only one method. The Commission will post all comments on the Commission’s internet website (http://www.sec.gov/rules/sro.shtml). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission’s Public Reference Room, 100 F Street NE, Washington, DC 20549 on official business days between the hours of 10 a.m. and 3 p.m. Copies of the filing also will be available for inspection and copying at the principal office of the Exchange. All comments received will be posted without change. Persons submitting comments are cautioned that we do not redact or edit personal identifying information from comment submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR–CboeBZX–2019–044 and should be submitted by September 18, 2019. Rebuttal comments should be submitted by October 2, 2019.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.40

Jill M. Peterson, Assistant Secretary.

[FR Doc. 2019–18484 Filed 8–27–19; 8:45 am]

BILLING CODE 8011–01–P

SECURITIES AND EXCHANGE COMMISSION


Self-Regulatory Organizations: The Options Clearing Corporation; Order Approving Proposed Rule Change Related to The Options Clearing Corporation’s Vanilla Option Model and Smoothing Algorithm

August 22, 2019.

I. Introduction

On June 28, 2019, the Options Clearing Corporation (“OCC”) filed with the Securities and Exchange Commission (“Commission”) the proposed rule change SR–OCC–2019–005 (“Proposed Rule Change”) pursuant to Section 19(b) of the Securities Exchange Act of 1934 (“Exchange Act”)1 and Rule 19b–42 thereunder to propose changes to OCC’s margin methodology regarding the estimation of prices for listed options contracts.3 The Proposed Rule Change was published for public comment in the Federal Register on July 9, 2019,4 and the Commission has received no comments regarding the Proposed Rule Change.5 This order approves the Proposed Rule Change.

II. Background

The System for Theoretical Analysis and Numerical Simulations (“STANS”) is OCC’s methodology for calculating margin requirements. STANS margin requirements are driven by several components, each reflecting a different aspect of risk. Two primary components of STANS are the models that OCC uses to (1) generate theoretical values, implied volatilities, and certain risk sensitivities for plain vanilla listed options (the “Vanilla Option Model”);6 and (2) estimate fair prices of listed option contracts based on their bid and ask price quotes (the “Smoothing Algorithm”).7 The changes proposed in

3 See Notice of Filing infra note 4, at 84 FR 32821.
6 Since the proposal contained in the Proposed Rule Change was also filed as an advance notice, all public comments received on the proposal are considered regardless of whether the comments are submitted on the Proposed Rule Change or Advance Notice.
7 Plain vanilla listed options are commonly understood to encompass options with standardized terms (e.g., a predetermined strike price, classification as a call vs. put) and settlement structures (e.g., American-style, European-style). As described in the Notice of Filing, the Vanilla Option Model is designed to address such options, including (1) all listed vanilla European and American options on exchange traded funds and exchange traded notes (collectively, “ETPs”), equities, equity indices, futures on equity indices, currencies or commodities, and (2) vanilla flexible exchange options (“vanilla FLEX options”). See Notice of Filing, at 32817, n.7. As of the time of filing, plain vanilla options accounted for approximately 95 percent of the total contracts cleared by OCC. See id. See OCC uses the Smoothing Algorithm to estimate prices on all plain vanilla listed options included in the Vanilla Option Model, as well as options on non-equity securities (e.g. the Cboe Volatility Index). See Notice of Filing, 84 FR at 32817.
8 For example, OCC generates theoretical values for American style options using a modified Jarrow-Rudd (“FR”) binomial tree.
9 The implied volatility of an option is a measure of the expected future volatility of the option’s underlying security at expiration, which is reflected in the current option premium in the market.
10 OCC uses the Vanilla Option Model to calculate Delta, Gamma, and Vega. Delta measures the change in the price of an option with respect to a change in the price of the underlying asset. Gamma measures the change in Delta with respect to a 1 percent change in the price of the underlying asset. Vega measures the change in the price of an option corresponding to a 1 percent change in the underlying asset’s volatility.
(3) Borrowing Costs

The Vanilla Option Model does not currently account for the costs that may be incurred by an option buyer or seller who must borrow the security underlying an option (i.e., “Borrowing Costs”). OCC has acknowledged that the failure to incorporate Borrowing Costs could cause OCC to model implied volatilities inconsistently across puts and calls with the same strike and tenor. OCC proposes to calculate Borrowing Costs based on the market prices of options and futures, and to use such Borrowing Costs as an input of the Vanilla Option Model.

