both exchanges and other off-exchange venues. Off-exchange trading venues that currently subscribe to proprietary data feeds could also see their competitive positions improve. If the new core data represents an alternative to the proprietary data feeds for their order executions, they could substitute core data for proprietary data, which could lower their costs. Off-exchange trading venues might be able to pass along these cost reductions as reduced fees to subscribers, which could improve their competitive position relative to exchanges and other off-exchange trading venues. Reductions in the fees charged by these off-exchange trading venues could in turn potentially benefit investors if broker-dealers who subscribe to these venues passed along these cost savings by, in turn, reducing their fees.[2495]

3. Capital Formation

The Commission believes the final rule will have a modest impact on capital formation. However, the Commission is unable to quantify the effects on capital formation because, as discussed above, it is unable to quantify the additional gains from trade and the effects of improvements in order routing that may be realized from the rule.[2496] However, in the section below the Commission provides a qualitative description of the effects it believes the rule will have on capital formation.

As discussed above, the Commission believes that the addition of information about odd-lot quotes, depth of book, and auction information to core data may result in more voluntary trades occurring between market participants, which could lead to more efficient gains from trade.[2497] Improved gains from trade may result in a more efficient allocation of capital, which would improve capital formation.

Additionally, the Commission believes that the final amendments will improve order execution for market participants who currently rely upon SIP data, which may lower their transaction costs.[2498] Lower transaction costs could reduce firms' cost of raising capital.[2499] This, in turn could improve capital formation.

E. Alternatives

The Commission considered potential alternatives to the adopted rules that broadly fall into two categories: Introduce the decentralized consolidation model and make alternative changes to the core data definition, and maintain the new core data definition in the adopted rules and consider alternative models of SIP competition.

1. Introduce Decentralized Consolidation Model With Addition of Full Depth of Book to Core Data Definition

The Commission considered an alternative that would introduce the decentralized consolidation model and expand core data more than the adopted rules to include information on quotations and aggregate size at all prices in the limit order book (''full depth of book''), including information on aggregated odd-lot sizes at each depth of book level, instead of the depth of book information contained in the adopted rule, *i.e.,* five round lot price levels from the NBBO.[2500] Under this alternative, the definition of a round lot would remain the same as in the adopted rules, which means the costs and benefits associated with the changes in the round lot definition, including changes in the NBBO would be similar to the adopted rule.[2501]

Relative to the adopted rule, full depth of book information would provide market participants who currently do not access proprietary DOB feeds, as well as market participants

[2490] In this context the term traders could refer to either proprietary traders executing orders on their own behalf or broker-dealers executing orders on behalf of their customers.

[2491] Traders who currently subscribe to proprietary DOB feeds may also subscribe to the exclusive SIPs as part of their backup systems. However, the Commission believes that these traders primarily rely on proprietary DOB feeds when making trading decisions because proprietary DOB feeds contain more information and have lower latency than the exclusive SIPs. For additional details and discussion about methods of market data access, *see supra* Section V.B.2(c).

[2492] *See supra* Section V.C.4(a).

[2493] *See supra* Section V.C.2(c).

[2494] *Id.*

[2495] Broker-dealer subscribers could potentially pass along the cost savings from the reduction in off-exchange trading venue fees to investors either directly, if they reduced fees for investors who were clients of the broker-dealer, or indirectly, if they reduced fees for institutional clients, such as mutual funds, who, in turn, passed along the cost savings to their end investors.

[2496] *See supra* Sections V.C.1(b), V.C.1(c), V.D.1.

[2497] *See supra* Section V.D.1.

[2498] *See supra* Sections V.C.1(b), V.C.1(c), V.D.1.

[2499] *See* Yakov Amihud and Haim Mendelson, *Asset Pricing and the Bid—Ask Spread,* 17 J. Fin. Econ. 223 (1986).

[2500] *See supra* Section II.F.1.

[2501] *See supra* Section II.D.

who currently access proprietary DOB feeds and would have switched to using consolidated market data under the adopted rule, with additional information on liquidity provision across more price levels. To the extent that these market participants can utilize full depth of book information, the Commission believes that this alternative could result in increased benefits to such market participants relative to the adopted rule.[2502] Certain commenters on the Roundtable stated that without full depth of book information, broker-dealers may not be able to provide best execution to their clients,[2503] indicating that full depth of book information would provide valuable information to market participants. However, as discussed above, the Commission believes that the marginal benefit of including additional information on price levels further away from the best quotes may decrease as the price level moves away from the best quote because orders at these price levels are less likely to execute.[2504]

Relative to the adopted rules, the inclusion of full depth of book information in core data would increase the ability of market participants to use it as a substitute for proprietary DOB feeds.[2505] Currently, market participants interested in full depth of book data rely on proprietary DOB feeds offered by exchanges, which provide varying degrees of the depth of book information. To the extent that there are market participants who utilize full depth of book information via proprietary DOB feeds in trading, this alternative could increase the benefits for some of these market participants relative to the adopted rules by potentially reducing their data costs if they would switch to using core data under this alternative but would not have done so under the adopted rules. Subscribers of proprietary DOB feeds would realize these cost savings if they switched to receiving consolidated market data through a competing consolidator product or if they registered as a self-aggregator.[2506]

The Commission believes that the alternative to include full depth of the book in core data would result in greater costs for exchanges than would the adopted rules. To the extent that the alternative results in fewer market participants subscribing to proprietary DOB data or purchasing connectivity services from the exchanges than under the adopted rules, exchanges' business for their proprietary feeds and connectivity services could be less profitable.[2507] Additionally, to the extent that not all exchanges sell full depth of book, certain exchanges would incur additional costs to set up systems and produce full depth of book information to be included in the core data. However, the Commission is unable to quantify this cost because it lacks information on the modifications exchanges would need to make to their systems in order to provide full depth of book information.

Compared to the adopted amendments, this alternative could result in additional costs for competing consolidators to create infrastructure and expand capacity to distribute full depth of book information.[2508] The costs are likely to vary substantially according to the existing infrastructure of the entity seeking to be a competing consolidator. The Commission believes that these incremental costs for market data aggregators and existing exclusive SIPs will be small, because they already work with proprietary DOB data.

Additionally, including full depth of book information would require market participants who subscribed to core data and wished to receive the additional depth of book information to make more extensive upgrades to their systems than under the adopted rules. However, the Commission is unable to estimate the associated costs because it does not have access to information about the infrastructure expenses a market participant incurs to process market data and because of the likelihood that such costs vary substantially according to the existing infrastructure of the market participant. To the extent that some market participants who subscribe to the exclusive SIPs do not need full depth of book information, they would not need to expand their own proprietary technology or that of a third-party vendor to process the full depth of the book data. Therefore, this alternative would not result in additional costs for these market participants compared to the adopted rules.

2. Introduce Changes in Core Data and Introduce a Distributed SIP Model

The Commission considered an alternative that would expand the core data as proposed and would introduce a distributed SIP model whereby the current exclusive SIP processors would establish multiple instances of their systems in multiple data centers.[2509] As the Roundtable panelists [2510] stated this alternative would achieve a similar reduction in exclusive SIP geographic latency to the adopted rule by allowing firms to consume data under the current structure without making any changes or to consume data at the nearest exclusive SIP instance depending on the firms' latency concerns.[2511] However, this alternative would still provide exclusive rights to one operator to provide exclusive SIP services for a given tape.

The Commission believes that this alternative would produce lower benefits compared to the decentralized consolidation model.[2512] The Commission believes that under this alternative, the exclusive SIPs would not be subject to the same competitive forces that competing consolidators may be subject to under the decentralized consolidation model.[2513] This lack of competition would reduce the incentives to innovate and would not improve efficiency or reduce the transmission and aggregation latencies of core data as much as the proposal. If core data does not achieve the same overall latency reduction as under the adopted rule, then market participants would be less likely to substitute using core data for proprietary data than they would be under the adopted rule. This could mean that the potential decline in profits from exchanges' proprietary data

[2502] This alternative could increase costs relative to the adopted rule for market participants that access full depth of book information and execute trading that earn profits at the expense of other market participants who do not access this information. As discussed above, this cost would represent a partial transfer from traders who currently have access to depth of book to those who do not. *See supra* Section V.C.1(c)(iv).

[2503] *See* Proposing Release, 85 FR at n. 284–85.

[2504] *See supra* Section V.C.1(c)(ii).

[2505] Including full depth of book information in core data would not make it a perfect substitute for all proprietary DOB feeds. For example, some proprietary DOB feeds contain more detailed information than full depth of information, such as messages on individual orders.

[2506] *See supra* Section V.C.2(b).

[2507] More broadly, this could have differential effects between exchanges who derive significant revenue from proprietary data feeds and those who derive significant revenue primarily from SIP revenue. These effects would also depend on the effective national market system plan(s) fees for consolidated market data offerings as well as their method for allocating revenue received from consolidated market data among the SROs. *See supra* Section V.C.4(a).

[2508] *See supra* Section V.C.2(d).

[2509] *See also* Proposing Release, 85 FR at Section IV.C.2 for a discussion about a single SIP alternative.

[2510] *See* Proposing Release, 85 FR at Section IV.C.1(a).

[2511] Several commenters agreed. *See, e.g.,* NYSE Letter II at 26; Nasdaq IV Letter at 36, 49; Cboe Letter at 25 for a discussion on the advantages of the distributed SIP alternative and how the commenters believe the Commission did not properly consider it.

[2512] *See supra* Section V.C.2(c). *See also* Proposing Release, 85 FR at Section IV.C.1.

[2513] One commenter agreed. *See* MEMX Letter at 8. *See also supra* Sections V.C.2, V.D.2.

fees may not be as large as they would be under the proposal.[2514]

Under this alternative, the exclusive SIPs would still need to make upgrades to their systems to account for the expansion of core data and would still need to install systems in multiple data centers. The Commission believes that the costs of these SIP system upgrades would be similar to those under the adopted rule for the exclusive SIPs that registers to become a competing consolidator.[2515] However, under this alternative, market participants may experience higher costs to access consolidated market data compared to the adopted rule. Instead of having the option to receive all consolidated market data from one competing consolidator, as they would under the adopted rule, market participants would still need to receive data from both exclusive SIP plan processors.[2516] This means that under this alternative, the total price market participants would pay to access consolidated market data may be greater than under the adopted rule because it would include the costs of the two plan processors to aggregate and transmit the data. Under the adopted rule, the total price market participants would pay to receive consolidated market data may only include the costs of one processor, because market participants would have the option to receive all of their consolidated market data products from one competing consolidator.[2517]

One commenter stated that the Commission relies on a limited set of information when examining potential solutions to the latency differential between the proprietary and SIP data feeds and ''does not consider any other approaches to resolving its latency concerns.'' [2518] Commenters also emphasized that a distributed SIP alternative would introduce much less regulatory disruption and would create a more resilient market than the one with competing consolidators.[2519] The Commission disagrees with the first comment because the Commission considered a Distributed SIP alternative in its Proposing Release. However, as mentioned above, the Commission believes this alternative would produce lower benefits compared to the decentralized consolidation model because it lacks the competitive incentives achieved in the decentralized consolidation model. Additionally, the Commission disagrees with the second comment and believes that the decentralized consolidation model will increase market resiliency, as discussed above.[2520]

3. Require Competing Consolidators' Fees Be Subject to the Commission's Approval

The Commission considered an alternative to the decentralized consolidation model that would require competing consolidators' fees to be subject to the Commission's regulatory approval. Some commenters supported this alternative [2521] and one commenter stated its recommendation ''that the Commission should scrutinize competing consolidator fees, and fee changes, in a manner similar to the process for review and approval of proposed rule changes currently filed by SROs.'' [2522]

The Commission believes that, relative to the adopted rule, this alternative would potentially reduce the risk and uncertainty surrounding the total price of consolidated market data. This alternative would provide for Commission review and approval of the fees of competing consolidators. Therefore, compared to the amendments, this alternative could reduce the risk that market participants are exposed to unreasonably high fees, which could reduce the risk that some market participants or data vendors would no longer provide services in the equity market because the price of consolidated market data products becomes too high.[2523]

The Commission believes, however, that this alternative would impose additional regulatory burdens on the competing consolidator business compared to the adopted rule, and may inhibit competing consolidators from being able to respond effectively and quickly to free market forces. These burdens would reduce the incentive for firms to become competing consolidators and lead to less robust competition in the decentralized consolidation model than under the adopted rule.[2524] With less competitive forces to discipline competing consolidators' service fees, competing consolidators would have less incentive to innovate in their consolidating business. Moreover, less competing consolidators in the market would reduce the extent to which the pricing is based on market forces. Finally, the Commission believes that under the amendments, there will be a competitive market for consolidated market data products with several competing consolidators operating. Thus, competitive forces will constrain the prices competing consolidators can charge without the need to impose additional regulatory burdens on the competing consolidator business.

