

change is consistent with the Act. Comments may be submitted by any of the following methods:

#### *Electronic Comments*

- Use the Commission's internet comment form (<http://www.sec.gov/rules/sro.shtml>); or
- Send an email to [rule-comments@sec.gov](mailto:rule-comments@sec.gov). Please include File Number SR-NYSEAMER-2018-36 on the subject line.

#### *Paper Comments*

- Send paper comments in triplicate to Brent J. Fields, Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549-1090.

All submissions should refer to File Number SR-NYSEAMER-2018-36. This file number should be included on the subject line if email is used. To help the Commission process and review your comments more efficiently, please use 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 10:00 a.m. and 3:00 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-NYSEAMER-2018-36 and should be submitted on or before August 6, 2018.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.<sup>7</sup>

**Eduardo A. Aleman,**  
*Assistant Secretary.*

[FR Doc. 2018-15083 Filed 7-13-18; 8:45 am]

**BILLING CODE 8011-01-P**

## SECURITIES AND EXCHANGE COMMISSION

### Sunshine Act Meeting

**TIME AND DATE:** Notice is hereby given, pursuant to the provisions of the Government in the Sunshine Act, Public Law 94-409, that the Securities and Exchange Commission will hold an Open Meeting on July 18, 2018 at 10:00 a.m.

**PLACE:** The meeting will be held in the Auditorium, Room LL-002 at the Commission's headquarters, 100 F Street NE, Washington, DC 20549.

**STATUS:** This meeting will begin at 10:00 a.m. (ET) and will be open to the public. Seating will be on a first-come, first-served basis. Visitors will be subject to security checks. The meeting will be webcast on the Commission's website at <http://www.sec.gov>.

**MATTERS TO BE CONSIDERED:** The subject matters of the Open Meeting will be the Commission's consideration of:

1. Whether to adopt an amendment to Securities Act Rule 701(e), as mandated by the Economic Growth, Regulatory Relief, and Consumer Protection Act.
2. Whether to issue a concept release requesting comment on potential revisions to Securities Act Rule 701 and Securities Act Form S-8.
3. Whether to propose amendments to the disclosure requirements in Rule 3-10 and Rule 3-16 of Regulation S-X.
4. Whether to adopt amendments to Rule 3a1-1 and Regulation ATS and new Form ATS-N under the Securities Exchange Act of 1934 related to certain alternative trading systems.

At times, changes in Commission priorities require alterations in the scheduling of meeting items.

**CONTACT PERSON FOR MORE INFORMATION:** For further information, please contact Brent J. Fields from the Office of the Secretary at (202) 551-5400.

Dated: July 11, 2018.

**Lynn M. Powalski,**  
*Deputy Secretary.*

[FR Doc. 2018-15233 Filed 7-12-18; 4:15 pm]

**BILLING CODE 8011-01-P**

## SECURITIES AND EXCHANGE COMMISSION

[Release No. 34-83619; File No. SR-MIAX-2018-14]

### Self-Regulatory Organizations: Notice of Filing of a Proposed Rule Change by Miami International Securities Exchange, LLC to List and Trade on the Exchange Options on the SPIKES™ Index

July 11, 2018.

Pursuant to the provisions of Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act")<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> notice is hereby given that on June 28, 2018, Miami International Securities Exchange, LLC ("MIAX Options" or "Exchange") filed with the Securities and Exchange Commission ("Commission") a proposed rule change as described in Items I and II below, which Items have been prepared by the Exchange. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

#### I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The Exchange proposes to list and trade on the Exchange options on the SPIKES™ Index ("SPIKES" or the "Index"), a new index that measures expected 30-day volatility of the SPDR S&P 500 ETF Trust. The Exchange also proposes to list and trade short-term, quarterly, and long-term options on SPIKES. Options on SPIKES will be cash-settled and will have European-style exercise provisions.

The text of the proposed rule change is available on the Exchange's website at <http://www.miaxoptions.com/rule-filings/>, at MIAX Options' principal office, and at the Commission's Public Reference Room.

#### II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the Exchange included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant aspects of such statements.

<sup>1</sup> 15 U.S.C. 78s(b)(1).

<sup>2</sup> 17 CFR 240.19b-4.

<sup>7</sup> 17 CFR 200.30-3(a)(12).

*A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change*

1. Purpose

The Exchange recently adopted generic rules relating to the listing and trading of cash-settled index options on the Exchange.<sup>3</sup> The Exchange now proposes to amend its rules to provide for the listing and trading on the Exchange of options on the Index. The Index measures expected 30-day volatility of the SPDR S&P 500 ETF Trust (commonly known and referred to by its ticker symbol, "SPY"). Options on

the Index will be cash-settled and will have European-style exercise provisions. In addition to regular options, the Exchange proposes to also list short-term, quarterly, and long-term options on the Index. The Index is calculated using published real-time prices and bid/ask quotes of SPY options. The Index represents annualized expected volatility and is quoted in percentage points.