(4) Binomial Tree

As noted above, the Vanilla Option Model uses the JR binomial tree to generate theoretical values for American-style options. OCC has acknowledged, however, that the Leisen Reimer (“LR”) binomial tree has a higher rate of convergence than the JR tree. OCC proposes to replace the JR binomial tree with the LR binomial tree in the Vanilla Option Model.

Further, the Vanilla Option Model employs a fixed number of steps in the JR binomial tree. OCC has acknowledged that the current number of steps is insufficient for accurately evaluating long-dated options. OCC proposes to introduce a variable number of steps in the LR binomial tree. As proposed, the minimum number of steps in the LR binomial tree would be greater than the current fixed number of steps in the JR binomial tree that is currently used by the Vanilla Option Model.

(5) Risk Sensitivities

OCC currently uses the Vanilla Option Model to calculate three risk sensitivities: Delta, Gamma, and Vega. OCC stated that the Vanilla Option Model does not currently calculate Theta or Rho. OCC proposes to use the Vanilla Option Model to calculate Theta and Rho while continuing to calculate Delta, Gamma, and Vega.

B. Smoothing Algorithm

The Smoothing Algorithm is a four-step process that OCC uses to estimate fair values for plain vanilla listed options based on closing bid and ask price quotes. First, OCC filters out certain poor-quality price quotes. Second, OCC estimates the forward prices of the securities underlying the options. Third, OCC generates theoretical option prices based on bid and ask quotes and the forward prices estimated in the previous step. Finally, as described in the Notice of Filing, OCC constructs a volatility surface based on the smoothed prices from the prior steps, and uses that surface to approximate prices for contracts that were filtered out in the Smoothing Algorithm’s first step. As discussed below, OCC proposes to make five changes to the Smoothing Algorithm.

(1) Model Inconsistencies

Currently, the Smoothing Algorithm uses the LR binomial tree as part of the price smoothing process. As discussed above, the Vanilla Option Model currently uses the JR binomial tree. OCC has acknowledged that the inconsistency between the Vanilla Option Model and the Smoothing Algorithm could result in violations of put and call parity in OCC’s margin calculations.

The proposal to replace the JR binomial tree with the LR binomial tree in the Vanilla Option Model would resolve the inconsistency between the Vanilla Option Model and the Smoothing Algorithm.

(2) Theoretical Spot Prices

As noted above, the Smoothing Algorithm estimates the forward prices of securities underlying options, and uses the estimated forward prices to generate theoretical option prices. The estimation of forward prices relies, in part, on spot prices. Currently, the Smoothing Algorithm approximates spot prices for indices underlying options (i.e., theoretical spot prices) based on the prices of related index futures observed prior to the close of the futures markets. The relevant futures markets close at 3:15 p.m. Central Time;

(3) Volatility Cap

As noted above, OCC uses the Smoothing Algorithm to construct a volatility surface based on theoretical option prices. The process for constructing such a volatility surface includes the application of certain restrictions to ensure that prices satisfy arbitrage-free conditions and bid and ask spread constraints. One such restriction involves capping unacceptably high volatilities. Currently, the Smoothing Algorithm imposes an abrupt cap on volatilities that causes the rate of change of volatility to change sharply at the point of the cap (i.e., the current cap causes a sudden change in an otherwise gradual process).

OCC has acknowledged that such a jump may create negative convexity of the option prices versus strike prices (i.e., butterfly arbitrage opportunities). OCC proposes to impose a more gradual process for constraining unacceptably high volatilities with the intention of eliminating opportunities for butterfly arbitrage.

(4) Short-Dated Flex Options

Currently, the Smoothing Algorithm generates prices for short-dated FLEX options by combining current market prices with implied volatilities from the prior day. OCC has acknowledged that combining prices and implied volatilities from different days in this way may cause the Smoothing Algorithm to generate option prices that are inconsistent with current market prices. OCC proposes to generate prices for short-dated FLEX options however, the markets for the underlying indices close at 3 p.m. Central Time. OCC has acknowledged that this difference in closing times could result in poorly smoothed prices whenever options trading between 3:00 p.m. and 3:15 p.m. is volatile, which could result in problems in OCC’s margin calculations.