4. Do Not Extend Regulation SCI To Include Competing Consolidators

The Commission considered an alternative that would not extend Regulation SCI to include SCI competing consolidators.[2525] Under this alternative, there would be no SCI competing consolidators and the Commission would have required all competing consolidators to be subject to the provisions of Rule 614(d)(9).[2526] The Commission believes that this alternative would reduce some of the benefits as well as some of the costs compared to the adopted rules.[2527]

The Commission believes that this alternative could result in larger competing consolidators, that would have met the threshold for SCI competing consolidators under the adopted rules, producing systems that would be less secure and resilient than they would be under the adopted rules because they would not be subject to all of the requirements of being an SCI competing consolidator.[2528] If these

[2514] *See supra* Section V.C.4(a).

[2515] *See supra* Section V.C.2(d).

[2516] *See supra* Section V.B.2.

[2517] *See supra* Section V.C.2(c).

[2518] *See* Nasdaq Letter IV at 45.

[2519] *See, e.g.,* Cboe Letter at 25; Nasdaq Letter IV at 36; Data Boiler Letter I at 66–67.

[2520] *See supra* Section V.C.2(c)(iv) for a discussion on the resiliency benefits of the decentralized consolidation model.

[2521] *See, e.g.,* Clearpool Letter at 4; ACS Execution Services Letter at 5–6.

[2522] *See* Clearpool Letter at 4.

[2523] *See supra* Section V.C.2(b).

[2524] *See supra* Section V.C.2(a).

[2525] One commenter preferred a similar alternative to the proposed requirement that all competing consolidators be SCI entities. This commenter believed that even if a firm's systems met the standards of Regulation SCI, demonstrating compliance with Regulation SCI would be costly and overly burdensome and act as a barrier to entry for firms seeking to become competing consolidators. *See* ACTIV Financial Letter at 2. As discussed above, the Commission agrees that the costs of Regulation SCI would serve as a barrier to entry to new competing consolidators. As discussed above, the Commission has adopted Rule 614(d)(9) that will apply to all competing consolidators during the initial one year transition period and competing consolidators below a threshold thereafter. The Commission believes that Rule 614(d)(9) will be less costly than Regulation SCI and will lower the barriers to entry for new competing consolidators. *See supra* Section III.F and Section V.C.2(e)(i).

[2526] Under this alternative, the Commission would also exempt competing consolidators affiliated with exchanges from the requirements of Regulation SCI if they complied with the provisions of Rule 614(d)(9), so they would not face higher regulatory burdens and be placed at a competitive disadvantage relative to competing consolidators that are not affiliated with exchanges.

[2527] *See supra* Section V.C.2(e)(i).

[2528] For example, under this alternative, larger competing consolidators would not have the requirements to have geographically diverse back-up and recovery capabilities. *See supra* Sections III.F and V.C.2(e)(i).

competing consolidators produce less secure and resilient systems compared to if they were SCI competing consolidators, then there could be a greater risk of more market disruptions due to systems issues in competing consolidators compared to the adopted rules.[2529] Additionally, if one of these competing consolidators does experience a systems issue, it could result in more severe and longer disruptions compared to the adopted rules. However, the increase in competing consolidator systems issues compared to the adopted rules may not be significant. Under this alternative, competing consolidators would still be subject to the requirements of Rule 614(d)(9) and would need to establish policies and procedures to ensure that their systems have levels of capacity, integrity, resiliency, availability, and security adequate to maintain operational capability. They would also still need to post information on systems issues on their websites as well as monthly reports containing statistics on their capacity and systems availability.[2530] This would place competitive pressure on competing consolidators to ensure that their systems are reliable and resilient. Otherwise, they could lose subscribers to competing consolidators that had more reliable and resilient systems.

The Commission believes that this alternative would result in lower costs for larger competing consolidators compared to the adopted rule. Under this alternative, these competing consolidators would not incur the costs that are associated with being an SCI competing consolidator that are discussed above.[2531] Instead, these competing consolidators would have to bear the lower costs associated with Rule 614(d)(9).[2532]

The Commission believes that these lower costs could result in more firms becoming competing consolidators and could increase competition in the competing consolidator market compared to the adopted rules. Although, under the adopted rules, competing consolidators will initially be subject to the lower costs of Rule 614(d)(9), the Commission believes that many competing consolidators will eventually meet the market data revenue threshold for SCI competing consolidators and be subject to the higher costs associated with Regulation SCI. The lower costs under this alternative may result in more firms becoming competing consolidators compared to the adopted rules, which could increase competition. An increase in competition may increase the benefits from the decentralized consolidation model. However, these effects may not be significant because the Commission believes that the risk under the adopted rules that the anticipated benefits of the decentralized consolidation model will not materialize because of insufficient competition among competing consolidators is low.[2533] To the extent these effects do occur, it could lower the costs and increase the speed and quality of consolidated market data products compared to the adopted rule. This, in turn, could make consolidated market data products a more viable substitute for proprietary data feeds and result in greater competition between consolidated market data and proprietary data feeds compared to the adopted rules.

5. Require Competing Consolidators To Submit Form CC in the EDGAR System Using the Inline XBRL Format

The Commission considered the alternative of requiring competing consolidators to submit Form CC using the Commission's EDGAR system and using the Inline XBRL format.[2534] Relative to the adopted rules, these requirements could benefit market participants by facilitating retrieval, aggregation, and comparison of disclosed information across competing consolidators. The requirements could also allow a competing consolidator to efficiently benchmark key aspects of its operations (*e.g.,* operational capabilities or fee structures) against the rest of the potential competing consolidator population.

However, many potential competing consolidators may not be familiar with Inline XBRL and thus could incur increased costs if they were required to learn Inline XBRL and apply Inline XBRL tags to their Form CC disclosures, compared to the adopted rules' requirement to submit Form CC and various exhibits through EFFS—a system with which some of the competing consolidators subject to Form CC filing requirements may already be familiar.[2535] For the reasons discussed above, the Commission is requiring Form CC to be filed through EFFS.[2536]

6. Require Competing Consolidators To Submit Monthly Disclosures in the EDGAR System Using the Inline XBRL Format

The Commission considered the alternative of requiring competing consolidators to submit their monthly performance metrics and operational information using the Commission's EDGAR system and using the Inline XBRL format.[2537] Relative to the adopted rules, this alternative could benefit market participants by having the monthly information of each competing consolidator in a centralized location. Additionally, the alternative could facilitate retrieval, aggregation, and comparison of disclosed information across competing consolidators and time periods.

However, competing consolidators would incur increased costs to file the information with the Commission compared to the adopted rules' requirement to post the monthly information on the competing consolidator's website without a format requirement. The difference in costs would likely vary across competing consolidators, depending on the systems and processes they currently have in place, such as for internal reporting, posting of website updates, and submission of regulatory filings, and the manner in which competing consolidators currently maintain data required for the additional disclosures. In addition, similar to submitting Form CC information on EDGAR using the Inline XBRL format, competing consolidators would be required to incur the additional costs of learning Inline XBRL under the alternative when compared to the adopted rules. For the reasons discussed above, the Commission is requiring monthly disclosures to be posted on competing consolidator websites without a format requirement.[2538]

7. Prescribing the Format of NMS Information

The Commission considered an alternative in which it would prescribe a single format that SROs would use to provide NMS information to competing

[2529] *Id.*

[2530] *See supra* Section V.C.3(a).

[2531] *See supra* Section V.C.2(e)(ii).

[2532] *See id.*

[2533] *See supra* Section V.C.2(a)(ii).

[2534] One commenter stated that an XBRL requirement would be acceptable, as would the proposed EFFS filing location. *See* Data Boiler Letter I at 96 (''We are good with XBRL if that is needed.'') and 50 (''EFFS is fine, no further comment.'').

[2535] The Commission estimates that 3 of the estimated 8 competing consolidators that will be subject to Form CC filing requirements under Rule 614(a)(1) under the adopted rules are already SCI entities. *See supra* Section IV.G.3. These entities currently use EFFS to file Form SCI.

[2536] *See supra* Section III.C.7(b).

[2537] One commenter expressed that XBRL would be acceptable, but also stated that website publication would be acceptable. *See* Data Boiler Letter I at 96 (''We are good with XBRL if that is needed.'') and 53 (''We are okay with the publishing requirement.'').

[2538] *See supra* Section III.C.8(c).

consolidators and self-aggregators. Each SRO would still be required to make all methods of access available to competing consolidators and self-aggregators as such SRO makes available to any other person.[2539] Each SRO would still be able to offer proprietary data products in other formats.

By prescribing the format, the Commission could better ensure consistency of the data. Compared to the adopted rule, a standard format could reduce the costs for competing consolidators and self-aggregators to aggregate the data to create consolidated market data. However, the Commission believes that these costs may not be significantly reduced. As discussed above, the SROs currently use a variety of formats for their proprietary data feeds and some broker-dealers, market data aggregators, and the exclusive SIPs are already adept and experienced in aggregating and normalizing the data across different formats.[2540] Therefore, some potential competing consolidators and self-aggregators may not experience significant cost reductions relative to the adopted rule if the Commission required that SROs provide NMS information in a prescribed format.

Requiring a single format for SROs to deliver NMS information to competing consolidators and self-aggregators would also increase the costs to SRO's compared to the adopted rule. SROs would incur a greater cost to conform their existing data to a format they do not already use. It could also increase the costs of exchanges making future changes to their data because they may need to make alterations to both their proprietary data products and to data in the standard format they would supply to competing consolidators and self-aggregators, assuming the changes would need to be included in consolidated market data. Additionally, compared to the adopted rule, this increased cost could reduce the likelihood that the effective national market systems plan(s) for NMS stocks or SROs introduce additional elements into consolidated data in the future.[2541]

Requiring the SROs to deliver data to competing consolidators and self-aggregators in a single format could also impact the latency between consolidated market data and aggregated proprietary DOB feeds. On one hand, receiving all of the data in a single format should expedite the aggregation and normalization process for consolidated data. This could potentially reduce the latency differential between consolidated market data and aggregated proprietary data feeds compared to the adopted rule. However, it is possible that the format of certain proprietary data feeds may allow for faster aggregation initially than the single format specified by the Commission because of certain SROs' existing familiarity with its format. If this occurred, it could increase the latency differential compared to the amendments.

In addition, if the SROs are required to transform their existing data to a different format, it could hinder the timeliness of the data competing consolidators receive compared to data delivered via the proprietary feeds. Any changes in the timeliness with which the competing consolidators receive the data or any difference in latency between consolidated core data and proprietary data feeds would affect the viability of consolidated core data as a substitute for proprietary data feeds and affect many of the benefits of the decentralized consolidation model.[2542] If the latency differential is reduced, more market participants may substitute consolidated market data for proprietary data feeds and the benefits of the decentralized consolidation model could increase compared to the amendments. If competing consolidators receive less timely data or the latency differential increases, fewer market participants would switch to consolidated market data and the benefits would be smaller than under the adopted rule.

VI. Regulatory Flexibility Certification

The Regulatory Flexibility Act (''RFA'') [2543] requires Federal agencies, in promulgating rules, to consider the impact of those rules on small entities. Section 603(a) [2544] of the Administrative Procedure Act,[2545] as amended by the RFA, generally requires the Commission to undertake a regulatory flexibility analysis of all proposed rules to determine the impact of such rulemaking on ''small entities.'' [2546] Section 605(b) of the RFA states that this requirement shall not apply to any proposed rule or proposed rule amendment which, if adopted, would not have a significant economic impact on a substantial number of small entities. The Commission certified in the Proposing Release, pursuant to Section 605(b) of the RFA, that the proposed rules would not, if adopted, have a significant economic impact on a substantial number of small entities.[2547] The Commission received no comments on this certification.