OCC proposes, for the purpose of calculating theoretical spot prices, to rely on basis futures rather than index futures. The relevant markets for basis futures close at 3 p.m. Central Time, which aligns with the 3 p.m. close of the market for the underlying indices.

12 See id.
13 See id.
14 See id.
15 See id.
16 Theta is a measurement of the relationship between an option’s price and remaining time to expiration. Rho is a measurement of the relationship between an option’s price and changes in the risk-free rate.
17 As described in the Notice of Filing, price quotes are excluded from the algorithm if they meet one or more of the following conditions: (i) Prices for options that expired or have a remaining maturity of less than a certain number of days, where that number is specified by a control parameter; (ii) prices for options that have only “one-sided contracts” (i.e., contracts for which prices exist only for either the call or the put, but not for both); (iii) prices for options whose ask prices are zero; (iv) prices for options with negative bid and ask spreads; or (v) prices for any American options if the ask price is less than the intrinsic value of the option. See Notice of Filing, 84 FR at 32817, n.11.
18 OCC applies a series of constraints when generating such theoretical option prices based on the implied forward prices calculated in the Smoothing Algorithm’s second step.
19 See Notice of Filing, 84 FR at 32818, n.17.
20 See Notice of Filing, 84 FR at 32818, n.17.
21 Basis futures prices represent the spreads between the prices of futures and the assets underlying those futures. OCC states that these spreads are relatively stable throughout the day, including between their closing at 3:00 p.m. and the closing of the related index options market at 3:15 p.m. See Notice of Filing, 84 FR at 32819.
22 See id.
23 See id.
based on current market prices and the volatilities implied by such prices.\(^2\)

(5) Borrowing Costs

Currently, the Smoothing Algorithm does not directly consider Borrowing Costs when estimating fair prices for listed options. OCC has acknowledged that the Smoothing Algorithm instead relies on implied dividends,\(^2\) which can result in mispricing.\(^2\) OCC proposes to use Borrowing Costs, implied from listed option prices, as an independent input into the Smoothing Algorithm.

III. Discussion and Commission Findings

Section 19(b)(2)(C) of the Exchange Act directs the Commission to approve a proposed rule change of a self-regulatory organization if it finds that such proposed rule change is consistent with the requirements of the Exchange Act and the rules and regulations thereunder applicable to such organization.\(^2\) After carefully considering the Proposed Rule Change, the Commission finds the proposal is consistent with the requirements of the Exchange Act and the rules and regulations thereunder applicable to OCC. More specifically, the Commission finds that the proposal is consistent with Section 17A(b)(3)(F) of the Exchange Act\(^2\) and Rules 17Ad–22(e)(6)(i) and (iii).\(^2\)

A. Consistency With Section 17A(b)(3)(F) of the Exchange Act

Section 17A(b)(3)(F) of the Exchange Act requires that the rules of a clearing agency be designed to, among other things, assure the safeguarding of securities and funds which are in the custody or control of the clearing agency or for which it is responsible.\(^\) Based on its review of the record, the Commission believes that the proposed changes are designed to assure the safeguarding of securities and funds which are in OCC’s custody or control for the reasons set forth below.

OCC manages its credit exposure to Clearing Members, in part, through the collection of collateral based on OCC’s margin methodology. As noted above, two primary components of OCC’s margin methodology are the Vanilla Option Model and the Smoothing Algorithm. Several of the proposed changes would address shortcomings in the assumptions underlying the Vanilla Option Model and the Smoothing Algorithm. The introduction of dynamic, rather than constant, interest rate and dividend data as inputs to the Vanilla Option Model would provide a more accurate representation of option market dynamics. Additionally, the use of basis futures, as opposed to index futures, to generate theoretical spot prices for indices underlying options could avoid problems in OCC’s margin calculations arising from differences in market closing times. Similarly, the estimating prices for short-dated FLEX options based on price and implied volatility data from the same day (as opposed to different days) would better align with prices observed in the market. Further, the introduction of Borrowing Costs would allow OCC to account for a known cost not currently addressed in OCC’s models. The Commission believes that the proposed changes described above would better align the Vanilla Option Model and the Smoothing Algorithm with the subject matter that they are designed to model.

Other of the proposed changes would address model design issues identified in the Vanilla Option Model and the Smoothing Algorithm. As noted above, OCC proposes to change the way the Smoothing Algorithm addresses unacceptably high volatilities to ensure that theoretical option prices satisfy certain arbitrage-free conditions (i.e., eliminating butterfly arbitrage opportunities). OCC also proposes to use the same binomial tree in both the Vanilla Option Model and the Smoothing Algorithm to enhance model consistency. The proposal to use a LR binomial tree with a variable number of steps, as opposed to the current fixed number of steps in a JR binomial tree, would allow the Vanilla Option Model to more accurately price long-dated options. Additionally, the move to the LR binomial tree would allow OCC to generate additional risk sensitivity data. Such data could allow OCC to better understand the risks present in Clearing Members’ portfolios.

The Vanilla Option Model and the Smoothing Algorithm are two of the fundamental components of OCC’s margin methodology. Improving the accuracy and precision of these models would improve the accuracy and precision of OCC’s margin calculations, and could give OCC a better understanding of the risks posed by its Clearing Members. Improving OCC’s margin calculations and understanding of its exposures would facilitate OCC’s ability to manage potential Clearing Member defaults. The Commission believes that the proposed changes would improve OCC’s margin methodology as described above. Improving OCC’s margin methodology could reduce the potentiality that OCC would mutualize a loss arising out of the process of closing out a defaulted Clearing Member’s portfolio. While unavoidable under certain circumstances, reducing the potentiality of loss mutualization during periods of market stress could reduce the potential knock-on effects to non-defaulting Clearing Members, their customers and the broader options market arising out of a Clearing Member default. The Commission believes, therefore, that the proposed improvements to OCC’s margin methodology are consistent with assuring the safeguarding of securities and funds which are in OCC’s custody or control or for which it is responsible consistent with the requirements of Section 17A(b)(3)(F) of the Exchange Act.\(^\)

B. Consistency With Rule 17Ad–22(e)(6)(i) Under the Exchange Act

Rule 17Ad–22(e)(6)(i) under the Exchange Act requires that a covered clearing agency establish, implement, maintain, and enforce written policies and procedures reasonably designed to cover, if the covered clearing agency provides central counterparty services, its credit exposures to its participants by establishing a risk-based margin system that, at a minimum, considers, and produces margin levels commensurate with, the risks and particular attributes of each relevant product, portfolio, and market.\(^\)

As discussed above, certain changes that OCC proposes would be designed to better align the assumptions underlying the Vanilla Option Model and the Smoothing Algorithm with the products to which they are applied as well as the related markets. The introduction of dynamic, rather than constant, interest rate and dividend data as inputs to the Vanilla Option Model would provide a more accurate representation of the particular attributes of options markets. The estimation of prices for short-dated FLEX options based on prices and implied volatilities from the same day (as opposed to different days) would better align with prices observed in the market. Additionally, accounting for Borrowing Costs would better align OCC’s margin requirements with particular attributes of plain vanilla options.
options by accounting for the costs facing options market participants. Further, the move to a LR binomial tree in the Vanilla Option Model would allow OCC to generate additional risk data relevant to the products that OCC clears. The Commission believes, therefore, that adoption of the proposed changes designed to align OCC’s models assumptions with market dynamics are consistent with Exchange Act Rule 17Ad–22(e)(6)(i).33

C. Consistency With Rule 17Ad–22(e)(6)(i) Under the Exchange Act

Rule 17Ad–22(e)(6)(iii) under the Exchange Act requires that a covered clearing agency establish, implement, maintain, and enforce written policies and procedures reasonably designed to cover, if the covered clearing agency provides central counterparty services, its credit exposures to its participants by establishing a risk-based margin system that, at a minimum, calculates margin sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default.34