The amendments to Rules 600 and 603 and the new Rule 614 apply to national securities exchanges registered with the Commission under Section 6 of the Exchange Act, national securities associations registered with the Commission under Section 15A of the Exchange Act, and competing consolidators. None of the exchanges registered under Section 6 that will be subject to the proposed amendments are ''small entities'' for the purposes of the RFA.[2548] There is only one national securities association, and the Commission has previously stated that it is not a small entity as defined by 13 CFR 121.201.[2549] For purposes of the Commission rulemaking in connection with the RFA[2550] as it relates to competing consolidators, a small entity includes a SIP that (1) Had gross revenues of less than $10 million during the preceding fiscal year (or in the time it has been in business, if shorter); (2) Provided service to fewer than 100 interrogation devices or moving tickers at all times during the preceding fiscal year (or in the time that it has been in business, if shorter); and (3) Is not affiliated with any person (other than a natural person) that is not a small business or small organization under this section.[2551]

Based on the Commission's information about the 10 potential entities the Commission estimates may become competing consolidators, the Commission believes that all such entities will exceed the thresholds defining ''small entities'' set out above. Competing consolidators will be participating in a sophisticated business

[2539] *See* Proposing Release, 85 FR at n. 428.

[2540] *See supra* Section V.B.2(b).

[2541] *See* Proposing Release, 85 FR at Sections III.C, III.D.

[2542] *See supra* Section V.C.2(c).

[2543] 5 U.S.C. 601 *et seq.*

[2544] 5 U.S.C. 603(a).

[2545] 5 U.S.C. 551 *et seq.*

[2546] Although Section 601(b) of the RFA defines the term ''small entity,'' the statute permits agencies to formulate their own definitions. The Commission has adopted definitions for the term ''small entity'' for purposes of Commission rulemaking in accordance with the RFA. Those definitions, as relevant to this proposed rulemaking, are set forth in 17 CFR 240.0–10 (Rule 0–10).

[2547] *See* 5 U.S.C. 605(b).

[2548] *See* 17 CFR 240.0–10(e). Paragraph (e) of Rule 0–10 states that the term ''small business,'' when referring to an exchange, means any exchange that has been exempted from the reporting requirements of Rule 601 of Regulation NMS, 17 CFR 242.601, and is not affiliated with any person (other than a natural person) that is not a small business or small organization as defined in Rule 0–10. Under this standard, none of the exchanges subject to the amendments to Rule 600 or 603(b) or to Rule 614 are ''small entities'' for the purposes of the RFA. *See* Proposing Release, 85 FR at n. 1219.

[2549] *See, e.g.,* Securities Exchange Act Release No. 62174 (May 26, 2010), 75 FR 32556, 32605 n. 416 (June 8, 2010) (''FINRA is not a small entity as defined by 13 CFR 121.201.'').

[2550] *See supra* note 2546.

[2551] 17 CFR 240.0–10(g).

that requires significant resources to compete effectively. For example, as noted above, the Commission estimates that new entrants to the competing consolidator market—entities without prior experience in the business of collecting, consolidating, and disseminating market data—will incur initial startup costs of $2,683,000,[2552] and each competing consolidator will incur total ongoing annual costs of $5,141,895 per entity.[2553] While other competing consolidators may emerge and seek to register as competing consolidators with the Commission, the Commission does not believe that any such entities would be ''small entities'' as defined in 17 CFR 240.0–10(g). Accordingly, the Commission believes that any such registered competing consolidators will exceed the thresholds for ''small entities'' set forth in 17 CFR 240.0–10.

For the reasons described above, the Commission certifies that the amendments to Rules 600 and 603 and the new Rule 614 will not have a significant economic impact on a substantial number of small entities.

VII. Other Matters

Pursuant to the Congressional Review Act,[2554] the Office of Information and Regulatory Affairs has designated these rules as a ''major rule,'' as defined by 5 U.S.C. 804(2). If any of the provisions of these final rules, or the application thereof to any person or circumstance, is held to be invalid, such invalidity shall not affect other provisions or application of such provisions to other persons or circumstances that can be given effect without the invalid provision or application.

VIII. Statutory Authority

Pursuant to the Exchange Act, and particularly Sections 3(b), 5, 6, 11A, 15, 17, and 23(a) thereof, 15 U.S.C. 78c, 78e, 78f, 78k–1, 78*o,* 78q, and 78w(a), the Commission is amending §§ 240.3a51–1, 240.13h–1, 242.105, 242.201, 242.204, 242.600, 242.602, 242.603, 242.611, and 242.1000 of chapter II of title 17 of the Code of Federal Regulations and adopts Rule 614, as set forth below.

List of Subjects

17 CFR Part 240

Brokers, Dealers, Registration, Securities.

17 CFR Parts 242 and 249

Brokers, Reporting and recordkeeping requirements, Securities.

Text of the Amendments

For the reasons stated in the preamble, the Commission is amending title 17, chapter II of the Code of Federal Regulations as follows:

PART 240—GENERAL RULES AND REGULATIONS, SECURITIES EXCHANGE ACT OF 1934

■ 1. The authority citation for part 240 continues to read in part as follows:

Authority: 15 U.S.C. 77c, 77d, 77g, 77j, 77s, 77z–2, 77z–3, 77eee, 77ggg, 77nnn, 77sss, 77ttt, 78c, 78c–3, 78c–5, 78d, 78e, 78f, 78g, 78i, 78j, 78j–1, 78k, 78k–1, 78*l,* 78m, 78n, 78n–1, 78o, 78o–4, 78o–10, 78p, 78q, 78q–1, 78s, 78u–5, 78w, 78x, 78dd, 78*ll,* 78mm, 80a–20, 80a–23, 80a–29, 80a–37, 80b–3, 80b–4, 80b–11, and 7201 *et seq.,* and 8302; 7 U.S.C. 2(c)(2)(E); 12 U.S.C. 5221(e)(3); 18 U.S.C. 1350; Pub. L. 111–203, 939A, 124 Stat. 1376 (2010); and Pub. L. 112–106, sec. 503 and 602, 126 Stat. 326 (2012), unless otherwise noted.

* * * * *

§ 240.3a51–1 [Amended]

■ 2. Amend § 240.3a51–1 by, in paragraph (a) introductory text, removing the text ''§ 242.600(b)(48)'' and adding in its place ''§ 242.600(b)(55) of this chapter''.

§ 240.13h–l [Redesignated as § 240.13h–1 and Amended]

■ 3. Section 240.13h–l is redesignated as § 240.13h–1 and amended in paragraph (a)(5) by removing the text ''Section 242.600(b)(47)'' and adding in its place ''§ 242.600(b)(54)''.

PART 242—REGULATIONS M, SHO, ATS, AC, NMS, AND SBSR AND CUSTOMER MARGIN REQUIREMENTS FOR SECURITY FUTURES

■ 4. The authority citation for part 242 continues to read as follows:

Authority: 15 U.S.C. 77g, 77q(a), 77s(a), 78b, 78c, 78g(c)(2), 78i(a), 78j, 78k–1(c), 78*l,* 78m, 78n, 78*o*(b), 78*o*(c), 78*o*(g), 78q(a), 78q(b), 78q(h), 78w(a), 78dd–1, 78mm, 80a–23, 80a–29, and 80a–37.

§ 242.105 [Amended]

■ 5. Amend § 242.105 by:

■ a. In paragraph (b)(1)(i)(C), removing the text ''§ 242.600(b)(23)'' and adding in its place ''§ 242.600(b)(30)''; and

■ b. In paragraph (b)(1)(ii), removing the text ''§ 242.600(b)(68)'' and adding in its place ''§ 242.600(b)(77)''.

§ 242.201 [Amended]

■ 6. Amend § 242.201 by:

■ a. In paragraph (a)(1), removing the text ''§ 242.600(b)(48)'' and adding in its place ''§ 242.600(b)(55)'';

■ b. In paragraph (a)(2), removing the text ''§ 242.600(b)(23)'' and adding in its place ''§ 242.600(b)(30)'';

■ c. In paragraph (a)(3), removing the text ''the term ''listing market'' as defined in the effective transaction reporting plan for the covered security'' and adding in its place ''the term ''primary listing exchange'' as defined in § 242.600(b)(68)'';

■ d. In paragraph (a)(4), removing the text ''§ 242.600(b)(43)'' and adding in its place ''§ 242.600(b)(50)'';

■ e. In paragraph (a)(5), removing the text ''§ 242.600(b)(51)'' and adding in its place ''§ 242.600(b)(58)'';

■ f. In paragraph (a)(6), removing the text ''§ 242.600(b)(59)'' and adding in its place ''§ 242.600(b)(67)'';

■ g. In paragraph (a)(7), removing the text ''§ 242.600(b)(68)'' and adding in its place ''§ 242.600(b)(77)'';

■ h. In paragraph (a)(9), removing the text ''§ 242.600(b)(82)'' and adding in its place ''§ 242.600(b)(95)'';

■ i. In paragraph (b)(1)(ii), removing the text ''by a plan processor''; and

■ j. In paragraph (b)(3):

■ i. Removing the text ''notify the single plan processor responsible for consolidation of information for the covered security pursuant to § 242.603(b)'' and adding in its place ''make such information available as provided in § 242.603(b)''.

■ ii. Removing the last sentence of the paragraph.

§ 242.204 [Amended]

■ 7. In § 242.204, paragraph (g)(2) is amended by removing the text ''§ 600(b)(68) of Regulation NMS (17 CFR 242.600(b)(68))'' and adding in its place ''§ 242.600(b)(77) (Rule 600(b)(77) of Regulation NMS)''.

■ 8. Amend § 242.600 by:

■ a. Redesignating paragraphs (b)(73) through (87) as paragraphs (b)(86) through (100);

■ b. Adding new paragraph (b)(85);

■ c. Redesignating paragraph (b)(72) as paragraph (b)(84);

■ d. Adding new paragraphs (b)(82) and (83);

■ e. Redesignating paragraphs (b)(69) through (71) as paragraphs (b)(79) through (81);

■ f. Adding new paragraph (b)(78);

■ g. Redesignating paragraphs (b)(60) through (68) as paragraphs (b)(69) through (77);

■ h. Revising newly redesignated paragraph (b)(70);

■ i. Adding new paragraph (b)(68);

■ j. Redesignating paragraphs (b)(52) through (59) as paragraphs (b)(60) through (67);

■ k. Adding new paragraph (b)(59);

[2552] *See supra* note 1491 and accompanying text.

[2553] *See supra* note 1526 and accompanying text.

[2554] 5 U.S.C. 801 *et seq.*

■ l. Redesignating paragraphs (b)(20) through (51) as paragraphs (b)(27) through (58);
■ m. Revising newly redesignated paragraph (b)(50);
■ n. Adding new paragraph (b)(26);
■ o. Redesignating paragraphs (b)(16) through (19) as paragraphs (b)(22) through (25);
■ p. Adding new paragraphs (b)(19), (20), and (21);
■ q. Redesignating paragraphs (b)(14) and (15) as paragraphs (b)(17) and (18);
■ r. Adding new paragraph (b)(16);
■ s. Redesignating paragraphs (b)(4) through (13) as paragraphs (b)(6) through (15);
■ t. Adding new paragraph (b)(5);
■ u. Redesignating paragraphs (b)(2) and (3) as paragraphs (b)(3) and (4); and
■ v. Adding new paragraph (b)(2).

The additions and revisions read as follows:

§ 242.600 NMS security designation and definitions.

(b) * * *

(2) *Administrative data* means administrative, control, and other technical messages made available by national securities exchanges and national securities associations pursuant to the effective national market system plan or plans required under § 242.603(b) or the technical specifications thereto as of April 9, 2021.

* * * * *

(5) *Auction information* means all information specified by national securities exchange rules or effective national market system plans that is generated by a national securities exchange leading up to and during auctions, including opening, reopening, and closing auctions, and publicly disseminated during the time periods and at the time intervals provided in such rules and plans.

* * * * *

(16) *Competing consolidator* means a securities information processor required to be registered pursuant to § 242.614 (Rule 614) or a national securities exchange or national securities association that receives information with respect to quotations for and transactions in NMS stocks and generates a consolidated market data product for dissemination to any person.

* * * * *

(19) *Consolidated market data* means the following data, consolidated across all national securities exchanges and national securities associations:

(i) Core data;

(ii) Regulatory data;

(iii) Administrative data;

(iv) Self-regulatory organization-specific program data; and

(v) Additional regulatory, administrative, or self-regulatory organization-specific program data elements defined as such pursuant to the effective national market system plan or plans required under § 242.603(b).

(20) *Consolidated market data product* means any data product developed by a competing consolidator that contains consolidated market data or data components of consolidated market data. For purposes of this paragraph (b)(20), data components of consolidated market data include the enumerated elements, and any subcomponent of the enumerated elements, of consolidated market data in paragraph (b)(19) of this section. All consolidated market data products must reflect data consolidated across all national securities exchanges and national securities associations.

(21) *Core data* means:

(i) The following information with respect to quotations for, and transactions in, NMS stocks:

(A) Quotation sizes;

(B) Aggregate quotation sizes;

(C) Best bid and best offer;

(D) National best bid and national best offer;

(E) Protected bid and protected offer;

(F) Transaction reports;

(G) Last sale data;

(H) Odd-lot information;

(I) Depth of book data; and

(J) Auction information.

(ii) For purposes of the calculation and dissemination of core data by competing consolidators, as defined in paragraph (b)(16) of this section, and the calculation of core data by self-aggregators, as defined in paragraph (b)(84) of this section, the best bid and best offer, national best bid and national best offer, protected bid and protected offer, and depth of book data shall include odd-lots that when aggregated are equal to or greater than a round lot; such aggregation shall occur across multiple prices and shall be disseminated at the least aggressive price of all such aggregated odd-lots.

(iii) Competing consolidators shall represent the quotation sizes of the following data elements, if disseminated in a consolidated market data product as defined in paragraph (b)(20) of this section, as the number of shares rounded down to the nearest multiple of a round lot: The best bid and best offer, national best bid and national best offer, protected bid and protected offer, depth of book data, and auction information.

(iv) Competing consolidators shall attribute the following data elements, if disseminated in a consolidated market data product as defined in paragraph (b)(20) of this section, to the national securities exchange or national securities association that is the source of each such data element: Best bid and best offer, national best bid and national best offer, protected bid and protected offer, transaction reports, last sale data, odd-lot information, depth of book data, and auction information.

* * * * *

(26) *Depth of book data* means all quotation sizes at each national securities exchange and on a facility of a national securities association at each of the next five prices at which there is a bid that is lower than the national best bid and offer that is higher than the national best offer. For these five prices, the aggregate size available at each price, if any, at each national securities exchange and national securities association shall be attributed to such exchange or association.

* * * * *

(50) *National best bid and national best offer* means, with respect to quotations for an NMS stock, the best bid and best offer for such stock that are calculated and disseminated on a current and continuing basis by a competing consolidator or calculated by a self-aggregator and, for NMS securities other than NMS stocks, the best bid and best offer for such security that are calculated and disseminated on a current and continuing basis by a plan processor pursuant to an effective national market system plan; provided, that in the event two or more market centers transmit to the plan processor, a competing consolidator or a self-aggregator identical bids or offers for an NMS security, the best bid or best offer (as the case may be) shall be determined by ranking all such identical bids or offers (as the case may be) first by size (giving the highest ranking to the bid or offer associated with the largest size), and then by time (giving the highest ranking to the bid or offer received first in time).

* * * * *

(59) *Odd-lot information* means:

(i) Odd-lot transaction data disseminated pursuant to the effective national market system plan or plans required under § 242.603(b) as of April 9, 2021; and

(ii) Odd-lots at a price greater than or equal to the national best bid and less than or equal to the national best offer, aggregated at each price level at each national securities exchange and national securities association.

* * * * *

(68) *Primary listing exchange* means, for each NMS stock, the national securities exchange identified as the primary listing exchange in the effective national market system plan or plans required under § 242.603(b).

* * * * *

(70) *Protected bid* or *protected offer* means a quotation in an NMS stock that:

(i) Is displayed by an automated trading center;

(ii) Is disseminated pursuant to an effective national market system plan; and

(iii) Is an automated quotation that is the best bid or best offer of a national securities exchange, or the best bid or best offer of a national securities association.

* * * * *

(78) *Regulatory data* means:

(i) Information required to be collected or calculated by the primary listing exchange for an NMS stock and provided to competing consolidators and self-aggregators pursuant to the effective national market system plan or plans required under § 242.603(b), including, at a minimum:

(A) Information regarding Short Sale Circuit Breakers pursuant to § 242.201;

(B) Information regarding Price Bands required pursuant to the Plan to Address Extraordinary Market Volatility (LULD Plan);

(C) Information relating to regulatory halts or trading pauses (news dissemination/pending, LULD, Market-Wide Circuit Breakers) and reopenings or resumptions;

(D) The official opening and closing prices of the primary listing exchange; and

(E) An indicator of the applicable round lot size.

(ii) Information required to be collected or calculated by the national securities exchange or national securities association on which an NMS stock is traded and provided to competing consolidators and self-aggregators pursuant to the effective national market system plan or plans required under § 242.603(b), including, at a minimum:

(A) Whenever such national securities exchange or national securities association receives a bid (offer) below (above) an NMS stock's lower (upper) LULD price band, an appropriate regulatory data flag identifying the bid (offer) as non-executable; and

(B) Other regulatory messages including subpenny execution and trade-though exempt indicators.

(iii) For purposes of paragraph (b)(78)(i)(C) of this section, the primary listing exchange that has the largest proportion of companies included in the S&P 500 Index shall monitor the S&P 500 Index throughout the trading day, determine whether a Level 1, Level 2, or Level 3 decline, as defined in self-regulatory organization rules related to Market-Wide Circuit Breakers, has occurred, and immediately inform the other primary listing exchanges of all such declines.

* * * * *

(82) *Round lot* means:

(i) For any NMS stock for which the prior calendar month's average closing price on the primary listing exchange was $250.00 or less per share, an order for the purchase or sale of an NMS stock of 100 shares;

(ii) For any NMS stock for which the prior calendar month's average closing price on the primary listing exchange was $250.01 to $1,000.00 per share, an order for the purchase or sale of an NMS stock of 40 shares;

(iii) For any NMS stock for which the prior calendar month's average closing price on the primary listing exchange was $1,000.01 to $10,000.00 per share, an order for the purchase or sale of an NMS stock of 10 shares;

(iv) For any NMS stock for which the prior calendar month's average closing price on the primary listing exchange was $10,000.01 or more per share, an order for the purchase or sale of an NMS stock of 1 share; and

(v) For any NMS stock for which the prior calendar month's average closing price is not available, an order for the purchase or sale of an NMS stock of 100 shares.

(83) *Self-aggregator* means a broker, dealer, national securities exchange, national securities association, or investment adviser registered with the Commission that receives information with respect to quotations for and transactions in NMS stocks, including all data necessary to generate consolidated market data, and generates consolidated market data solely for internal use. A self-aggregator may make consolidated market data available to its affiliates that are registered with the Commission for their internal use. Except as provided in the preceding sentence, a self-aggregator may not disseminate or otherwise make available consolidated market data, or components of consolidated market data, as provided in paragraph (b)(20) of this section, to any person.

* * * * *

(85) *Self-regulatory organization-specific program data* means:

(i) Information related to retail liquidity programs specified by the rules of national securities exchanges and disseminated pursuant to the effective national market system plan or plans required under § 242.603(b) as of April 9, 2021; and

(ii) Other self-regulatory organization-specific information with respect to quotations for or transactions in NMS stocks as specified by the effective national market system plan or plans required under § 242.603(b).

* * * * *

§ 242.602 [Amended]

■ 9. Amend § 242.602 by:

■ a. In paragraph (a)(5)(i), removing the text ''§ 242.600(b)(77)'' and adding in its place ''§ 242.600(b)(90)'' and

■ b. In paragraph (a)(5)(ii), removing the text ''§ 242.600(b)(77)'' and adding in its place ''§ 242.600(b)(90)''.

■ 10. Amend § 242.603 by revising paragraph (b) to read as follows:

§ 242.603 Distribution, consolidation, and display of information with respect to quotations for and transactions in NMS stocks.

* * * * *

(b) *Dissemination of information.* Every national securities exchange on which an NMS stock is traded and national securities association shall act jointly pursuant to one or more effective national market system plans for the dissemination of consolidated market data. Every national securities exchange on which an NMS stock is traded and national securities association shall make available to all competing consolidators and self-aggregators its information with respect to quotations for and transactions in NMS stocks, including all data necessary to generate consolidated market data, in the same manner and using the same methods, including all methods of access and the same format, as such national securities exchange or national securities association makes available any information with respect to quotations for and transactions in NMS stocks to any person.

* * * * *

§ 242.611 [Amended]

■ 11. Amend § 242.611 by, in paragraph (c), removing the text ''§ 242.600(b)(31)'' and adding in its place ''§ 242.600(b)(38)''.

■ 12. Add § 242.614 to read as follows:

§ 242.614 Registration and responsibilities of competing consolidators.

(a) *Competing consolidator registration*—(1) *Initial Form CC*—(i) *Filing and effectiveness requirement.* No person, other than a national securities exchange or a national securities association:

(A) May receive directly, pursuant to an effective national market system plan, from a national securities exchange or national securities association information with respect to quotations for and transactions in NMS stocks; and

(B) Generate a consolidated market data product for dissemination to any person unless the person files with the Commission an initial Form CC and the initial Form CC has become effective pursuant to paragraph (a)(1)(v) of this section.

(ii) *Electronic filing and submission.* Any reports to the Commission required under this section shall be filed electronically on Form CC (17 CFR 249.1002), include all information as prescribed in Form CC and the instructions thereto, and contain an electronic signature as defined in § 240.19b–4(j) of this chapter.

(iii) *Commission review period.* The Commission may, by order, as provided in paragraph (a)(1)(v)(B) of this section, declare an initial Form CC filed by a competing consolidator ineffective no later than 90 calendar days from the date of filing with the Commission.

(iv) *Withdrawal of initial Form CC due to inaccurate or incomplete disclosures.* During the review by the Commission of the initial Form CC, if any information disclosed in the initial Form CC is or becomes inaccurate or incomplete, the competing consolidator shall promptly withdraw the initial Form CC and may refile an initial Form CC pursuant to paragraph (a)(1) of this section.

(v) *Effectiveness; ineffectiveness determination.* (A) An initial Form CC filed by a competing consolidator will become effective, unless declared ineffective, no later than the expiration of the review period provided in paragraph (a)(1)(iii) of this section and publication pursuant to paragraph (b)(2)(i) of this section.

(B) The Commission shall, by order, declare an initial Form CC ineffective if it finds, after notice and opportunity for hearing, that such action is necessary or appropriate in the public interest, and is consistent with the protection of investors. If the Commission declares an initial Form CC ineffective, the competing consolidator shall be prohibited from operating as a competing consolidator. An initial Form CC declared ineffective does not prevent the competing consolidator from subsequently filing a new Form CC.

(2) *Form CC amendments.* A competing consolidator shall amend a Form CC:

(i) Prior to the implementation of a material change to the pricing, connectivity, or products offered (''material amendment''); and

(ii) No later than 30 calendar days after the end of each calendar year to correct information that has become inaccurate or incomplete for any reason and to provide an Annual Report as required under Form CC (each a ''Form CC amendment'').

(3) *Notice of cessation.* A competing consolidator shall notice its cessation of operations on Form CC at least 90 calendar days prior to the date the competing consolidator will cease to operate as a competing consolidator. The notice of cessation shall cause the Form CC to become ineffective on the date designated by the competing consolidator.

(4) *Date of filing.* For purposes of filings made pursuant to this section:

(i) The term *business day* shall have the same meaning as defined in § 240.19b–4(b)(2) of this chapter.

(ii) If the conditions of this section and Form CC are otherwise satisfied, all filings submitted electronically on or before 5:30 p.m. Eastern Standard Time or Eastern Daylight Saving Time, whichever is currently in effect, on a business day, shall be deemed filed on that business day, and all filings submitted after 5:30 p.m. Eastern Standard Time or Eastern Daylight Saving Time, whichever is currently in effect, shall be deemed filed on the next business day.

(b) *Public disclosures.* (1) Every Form CC filed pursuant to this section shall constitute a ''report'' within the meaning of sections 11A, 17(a), 18(a), and 32(a) of the Act (15 U.S.C. 78k–1, 78q(a), 78r(a), and 78ff(a)), and any other applicable provisions of the Act.

(2) The Commission will make public via posting on the Commission's website:

(i) Identification of each competing consolidator that has filed an initial Form CC with the Commission and the date of filing;

(ii) Each effective initial Form CC, as amended;

(iii) Each order of ineffective initial Form CC;

(iv) Each Form CC amendment. The Commission will make public the entirety of any Form CC amendment no later than 30 calendar days from the date of filing thereof with the Commission; and

(v) Each notice of cessation.