As discussed above, certain changes that OCC proposes to make to the Vanilla Option Model and the Smoothing Algorithm would address model design issues. OCC proposes to change the way the Smoothing Algorithm addresses unacceptably high volatilities to ensure that theoretical option prices satisfy certain arbitrage-free conditions (i.e., eliminating butterfly arbitrage opportunities). OCC also proposes to enhance model consistency by using the same binomial tree in both the Vanilla Option Model and the Smoothing Algorithm. Further, the proposal to replace the binomial tree’s fixed number of steps with a variable number of steps would allow the Vanilla Option Model to more accurately price long-dated options. Finally, the use of basis futures, as discussed above, would allow OCC to better calculate

margin sufficient to cover its potential future exposure to Clearing Members. The Commission believes, therefore, that adoption of the changes proposed to address design issues in OCC’s margin methodology are consistent with Exchange Act Rule 17Ad–22(e)(6)(iii).35

IV. Conclusion

On the basis of the foregoing, the Commission finds that the Proposed Rule Change is consistent with the requirements of the Exchange Act, and in particular, the requirements of Section 17A of the Exchange Act and the rules and regulations thereunder. It is therefore ordered, pursuant to Section 19(b)(2) of the Exchange Act, that the Proposed Rule Change (SR–OCC–2019–005) be, and hereby is, approved.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.36

Jill M. Peterson,
Assistant Secretary.

[FR Doc. 2019–18481 Filed 8–27–19; 8:45 am]

BILLING CODE 8011–01–P

SECURITIES AND EXCHANGE COMMISSION

Sunshine Act Meetings

TIME AND DATE: Notice is hereby given, pursuant to the provisions of the Government in Sunshine Act, Public Law 94–409, that the Securities and Exchange Commission Investor Advisory Committee will hold a telephonic meeting on Thursday, September 5, 2019.

PLACE: The meeting will be open to the public via telephone at 1–800–260–0719 in the United States or (651) 291–1170 outside the United States, participant code 470756.

STATUS: This meeting will begin at 11:00 a.m. (ET) and conclude at 12:30 p.m. and will be open to the public via telephone. The meeting will be webcast by audio-only on the Commission’s website at www.sec.gov.

MATTERS TO BE CONSIDERED: On August 12, 2019, the Commission issued notice of the Committee meeting (Release No. 33–10670), indicating that the meeting is open to the public via telephone, and inviting the public to submit written comments to the Committee. This

33 Id.
34 Id.
36 In approving this Proposed Rule Change, the Commission has considered the proposed rules’ impact on efficiency, competition, and capital formation. See 15 U.S.C. 78c(f).
39 Sunshine Act notice is being issued because a quorum of the Commission may attend the meeting.

The agenda for the meeting includes: Welcome remarks; a discussion regarding the proxy process (including a recommendation from the Investor as Owner Subcommittee).

CONTACT PERSON FOR MORE INFORMATION: For further information and to ascertain what, if any, matters have been added, deleted or postponed; please contact Vanessa A. Countryman from the Office of the Secretary at (202) 551–5400.

Dated: August 26, 2019.

Vanessa A. Countryman,
Secretary.

[FR Doc. 2019–18719 Filed 8–26–19; 4:15 pm]

BILLING CODE 8011–01–P

SECURITIES AND EXCHANGE COMMISSION


Self-Regulatory Organizations; ICE Clear Credit LLC; Notice of Filing of Proposed Rule Change, Security-Based Swap Submission, or Advance Notice Relating to the ICC Clearing Rules

August 22, 2019.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934,1 and Rule 19b–4 thereunder,2 notice is hereby given that on August 8, 2019, ICE Clear Credit LLC (“ICC”) filed with the Securities and Exchange Commission the proposed rule change, security-based swap submission, or advance notice as described in Items I, II and III below, which Items have been prepared by ICC. The Commission is publishing this notice to solicit comments on the proposed rule change, security-based swap submission, or advance notice from interested persons.

I. Clearing Agency’s Statement of the Terms of Substance of the Proposed Rule Change, Security-Based Swap Submission, or Advance Notice

The principal purpose of the proposed rule change is to make changes to the ICC Clearing Rules (the “ICC Rules”) to address the treatment of certain investment losses, custodial losses and other non-default losses.