(c) *Posting of hyperlink to the Commission's website.* Each competing consolidator shall make public via posting on its website a direct URL hyperlink to the Commission's website that contains the documents enumerated in paragraphs (b)(2)(ii) through (v) of this section.

(d) *Responsibilities of competing consolidators.* Each competing consolidator shall:

(1) Collect from each national securities exchange and national securities association, either directly or indirectly, any information with respect to quotations for and transactions in NMS stocks as provided in § 242.603(b) that is necessary to create a consolidated market data product, as defined in § 242.600(b)(20).

(2) Calculate and generate a consolidated market data product, as defined in § 242.600(b)(20), from the information collected pursuant to paragraph (d)(1) of this section.

(3) Make a consolidated market data product, as defined in § 242.600(b)(20), as timestamped as required by paragraph (d)(4) of this section and including the national securities exchange and national securities association data generation timestamp required to be provided by the national securities exchange and national securities association participants by paragraph (e)(2) of this section, available to subscribers on a consolidated basis on terms that are not unreasonably discriminatory.

(4) Timestamp the information collected pursuant to paragraph (d)(1) of this section upon:

(i) Receipt from each national securities exchange and national securities association;

(ii) Receipt of such information at its aggregation mechanism; and

(iii) Dissemination of a consolidated market data product to subscribers.

(5) Within 15 calendar days after the end of each month, publish prominently on its website monthly performance metrics, as defined by the effective national market system plan(s) for NMS stocks, that shall include at least the information in paragraphs (d)(5)(i) through (v) of this section. All information must be publicly posted in downloadable files and must remain free and accessible (without any encumbrances or restrictions) by the general public on the website for a period of not less than three years from the initial date of posting.

(i) Capacity statistics;

(ii) Message rate and total statistics;

(iii) System availability;

(iv) Network delay statistics; and

(v) Latency statistics for the following, with distribution statistics up to the 99.99th percentile:

(A) When a national securities exchange or national securities association sends an inbound message to a competing consolidator network

and when the competing consolidator network receives the inbound message;

(B) When the competing consolidator network receives the inbound message and when the competing consolidator network sends the corresponding consolidated message to a subscriber; and

(C) When a national securities exchange or national securities association sends an inbound message to a competing consolidator network and when the competing consolidator network sends the corresponding consolidated message to a subscriber.

(6) Within 15 calendar days after the end of each month, publish prominently on its website the information in paragraphs (d)(6)(i) through (v) of this section. All information must be publicly posted and must remain free and accessible (without any encumbrances or restrictions) by the general public on the website for a period of not less than three years from the initial date of posting.

(i) Data quality issues;

(ii) System issues;

(iii) Any clock synchronization protocol utilized;

(iv) For the clocks used to generate the timestamps described in paragraph (d)(4) of this section, the clock drift averages and peaks, and the number of instances of clock drift greater than 100 microseconds; and

(v) Vendor alerts.

(7) Keep and preserve at least one copy of all documents, including all correspondence, memoranda, papers, books, notices, accounts, and such other records as shall be made or received by it in the course of its business as such and in the conduct of its business. Competing consolidators shall keep all such documents for a period of no less than five years, the first two years in an easily accessible place.

(8) Upon request of any representative of the Commission, promptly furnish to the possession of such representative copies of any documents required to be kept and preserved by it.

(9) Each competing consolidator that is not required to comply with the requirements of §§ 242.1000 through 242.1007 regarding systems compliance and integrity (Regulation SCI) shall comply with the following:

(i) *Definitions.* For purposes of this paragraph (d)(9), the following definitions shall apply:

Systems disruption means an event in a competing consolidator's systems involved in the collection and consolidation of consolidated market data, and dissemination of consolidated market data products, that disrupts, or significantly degrades, the normal operation of such systems.

Systems intrusion means any unauthorized entry into a competing consolidator's systems involved in the collection and consolidation of consolidated market data, and dissemination of consolidated market data products.

(ii) *Obligations relating to policies and procedures.* (A)(*1*) Establish, maintain, and enforce written policies and procedures reasonably designed to ensure: That its systems involved in the collection and consolidation of consolidated market data, and dissemination of consolidated market data products have levels of capacity, integrity, resiliency, availability, and security adequate to maintain the competing consolidator's operational capability and promote the maintenance of fair and orderly markets; and the prompt, accurate, and reliable dissemination of consolidated market data products.

(*2*) Such policies and procedures shall be deemed to be reasonably designed if they are consistent with current industry standards, which shall be comprised of information technology practices that are widely available to information technology professionals in the financial sector and issued by an authoritative body that is a U.S. governmental entity or agency, association of U.S. governmental entities or agencies, or widely recognized organization. Compliance with such current industry standards, however, shall not be the exclusive means to comply with the requirements of this paragraph (d)(9)(ii)(A);

(B) Periodically review the effectiveness of the policies and procedures required by paragraph (d)(9)(ii)(A) of this section, and take prompt action to remedy deficiencies in such policies and procedures; and

(C) Establish, maintain, and enforce reasonably designed written policies and procedures that include the criteria for identifying responsible personnel, the designation and documentation of responsible personnel, and escalation procedures to quickly inform responsible personnel of potential systems disruptions and systems intrusions; and periodically review the effectiveness of the policies and procedures, and take prompt action to remedy deficiencies.

(iii) *Systems disruptions or systems intrusions.* (A) Upon responsible personnel having a reasonable basis to conclude that a systems disruption or systems intrusion has occurred, begin to take appropriate corrective action which shall include, at a minimum, mitigating potential harm to investors and market integrity resulting from the event and devoting adequate resources to remedy the event as soon as reasonably practicable.

(B) Promptly upon responsible personnel having a reasonable basis to conclude that a systems disruption (other than a system disruption that has had, or the competing consolidator reasonably estimates would have, no or a de minimis impact on the competing consolidator's operations or on market participants) has occurred, publicly disseminate information relating to the event (including the system(s) affected and a summary description); when known, promptly publicly disseminate additional information relating to the event (including a detailed description, an assessment of those potentially affected, a description of the progress of corrective action and when the event has been or is expected to be resolved); and until resolved, provide regular updates with respect to such information.

(C) Concurrent with public dissemination of information relating to a systems disruption pursuant to paragraph (d)(9)(iii)(B) of this section, or promptly upon responsible personnel having a reasonable basis to conclude that a systems intrusion (other than a system intrusion that has had, or the competing consolidator reasonably estimates would have, no or a de minimis impact on the competing consolidator's operations or on market participants) has occurred, provide the Commission notification and, until resolved, updates of such event. Notifications required pursuant to this paragraph (d)(9)(iii)(C) shall include information relating to the event (including the system(s) affected and a summary description); when known, additional information relating to the event (including a detailed description, an assessment of those potentially affected, a description of the progress of corrective action and when the event has been or is expected to be resolved); and until resolved, regular updates with respect to such information. Notifications relating to systems disruptions and systems intrusions pursuant to this paragraph (d)(9)(iii)(C) shall be submitted to the Commission on Form CC.

(iv) *Coordinated testing.* Participate in the industry- or sector-wide coordinated testing of business recovery and disaster recovery plans required of SCI entities pursuant to § 242.1004(c).

(e) *Amendment of the effective national market system plan(s) for NMS stocks.* The participants to the effective national market system plan(s) for NMS

stocks shall file with the Commission, pursuant to § 242.608, an amendment that includes the following provisions within 150 calendar days from June 8, 2021:

(1) Conforming the effective national market system plan(s) for NMS stocks to reflect provision of information with respect to quotations for and transactions in NMS stocks that is necessary to generate consolidated market data by the national securities exchange and national securities association participants to competing consolidators and self-aggregators;

(2) The application of timestamps by the national securities exchange and national securities association participants on all information with respect to quotations for and transactions in NMS stocks that is necessary to generate consolidated market data, including the time that such information was generated as applicable by the national securities exchange or national securities association and the time the national securities exchange or national securities association made such information available to competing consolidators and self-aggregators;

(3) Assessments of competing consolidator performance, including speed, reliability, and cost of data provision and the provision of an annual report of such assessment to the Commission, and the Commission will make the annual report publicly available on the Commission's website;

(4) The development, maintenance, and publication of a list that identifies the primary listing exchange for each NMS stock; and

(5) The calculation and publication on a monthly basis of consolidated market data gross revenues for NMS stocks as specified by:

(i) Listed on the New York Stock Exchange (NYSE);

(ii) Listed on Nasdaq; and

(iii) Listed on exchanges other than NYSE or Nasdaq.

■ 13. Amend § 242.1000 by:

■ a. In the definition of ''Critical SCI systems,'' removing the text ''consolidated market data'' in paragraph (1)(v) and adding in its place ''market data by a plan processor''.

■ b. In the definition of ''Plan processor,'' removing the text ''§ 242.600(b)(59)'' and adding in its place ''§ 242.600(b)(67)''.

■ c. Adding in alphabetical order the definition of ''SCI competing consolidator''.

■ d. In the definition of ''SCI entity,'' removing ''or exempt clearing agency subject to ARP'' and adding ''exempt clearing agency subject to ARP, or SCI competing consolidator'' in its place.

The addition reads as follows:

§ 242.1000 Definitions.

* * * * *

SCI competing consolidator means:

(1) Any competing consolidator, as defined in § 242.600, which, during at least four of the preceding six calendar months, accounted for five percent (5%) or more of consolidated market data gross revenue paid to the effective national market system plan or plans required under § 242.603(b), for NMS stocks:

(i) Listed on the New York Stock Exchange LLC;

(ii) Listed on The Nasdaq Stock Market LLC; or

(iii) Listed on exchanges other than the New York Stock Exchange LLC or The Nasdaq Stock Market LLC, as reported by such plan or plans pursuant to the terms thereof.

(2) Provided, however, that such SCI competing consolidator shall not be required to comply with the requirements of this section and §§ 242.1001 through 242.1007 (Regulation SCI) until six months after satisfying any of paragraph (1) of this definition, as applicable, for the first time; and

(3) Provided, however, that such SCI competing consolidator shall not be required to comply with the requirements of Regulation SCI prior to one year after the compliance date for § 242.614(d)(3).

* * * * *

PART 249—FORMS, SECURITIES EXCHANGE ACT OF 1934

■ 14. The general authority citation for part 249 continues to read in part as follows:

Authority: 15 U.S.C. 78a *et seq.* and 7201 *et seq.;* 12 U.S.C. 5461 *et seq.;* 18 U.S.C. 1350; Sec. 953(b), Pub. L. 111–203, 124 Stat. 1904; Sec. 102(a)(3), Pub. L. 112–106, 126 Stat. 309 (2012); Sec. 107, Pub. L. 112–106, 126 Stat. 313 (2012), and Sec. 72001, Pub. L. 114–94, 129 Stat. 1312 (2015), unless otherwise noted.

* * * * *

■ 15. Add § 249.1002 to read as follows:

§ 249.1002 Form CC, for application for registration as a competing consolidator or to amend such an application or registration.

This form shall be used for application for registration as a competing consolidator, pursuant to section 11A of the Securities Exchange Act of 1934 (15 U.S.C. 78k-1) and § 242.614 of this chapter, or to amend such an application or registration.

By the Commission.

Dated: December 9, 2020.

Vanessa A. Countryman,

Secretary.

Note: The form in the following appendix will not appear in the Code of Federal Regulations.

Appendix A—Form CC

BILLING CODE 8011–01–P

United States
Securities and Exchange Commission
Washington, DC 20549

FORM CC
INTENTIONAL MISSTATEMENTS OR OMISSIONS OF FACTS MAY CONSTITUTE CRIMINAL VIOLATIONS.

Section I - Form Filing Information

Page 1 of _____ File No: FORMCC-[acronym]-YYYY-####

{Name of Competing Consolidator} is making the filing pursuant to Rule 614 under the Securities Exchange Act of 1934

Submission Type (select one)

☐ Rule 614(a)(1) Initial Form CC

☐ Rule 614(a)(1)(iv) Withdrawal of Initial Form CC

☐ Rule 614(a)(2)(i) Material Amendment

☐ Rule 614(a)(2)(ii) Annual Report

☐ Rule 614(a)(3) Notice of Cessation

- Date competing consolidator will cease to operate (mm/dd/yyyy)

☐ Rule 614(d)(9) System Disruption or System Intrusion Notification

- Update to Prior Notification

Section II – General Information

☐ Check Box if there is a change in information previously filed.

1) Legal name of applicant:_____
2) DBA if operating under a different name than above:_____
3) Primary Street Address (Do not use a P.O. Box)
4) Street: _____
5) City_____, State_____ Zip Code_____
6) Mailing Address: ☐ Same as above

   Street: _____

   City_____, State_____ Zip Code_____
7) Business Telephone (###) ____-_____
8) Provide the website URL of the registrant:_____
9) Is the applicant affiliated with a national securities exchange registered with the Commission (yes/no)

(a) If Yes, provide full name of the national securities exchange:_____

10) Is the applicant a broker-dealer or affiliated with a broker-dealer registered with the Commission (yes/no)

(a) If yes, provide the full name of the registered broker-dealer as stated on Form BD:

(b) SEC File No:_____

(c) CRD No:_____

11) If applicant is a successor (within the definition of Rule 12b-2 under the Securities Exchange Act of 1934) to a previously registered competing consolidator, please complete the following:

(a) Date of Succession: mm/dd/yyyy

(b) Full name/address of predecessor registrant:_____

12) Legal Status (select one):

a. Sole Proprietorship

b. Corporation

c. Partnership

d. Limited Liability Company

e. Other (Specify):_____

If other than a sole proprietor, please provide the following:

f. Date entity obtained legal status (e.g., date of incorporation) (mm/dd/yyyy).

g. State/country of formation: {pick list}

h. Statute under which entity was organized _____

Section III: Business Organization

☐ **All Exhibits-Consolidated Document Attachment:** The competing consolidator may choose to provide a consolidated document containing all Exhibits or individual documents for each Exhibit. If providing individual documents, use the attachment buttons in the Exhibit Table. If providing a consolidated document, please use the attachment buttons here:

13) Attach as **Exhibit A** to this application a list of any person as defined in Section 3(a)(9) of the Securities Exchange Act of 1934 (see also Section 3(a)(19) of the Securities Exchange Act of 1934) who owns 10 percent or more of applicant's stock or who, either directly or indirectly, through agreement or otherwise, in any other manner, may control or direct the management or

policies of the competing consolidator. Include the full name and title of each such person and attach a copy of the agreement or, if there is none written, describe the agreement or basis upon which such person exercises or may exercise such control or direction. Alternatively, if applicant is a broker-dealer, or is affiliated with a broker-dealer, you may provide the Schedule A of Form BD relating to direct owners and executive officers. If the applicant is an affiliate of a national securities exchange, you may provide Exhibit K of Form 1 relating to owners, shareholders, or partners that are not also members of the exchange.

☐ In lieu of filing this Exhibit A (or providing Schedule A of Form BD or Exhibit K of Form 1, whichever may be applicable), [name of entity] certifies that the information requested under this Exhibit is available at the Internet website below and is accurate as of the date of this filing. URL_____

14) Attach as **Exhibit B** to this application a list of the present officers, directors, governors (and, in the case of an applicant that is not a corporation, the members of all standing committees grouped by committee), or persons performing functions similar to any of the foregoing, of the competing consolidator. For each person provide (a) Name (last, first, middle); (b) Title (if any) and area of responsibility; (c) Length of time each present officer, director, or governor has held the same office or position, and (d) Any other business affiliations in the securities industry or securities information processing industry. Alternatively, if applicant is a broker-dealer, or is affiliated with a broker-dealer, you may provide the Schedule B of Form BD relating to indirect owners. If the applicant is an affiliate of a national securities exchange, you may provide Exhibit J of Form 1 relating to officers, governors, members of all standing committees, or persons performing similar functions.

☐ In lieu of filing this Exhibit B (or providing Schedule B of Form BD or Exhibit J of Form 1, whichever may be applicable), [name of entity] certifies that the information

requested under this Exhibit is available at the Internet website below and is accurate as of the date of this filing. URL_____

15) Attach as **Exhibit C** to this application a narrative or graphic description of the organizational structure of the applicant. Note: If the securities information processing activities of the competing consolidator are conducted primarily by a division, subdivision, or other segregable entity within the applicant corporation or organization, describe the relationship of such division, subdivision, or other segregable entity within the overall organizational structure and attach as part of this Exhibit only such description as applies to the division, subdivision, or other segregable entity.

16) Attach as **Exhibit D** to this application a list of all affiliates (within the definition of Rule 12b-2 under the Securities Exchange Act of 1934) of the competing consolidator and indicate the general nature of the affiliation.

Section IV: Operational Capability

17) Attach as **Exhibit E** to this application a narrative description of each consolidated market data product, service or function, including connectivity and delivery options for the subscribers, and a description of all procedures utilized for the collection, processing, distribution, publication and retention of information with respect to quotations for, and transactions in, securities.

Section V - Services and Fees

18) Attach as **Exhibit F** to this application a description of all consolidated market data products that are provided to subscribers.

19) Attach as **Exhibit G** to this application a description and identification of any fees or charges for use of the competing consolidator with respect to any consolidated market data

product services, including the types of fees (e.g., subscription, connectivity), the structure of the fee (e.g., fixed, variable), variables that impact the fees, pricing differentiation among the types of subscribers, and range of fees (high and low).

20) Attach as **Exhibit H** to this application a description of any co-location and related services, the terms and conditions for co-location, connectivity, and related services, including connectivity and throughput options offered. Describe any other means besides co-location and related services to increase the speed of communication, including a summary of the terms and conditions for its use.

21) Attach as **Exhibit I** to this application a narrative description, or the functional specifications, of each consolidated market data product service or function, including connectivity and delivery options for the subscribers.

Section VI: Commission Notification of Systems Disruption or Systems Intrusion Events

A. Notification Type(s) (select all that apply)

- ❑ Systems disruption
- ❑ Systems intrusion
  - ❑ Confidential treatment is requested pursuant to Rule 24b-2(g).

B. General Information Required for 614(d)(9) filings.

1) Date/time systems disruption/systems intrusion event occurred: *mm/dd/yyyy hh:mm am/pm*
2) Duration of : *hh:mm*, or *days*
3) Please provide the date and time when a responsible personnel had reasonable basis to conclude the systems disruption/systems intrusion event occurred:
   mm/dd/yyyy *hh:mm am/pm*
4) Has the systems disruption/systems intrusion event been resolved? *yes/no*
   a) If yes, provide date and time of resolution: *mm/dd/yyyy* *hh:mm am/pm*
5) Is the investigation of the event closed? *yes/no*
   (a) If yes, provide date of closure: *mm/dd/yyyy*
6) Name(s) of system(s): _____

C. Attach as **Exhibit J** to this filing all other information regarding the systems disruption or systems intrusion as required by Rule 614(d)(9). Information required pursuant to the rule regarding systems disruption and systems intrusion shall include information relating to the event

(including the system(s) affected and a summary description) and, when known, additional information relating to the event (including a detailed description, an assessment of those potentially affected, a description of the progress of corrective action and when the event has been or is expected to be resolved).

Section VII: Contact Information

Provide the following information of the contact employee at {the name of the competing consolidator} prepared to respond to questions for this submission:

First Name: Last Name:

Title:

Email: Telephone:

Section VIII: Signature Block and Consent to Service

The {Entity Name} consents that service of any civil action brought by, or notice of any proceeding before, the SEC in connection with the competing consolidator's activities may be given by registered or certified mail or email to the competing consolidator's contact employee at the primary street address or email address, or mailing address if different, given in Section II above. The undersigned, being first duly sworn, deposes and says that he/she has executed this form on behalf of, and with the authority of, said competing consolidator. The undersigned and {Entity Name} represent that the information and statements contained herein, including exhibits, schedules, or other documents attached hereto, and other information filed herewith, all of which are made a part hereof, are current, true, and complete.

Date {auto fill} {Entity Name}

By: _____ Title_____

(Digital signature)

Form CC General Instructions:

A. Use of the Form

Form CC is the form a competing consolidator must file to notify the Securities and Exchange Commission ("SEC" or "Commission") of its activities pursuant to Rule 614 of Regulation NMS, §242.614 et seq. Filings submitted pursuant to Rule 614 shall be filed in an electronic format through an electronic form filing system ("EFFS"), a secure website operated by the Commission. Documents attached as exhibits filed through the EFFS system must be in a text-searchable format without the use of optical character recognition. If, however, a portion of a Form CC submission (e.g., an image or diagram) cannot be made available in a text-searchable format, such portion may be submitted in a non-text searchable format.

B. Need for Careful Preparation of the Completed Form, Including Exhibits

A competing consolidator must provide all of the information required by Form CC, including the exhibits, and must provide disclosure information that is accurate, current, and complete. The information in the exhibits must be provided in a clear and comprehensible manner. A filing that is incomplete or similarly deficient may be returned to the competing consolidator. Any filing so returned shall for all purposes be deemed not to have been filed with the Commission. See also Rule 0-3 under the Securities Exchange Act of 1934 (17 CFR 240.0-3).

C. When to Use the FORM CC

Form CC is comprised of 6 types of submissions to the Commission required pursuant to Rule 614 of Regulation NMS. In filling out the Form CC, a competing consolidator shall select the type of filing and provide all information required by Rule 614 of Regulation NMS. The types of submissions are:

1) Rule 614(a)(1) Initial Form CC: Prior to commencing operations, a competing consolidator shall file an initial Form CC and the initial Form CC must become effective.

2) Rule 614(a)(1)(iv) Withdrawal of Initial Form CC. During the review by the Commission of the initial Form CC, if any information disclosed in the initial Form CC is or becomes inaccurate or incomplete, the competing consolidator shall promptly withdraw the initial Form CC and may refile an initial Form CC pursuant to paragraph (a)(1).

3) Rule 614(a)(2)(i) Material Amendment: The competing consolidator shall file an amendment on Form CC prior to implementing a material change to the pricing, connectivity, or products offered of the competing consolidator.

4) Rule 614(a)(2)(ii) Annual Report: The competing consolidator shall file an Annual Report on Form CC correcting any information contained in the initial Form CC or in any previously filed amendment that has been rendered inaccurate or incomplete for any reason, and that has not previously been reported to the SEC, no later than 30 calendar days after the end of each calendar year in which the competing consolidator has operated. Competing consolidators filing the Annual Report must file a complete form, including all pages and answers to all items, together with all exhibits. The competing consolidator must indicate which items have been amended since the last Annual Report.

5) Rule 614(a)(3) Notice of Cessation: The competing consolidator shall file a notice of cessation of operations at least 90 calendar days prior to the date upon ceasing to operate as a competing consolidator.

6) Rule 614(d)(9) Systems Disruption and System Intrusion Notification: Any competing consolidator that is not an SCI competing consolidator shall file notifications of systems disruption and system intrusion pursuant to Rule 614(d)(9).

D. Documents Comprising the Completed Form

The completed form filed with the Commission shall consist of Form CC, responses to all applicable items, and any exhibits required in connection with the filing. Each filing shall be marked on Form CC with the initials of the competing consolidator, the four-digit year, and the number of the filing for the year (e.g., FormCC-acronym-YYYY-XXX).

E. Contact Information; Signature; and Filing of Completed Form

Each time a competing consolidator submits a filing to the Commission on Form CC, the competing consolidator must provide the contact information required by Section VI of Form CC. The contact employee must be authorized to receive all contact information, communications and mailings and must be responsible for disseminating that information within the competing consolidator's organization.

In order to file Form CC through the EFFS, a competing consolidator must request access to the Commission's External Application Server. Initial requests will be received by contacting the Division of Trading & Markets at (202) 551-5777. An email will be sent to the requestor that will provide a link to a secure website where basic profile information will be requested.

A duly authorized individual of the competing consolidator shall electronically sign the completed Form CC as indicated in Section VIII of the form.

F. Paperwork Reduction Act Disclosure

Form CC requires a competing consolidator subject to Rule 614 of Regulation NMS to provide the Commission with certain information regarding the operation of the competing consolidator, material and other changes to the operation of the competing consolidator, and notice upon ceasing operation of the competing consolidator.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid control number. Sections 3(b), 11A(a), 11A(c), 15(c), 17(a), 23(a) and 36(a) authorize the Commission to collect information on

this Form CC from competing consolidators that are subject to Rule 614. See 15 U.S.C. 78c(b), 78k-1(a), 78k-1(c), 78o(c), 78q(a), 78w(a) and 78mm(a).

It is estimated that a competing consolidator will spend approximately 200.3 hours completing the initial operation report on Form CC, approximately 6.15 hours preparing each amendment to Form CC, and approximately two (2) hours preparing a cessation of operations report on Form CC. Any member of the public may direct to the Commission any comments concerning the accuracy of the burden estimate on the facing page of Form CC and any suggestions for reducing this burden.

Form CC is designed to enable the Commission to determine whether a competing consolidator subject to Rule 614 of Regulation NMS is in compliance with Rule 614 and other Federal securities laws. It is mandatory that a competing consolidator subject to Rule 614 file an initial Form CC, file an amendment to Form CC prior to making a material change, file Annual Reports to Form CC to reflect changes not previously reported, and file notice on Form CC upon ceasing operation of the competing consolidator. It is mandatory that a competing consolidator that is not an SCI competing consolidator file with the Commission information pertaining to systems disruptions and system intrusions pursuant to Rule 614.

All reports provided to the Commission on Form CC are subject to the provisions of the Freedom of Information Act, 5 U.S.C. 522 ("FOIA") and the Commission's rules thereunder (17 CFR 200.80(b)(4)(iii)).

This collection of information has been reviewed by the Office of Management and Budget ("OMB") in accordance with the clearance requirements of 44 U.S.C. 3507. The applicable Privacy Act system of records is SEC-2 and the routine uses of the records are set forth at 40 FR 39255 (August 27, 1975) and 41 FR 5318 (February 5, 1976).

G. Definitions

Unless the context requires otherwise, all terms used in this form have the same meaning as in the Securities Exchange Act of 1934, as amended, and in the rules and regulations of the Commission thereunder.

■ 16. Amend Form SCI (referenced in § 249.1900) to read as follows:

Note: The text of Form SCI does not, and the amendments will not, appear in the Code of Federal Regulations.

United States
Securities and Exchange Commission
Washington, DC 20549

Form SCI

Page 1 of _____ File No. SCI-{name}-YYYY-###

SCI Notification and Reporting by: {SCI entity name}

Pursuant to Rules 1002 and 1003 of Regulation SCI under the Securities Exchange Act of 1934

- ❑ Initial
- ❑ Withdrawal

SECTION I: Rule 1002 - Commission Notification of SCI Event

A. Submission Type (select one only)

- ❑ Rule 1002(b)(1) Initial Notification of SCI event
- ❑ Rule 1002(b)(2) Notification of SCI event
- ❑ Rule 1002(b)(3) Update of SCI event: ####
- ❑ Rule 1002(b)(4) Final Report of SCI Event
- ❑ Rule 1002(b)(4) Interim Status Report of SCI event

If filing a Rule 1002(b)(1) or Rule 1002(b)(3) submission, please provide a brief description:

_____

_____

_____

B. SCI Event Type(s) (select all that apply)

- ❑ Systems compliance issue
- ❑ Systems disruption
- ❑ Systems intrusion

C. General Information Required for (b)(2) filings.

1) Has the Commission previously been notified of the SCI event pursuant to 1002(b)(1)? *yes/no*
2) Date/time SCI event occurred: *mm/dd/yyyy hh:mm am/pm*
3) Duration of SCI event: *hh:mm*, or *days*
4) Please provide the date and time when a responsible SCI personnel had reasonable basis to conclude the SCI event occurred:

   mm/dd/yyyy *hh:mm am/pm*
5) Has the SCI event been resolved? *yes/no*
   a) If yes, provide date and time of resolution: *mm/dd/yyyy* *hh:mm am/pm*
6) Is the investigation of the SCI event closed? *yes/no*
   a) If yes, provide date of closure**:** *mm/dd/yyyy*
7) Estimated number of market participants potentially affected by the SCI event: ####
8) Is the SCI event a major SCI event (as defined in Rule 1000)? *yes/no*

D. Information about impacted systems:
Name(s) of system(s):

_____
_____
_____

Type(s) of system(s) impacted by the SCI event (check all that apply):

❑ Trading ❑ Clearance and settlement ❑ Order routing
❑ Market data ❑ Market regulation ❑ Market surveillance
❑ Indirect SCI systems (please describe):

_____
_____
_____

Are any critical SCI systems impacted by the SCI event (check all that apply)? Yes/No

1) Systems that directly support functionality relating to:
   ❑ Clearance and settlement systems of clearing agencies
   ❑ Openings, reopenings, and closings on the primary listing market
   ❑ Trading halts ❑ Initial public offerings
   ❑ The provision of market data by a plan processor ❑ Exclusively-listed securities
2) ❑ Systems that provide functionality to the securities markets for which the availability of alternatives is significantly limited or nonexistent and without which there would be a material impact on fair and orderly markets (please describe):

_____
_____
_____

SECTION II: Periodic Reporting (select one only)

A. Quarterly Reports: For the quarter ended: mm/dd/yyyy

- ❑ Rule 1002(b)(5)(ii): Quarterly report of systems disruptions and systems intrusions with no or a de minimis impact.
- ❑ Rule 1003(a)(1): Quarterly report of material systems changes
- ❑ Rule 1003(a)(2): Supplemental report of material systems changes

B. SCI Review Reports

- ❑ Rule 1003(b)(3): Report of SCI review, together with any response by senior management
  Date of completion of SCI review: *mm/dd/yyyy*

  Date of submission of SCI review to senior management: *mm/dd/yyyy*

SECTION III: Contact Information

Provide the following information of the person at the {SCI entity name} prepared to respond to questions for this submission:

First Name: Last Name:

Title:

Email:

Telephone: Fax:

Additional Contacts (Optional)

First Name: Last Name:

Title:

Email:

Telephone: Fax:

First Name: Last Name:

Title:

Email:

Telephone: Fax:

SECTION IV: Signature

Confidential treatment is requested pursuant to Rule 24b-2(g). Additionally, pursuant to the requirements of the Securities Exchange Act of 1934, {SCI Entity name} has duly caused this {notification}{report} to be signed on its behalf by the undersigned duly authorized officer:

Date:

By (Name) Title (_____)

"Digitally Sign and Lock Form"

Exhibit 1: **Rule 1002(b)(2)** **Notification of SCI Event** Add/Remove/View	Within 24 hours of any responsible SCI personnel having a reasonable basis to conclude that the SCI event has occurred, the SCI entity shall submit a written notification pertaining to such SCI event to the Commission, which shall be made on a good faith, best efforts basis and include: (a) a description of the SCI event, including the system(s) affected; and (b) to the extent available as of the time of the notification: the SCI entity's current assessment of the types and number of market participants potentially affected by the SCI event; the potential impact of the SCI event on the market; a description of the steps the SCI entity has taken, is taking, or plans to take, with respect to the SCI event; the time the SCI event was resolved or timeframe within which the SCI event is expected to be resolved; and any other pertinent information known by the SCI entity about the SCI event.
Exhibit 2: **Rule 1002(b)(4)** **Final or Interim Report of SCI Event** Add/Remove/View	When submitting a final report pursuant to either Rule 1002(b)(4)(i)(A) or Rule 1002(b)(4)(i)(B)(2), the SCI entity shall include: (a) a detailed description of: the SCI entity's assessment of the types and number of market participants affected by the SCI event; the SCI entity's assessment of the impact of the SCI event on the market; the steps the SCI entity has taken, is taking, or plans to take, with respect to the SCI event; the time the SCI event was resolved; the SCI entity's rule(s) and/or governing document(s), as applicable, that relate to the SCI event; and any other pertinent information known by the SCI entity about the SCI event; (b) a copy of any information disseminated pursuant to Rule 1002(c) by the SCI entity to date regarding the SCI event to any of its members or participants; and (c) an analysis of parties that may have experienced a loss, whether monetary or otherwise, due to the SCI event, the number of such parties, and an estimate of the aggregate amount of such loss. When submitting an interim report pursuant to Rule 1002(b)(4)(i)(B)(1), the SCI entity shall include such information to the extent known at the time.
Exhibit 3: **Rule 1002(b)(5)(ii)** **Quarterly Report of De Minimis SCI Events** Add/Remove/View	The SCI entity shall submit a report, within 30 calendar days after the end of each calendar quarter, containing a summary description of systems disruptions and systems intrusions that have had, or the SCI entity reasonably estimates would have, no or a de minimis impact on the SCI entity's operations or on market participants, including the SCI systems and, for systems intrusions, indirect SCI systems, affected by such SCI events during the applicable calendar quarter.
Exhibit 4: **Rule 1003 (a)** **Quarterly Report of Systems Changes** Add/Remove/View	When submitting a report pursuant to Rule 1003(a)(1), the SCI entity shall provide a report, within 30 calendar days after the end of each calendar quarter, describing completed, ongoing, and planned material changes to its SCI systems and the security of indirect SCI systems, during the prior, current, and subsequent calendar quarters, including the dates or expected dates of commencement and completion. An SCI entity shall establish reasonable written criteria for identifying a change to its SCI systems and the security of indirect SCI systems as material and report such changes in accordance with such criteria. When submitting a report pursuant to Rule 1003(a)(2), the SCI entity shall provide a supplemental report of a material error in or material omission from a report previously submitted under Rule 1003(a)(1).
Exhibit 5: **Rule 1003(b)(3)** **Report of SCI review** Add/Remove/View	The SCI entity shall provide a report of the SCI review, together with any response by senior management, within 60 calendar days after its submission to senior management of the SCI entity.
Exhibit 6: **Optional Attachments** Add/Remove/View	This exhibit may be used in order to attach other documents that the SCI entity may wish to submit as part of a Rule 1002(b)(1) initial notification submission or Rule 1002(b)(3) update submission.

GENERAL INSTRUCTIONS FOR FORM SCI

A. Use of the Form

Except with respect to notifications to the Commission made pursuant to Rule 1002(b)(1) or updates to the Commission made pursuant to Rule 1002(b)(3), any notification, review, description, analysis, or report required to be submitted pursuant to Regulation SCI under the Securities Exchange Act of 1934 ("Act") shall be filed in an electronic format through an electronic form filing system ("EFFS"), a secure website operated by the Securities and Exchange Commission ("Commission"). Documents attached as exhibits filed through the EFFS system must be in a text-searchable format without the use of optical character recognition. If, however, a portion of a Form SCI submission (e.g., an image or diagram) cannot be made available in a text-searchable format, such portion may be submitted in a non-text searchable format.

B. Need for Careful Preparation of the Completed Form, Including Exhibits

This form, including the exhibits, is intended to elicit information necessary for Commission staff to work with SCI self-regulatory organizations, SCI alternative trading systems, plan processors, exempt clearing agencies subject to ARP, and competing consolidators (collectively, "SCI entities") to ensure the capacity, integrity, resiliency, availability, security, and compliance of their automated systems. An SCI entity must provide all the information required by the form, including the exhibits, and must present the information in a clear and comprehensible manner. A filing that is incomplete or similarly deficient may be returned to the SCI entity. Any filing so returned shall for all purposes be deemed not to have been filed with the Commission. See also Rule 0-3 under the Act (17 CFR 240.0-3).

C. When to Use the Form

Form SCI is comprised of six types of required submissions to the Commission pursuant to Rules 1002 and 1003. In addition, Form SCI permits SCI entities to submit to the Commission two additional types of submissions pursuant to Rules 1002(b)(1) and 1002(b)(3); however, SCI entities are not required to use Form SCI for these two types of submissions to the Commission. In filling out Form SCI, an SCI entity shall select the type of filing and provide all information required by Regulation SCI specific to that type of filing.

The first two types of required submissions relate to Commission notification of certain SCI events:

(1) "Rule 1002(b)(2) Notification of SCI Event" submissions for notifications regarding systems disruptions, systems compliance issues, or systems intrusions (collectively, "SCI events"), other than any systems disruption or systems intrusion that has had, or the SCI entity reasonably estimates would have, no or a de minimis impact on the SCI entity's operations or on market participants; and

(2) "Rule 1002(b)(4) Final or Interim Report of SCI Event" submissions, of which there are two kinds (a final report under Rule 1002(b)(4)(i)(A) or Rule 1002(b)(4)(i)(B)(2); or an interim status report under Rule 1002(b)(4)(i)(B)(1)).

The other four types of required submissions are periodic reports, and include:

(1) "Rule 1002(b)(5)(ii)" submissions for quarterly reports of systems disruptions and systems intrusions which have had, or the SCI entity reasonably estimates would have, no or a de minimis impact on the SCI entity's operations or on market participants ("de minimis SCI events");

(2) "Rule 1003(a)(1)" submissions for quarterly reports of material systems changes;

(3) "Rule 1003(a)(2)" submissions for supplemental reports of material systems changes; and

(4) "Rule 1003(b)(3)" submissions for reports of SCI reviews.

Required Submissions for SCI Events

For 1002(b)(2) submissions, an SCI entity must notify the Commission using Form SCI by selecting the appropriate box in Section I and filling out all information required by the form, including Exhibit 1. 1002(b)(2) submissions must be submitted within 24 hours of any responsible SCI personnel having a reasonable basis to conclude that an SCI event has occurred.

For 1002(b)(4) submissions, if an SCI event is resolved and the SCI entity's investigation of the SCI event is closed within 30 calendar days of the occurrence of the SCI event, an SCI entity must file a final report under Rule 1002(b)(4)(i)(A) within five business days after the resolution of the SCI event and closure of the investigation regarding the SCI event. However, if an SCI event is not resolved or the SCI entity's investigation of the SCI event is not closed within 30 calendar days of the occurrence of the SCI event, an SCI entity must file an interim status report under Rule 1002(b)(4)(i)(B)(1) within 30 calendar days after the occurrence of the SCI event. For SCI events in which an interim status report is required to be filed, an SCI entity must file a final report under Rule 1002(b)(4)(i)(B)(2) within five business days after the resolution of the SCI event and closure of the investigation regarding the SCI event. For 1002(b)(4) submissions, an SCI entity must notify the Commission using Form SCI by selecting the appropriate box in Section I and filling out all information required by the form, including Exhibit 2.

Required Submissions for Periodic Reporting

For 1002(b)(5)(ii) submissions, an SCI entity must submit quarterly reports of systems disruptions and systems intrusions which have had, or the SCI entity reasonably estimates would have, no or a de minimis impact on the SCI entity's operations or on market participants. The SCI entity must select the appropriate box in Section II and fill out all information required by the form, including Exhibit 3.

For 1003(a)(1) submissions, an SCI entity must submit its quarterly report of material systems changes to the Commission using Form SCI. The SCI entity must select the appropriate box in Section II and fill out all information required by the form, including Exhibit 4.

Filings made pursuant to Rule 1002(b)(5)(ii) and Rule 1003(a)(1) must be submitted to the Commission within 30 calendar days after the end of each calendar quarter (i.e., March 31st, June 30th, September 30th and December 31st) of each year.

For 1003(a)(2) submissions, an SCI entity must submit a supplemental report notifying the Commission of a material error in or material omission from a report previously submitted under Rule 1003(a). The SCI entity must select the appropriate box in Section II and fill out all information required by the form, including Exhibit 4.

For 1003(b)(3) submissions, an SCI entity must submit its report of its SCI review, together with any response by senior management, to the Commission using Form SCI. A 1003(b)(3) submission is required within 60 calendar days after the report of the SCI review has been submitted to senior management of the SCI entity. The SCI entity must select the appropriate box in Section II and fill out all information required by the form, including Exhibit 5.

Optional Submissions

An SCI entity may, but is not required to, use Form SCI to submit a notification pursuant to Rule 1002(b)(1). If the SCI entity uses Form SCI to submit a notification pursuant to Rule 1002(b)(1), it must select the appropriate box in Section I and provide a short description of the SCI event. Documents may also be attached as Exhibit 6 if the SCI entity chooses to do so. An SCI entity may, but is not required to, use Form SCI to submit an update pursuant to Rule 1002(b)(3). Rule 1002(b)(3) requires an SCI entity to, until such time as the SCI event is resolved and the SCI entity's investigation of the SCI event is closed, provide updates pertaining to such SCI event to the Commission on a regular basis, or at such frequency as reasonably

requested by a representative of the Commission, to correct any materially incorrect information previously provided, or when new material information is discovered, including but not limited to, any of the information listed in Rule 1002(b)(2)(ii). If the SCI entity uses Form SCI to submit an update pursuant to Rule 1002(b)(3), it must select the appropriate box in Section I and provide a short description of the SCI event. Documents may also be attached as Exhibit 6 if the SCI entity chooses to do so.

D. Documents Comprising the Completed Form

The completed form filed with the Commission shall consist of Form SCI, responses to all applicable items, and any exhibits required in connection with the filing. Each filing shall be marked on Form SCI with the initials of the SCI entity, the four-digit year, and the number of the filing for the year (e.g., SCI Name-YYYY-XXX).

E. Contact Information; Signature; and Filing of the Completed Form

Each time an SCI entity submits a filing to the Commission on Form SCI, the SCI entity must provide the contact information required by Section III of Form SCI. Space for additional contact information, if appropriate, is also provided.

All notifications and reports required to be submitted through Form SCI shall be filed through the EFFS. In order to file Form SCI through the EFFS, SCI entities must request access to the Commission's External Application Server by completing a request for an external account user ID and password. Initial requests will be received by contacting (202) 551-5777. An e-mail will be sent to the requestor that will provide a link to a secure website where basic profile information will be requested. A duly authorized individual of the SCI entity shall electronically sign the completed Form SCI as indicated in Section IV of the form. In addition, a duly authorized individual of the SCI entity shall manually sign one copy of the completed Form SCI, and the manually signed signature page shall be preserved pursuant to the requirements of Rule 1005.

F. Withdrawals of Commission Notifications and Periodic Reports

If an SCI entity determines to withdraw a Form SCI, it must complete Page 1 of the Form SCI and indicate by selecting the appropriate check box to withdraw the submission.

G. Paperwork Reduction Act Disclosure

This collection of information will be reviewed by the Office of Management and Budget in accordance with the clearance requirements of 44 U.S.C. 3507. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid control number. The Commission estimates that the average burden to respond to Form SCI will be between one and 125 hours, depending upon the purpose for which the form is being filed. Any member of the public may direct to the Commission any comments concerning the accuracy of this burden estimate and any suggestions for reducing this burden.

Except with respect to notifications to the Commission made pursuant to Rule 1002(b)(1) or updates to the Commission made pursuant to Rule 1002(b)(3), it is mandatory that an SCI entity file all notifications, reviews, descriptions, analyses, and reports required by Regulation SCI using Form SCI. The Commission will keep the information collected pursuant to Form SCI confidential to the extent permitted by law. Subject to the provisions of the Freedom of Information Act, 5 U.S.C. 522 ("FOIA"), and the Commission's rules thereunder (17 CFR 200.80(b)(4)(iii)), the Commission does not generally publish or make available information contained in any reports, summaries, analyses, letters, or memoranda arising out of, in anticipation of, or in connection with an examination or inspection of the books and records of any person or any other investigation.

H. Exhibits

List of exhibits to be filed, as applicable:

Exhibit 1: Rule 1002(b)(2) – Notification of SCI Event. Within 24 hours of any responsible SCI personnel having a reasonable basis to conclude that the SCI event has occurred, the SCI entity

shall submit a written notification pertaining to such SCI event to the Commission, which shall be made on a good faith, best efforts basis and include: (a) a description of the SCI event, including the system(s) affected; and (b) to the extent available as of the time of the notification: the SCI entity's current assessment of the types and number of market participants potentially affected by the SCI event; the potential impact of the SCI event on the market; a description of the steps the SCI entity has taken, is taking, or plans to take, with respect to the SCI event; the time the SCI event was resolved or timeframe within which the SCI event is expected to be resolved; and any other pertinent information known by the SCI entity about the SCI event.

Exhibit 2: Rule 1002(b)(4) – Final or Interim Report of SCI Event. When submitting a final report pursuant to either Rule 1002(b)(4)(i)(A) or Rule 1002(b)(4)(i)(B)(2), the SCI entity shall include: (a) a detailed description of: the SCI entity's assessment of the types and number of market participants affected by the SCI event; the SCI entity's assessment of the impact of the SCI event on the market; the steps the SCI entity has taken, is taking, or plans to take, with respect to the SCI event; the time the SCI event was resolved; the SCI entity's rule(s) and/or governing document(s), as applicable, that relate to the SCI event; and any other pertinent information known by the SCI entity about the SCI event; (b) a copy of any information disseminated pursuant to Rule 1002(c) by the SCI entity to date regarding the SCI event to any of its members or participants; and (c) an analysis of parties that may have experienced a loss, whether monetary or otherwise, due to the SCI event, the number of such parties, and an estimate of the aggregate amount of such loss. When submitting an interim report pursuant to Rule 1002(b)(4)(i)(B)(1), the SCI entity shall include such information to the extent known at the time.

Exhibit 3: Rule 1002(b)(5)(ii) – Quarterly Report of De Minimis SCI Events. The SCI entity shall submit a report, within 30 calendar days after the end of each calendar quarter, containing a summary description of systems disruptions and systems intrusions that have had, or the SCI

entity reasonably estimates would have, no or a de minimis impact on the SCI entity's operations or on market participants, including the SCI systems and, for systems intrusions, indirect SCI systems, affected by such SCI events during the applicable calendar quarter.

Exhibit 4: Rule 1003(a) – Quarterly Report of Systems Changes. When submitting a report pursuant to Rule 1003(a)(1), the SCI entity shall provide a report, within 30 calendar days after the end of each calendar quarter, describing completed, ongoing, and planned material changes to its SCI systems and the security of indirect SCI systems, during the prior, current, and subsequent calendar quarters, including the dates or expected dates of commencement and completion. An SCI entity shall establish reasonable written criteria for identifying a change to its SCI systems and the security of indirect SCI systems as material and report such changes in accordance with such criteria. When submitting a report pursuant to Rule 1003(a)(2), the SCI entity shall provide a supplemental report of a material error in or material omission from a report previously submitted under Rule 1003(a); provided, however, that a supplemental report is not required if information regarding a material systems change is or will be provided as part of a notification made pursuant to Rule 1002(b).

Exhibit 5: Rule 1003(b)(3) – Report of SCI Review. The SCI entity shall provide a report of the SCI review, together with any response by senior management, within 60 calendar days after its submission to senior management of the SCI entity.

Exhibit 6: Optional Attachments. This exhibit may be used in order to attach other documents that the SCI entity may wish to submit as part of a Rule 1002(b)(1) initial notification submission or Rule 1002(b)(3) update submission.

I. Explanation of Terms

Critical SCI systems means any SCI systems of, or operated by or on behalf of, an SCI entity that: (a) directly support functionality relating to: (1) clearance and settlement systems of clearing agencies; (2) openings, reopenings, and closings on the primary listing market; (3)

trading halts; (4) initial public offerings; (5) the provision of market data by a plan processor; or (6) exclusively-listed securities; or (b) provide functionality to the securities markets for which the availability of alternatives is significantly limited or nonexistent and without which there would be a material impact on fair and orderly markets.

Indirect SCI systems means any systems of, or operated by or on behalf of, an SCI entity that, if breached, would be reasonably likely to pose a security threat to SCI systems.

Major SCI event means an SCI event that has had, or the SCI entity reasonably estimates would have: (a) any impact on a critical SCI system; or (b) a significant impact on the SCI entity's operations or on market participants.

Responsible SCI personnel means, for a particular SCI system or indirect SCI system impacted by an SCI event, such senior manager(s) of the SCI entity having responsibility for such system, and their designee(s).

SCI entity means an SCI self-regulatory organization, SCI alternative trading system, plan processor, exempt clearing agency subject to ARP, or competing consolidator.

SCI event means an event at an SCI entity that constitutes: (a) a systems disruption; (b) a systems compliance issue; or (c) a systems intrusion.

SCI review means a review, following established procedures and standards, that is performed by objective personnel having appropriate experience to conduct reviews of SCI systems and indirect SCI systems, and which review contains: (a) a risk assessment with respect to such systems of an SCI entity; and (b) an assessment of internal control design and effectiveness of its SCI systems and indirect SCI systems to include logical and physical security controls, development processes, and information technology governance, consistent with industry standards.

SCI systems means all computer, network, electronic, technical, automated, or similar systems of, or operated by or on behalf of, an SCI entity that, with respect to securities, directly support

trading, clearance and settlement, order routing, market data, market regulation, or market surveillance.

Systems Compliance Issue means an event at an SCI entity that has caused any SCI system of such entity to operate in a manner that does not comply with the Act and the rules and regulations thereunder or the entity's rules or governing documents, as applicable.

Systems Disruption means an event in an SCI entity's SCI systems that disrupts, or significantly degrades, the normal operation of an SCI system.

Systems Intrusion means any unauthorized entry into the SCI systems or indirect SCI systems of an SCI entity.

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