Index Design and Composition

The calculation of the Index is based on the methodology developed by T3i Pty Ltd, a firm that develops proprietary indexes, including derivatives-based

indexes and options-enhanced indexes. The Index will be calculated and maintained by the Exchange. The Index measures expected 30-day volatility of SPY, historically the largest and most actively traded ETF in the United States as measured by its assets under management and the value of shares traded.

Like most indices, the Index has a defined rules-based approach to selecting components—a series of options on the SPY—and weighting them to derive a single price for the Index.

Therefore, the formula for expected T-term variance is as follows:

$$\sigma^2 = \frac{1}{T} \left| 2e^{RT} \sum_i \frac{\Delta K_i p_i}{K_i^2} - \left( \frac{e^{RT} (p_{ATM}^c - p_{ATM}^p)}{K_{ATM}} \right)^2 \right|$$

WHERE:

$T$  Time to options expiration (in years, with 1-second precision)<sup>4</sup>

$K_i, p_i$  A list of unique options strikes, ordered from lowest to highest, and corresponding options prices;<sup>5</sup> of a call if  $K_i > K_{ATM}$ ; and of a put if  $K_i < K_{ATM}$ ; if  $K_i = K_{ATM}$  then an average between the ATM put and call prices

$\Delta K_i$  Half the difference between the strikes on either side of  $K_i$ ;

$$\Delta K_i = \frac{(K_{i+1} - K_{i-1})}{2}$$

For the last (highest and lowest) selected strikes,  $\Delta K_i$  is simply the absolute difference between  $K_i$  and the nearest selected option's strike

$R$  Risk-free interest rate to option's expiration

$p_{ATM}^c$  Price of the at-the-money (ATM) call option

$p_{ATM}^p$  Price of the ATM put option

$K_{ATM}$  Strike closest to the point where linearly interpolated call and put prices intersect.

The Index is calculated using only standard options on SPY that expire on the third Friday of each calendar month. Although weekly options on SPY are available, these are not used in the calculation of the Index.

The calculation linearly interpolates between the variances of two monthly expirations—near-term (the closest expiration more than two full days into the future) and next-term (the monthly expiration following the near-term). This expiration selection method is

used to avoid using highly irregular option prices close to the options settlement date. The 30-day point is typically in between these two expirations and the Index is interpolated between the volatilities of these two terms. When the closest

<sup>3</sup> See Securities Exchange Act Release No. 81739 (September 27, 2017), 82 FR 46111 (October 3, 2017) (SR-MIAX-2017-39) (Order approving the adoption of rules relating to trading in index options).

<sup>4</sup> Since the SPIKES Index is calculated on a real-time basis, the Exchange uses 1-second precision to measure time in years (which is expressed to at least eight decimal places, by dividing the number of seconds to option expiration by the total number of seconds in a year).

<sup>5</sup> This price is also known as the Reference Price, as defined and discussed in more detail below, in the following subsection 1, Determine Option Prices.

expiration is too close to expiry (less than two full days), rolling to the third-closest expiration occurs. This rolling rule serves to reduce spurious variability in the Index by means of minimizing the period of “extrapolation” between the two expirations. The switch from closest to third-closest expiry rarely has any noticeable impact on the actual Index value, as the weight of the switched term is close to zero. The following describes the methodology used to price the Index in greater detail.

#### 1. Determine Option Prices

SPIKES uses a proprietary “price dragging” technique to determine the ongoing price for each individual option used in the calculation of the Index (“Reference Price”), to calculate the Index, as follows:

- Initially set all prices to 0;
- If there is a trade, the price of the option is always set to the trade price;
- If there is not yet a trade, on the opening quote, the opening bid is used as the current price;
- For newly-placed ask (bid) quotes, if the ask (bid) is lower (higher) than current Reference Price, the option price is set to ask (bid).

The Exchange believes that this method should materially reduce erratic movements of the Index value as quotations on out-of-the-money (“OTM”) options are rapidly altered during times of low liquidity. The Exchange believes that this method is a material enhancement over existing calculation methodologies, and should result in improved Index stability by smoothing out options price inputs into the Index calculation, especially as options quotes are rapidly changing.

An example of the price dragging technique is given below:

Time	Market	SPIKES input <sup>6</sup>	Change in SPIKES input	Midpoint input	Change in midpoint input	Difference b/t SPIKES input and midpoint input
9:30:00 .....	0 x 0 .....	0.00 .....	.....	0.00 .....	.....	0.00
9:31:10 .....	2.35 x 2.65 .....	2.35 .....	.....	2.50 .....	.....	0.15
9:31:10 .....	Trade @ 2.38 .....	2.38 .....	.....	2.50 .....	.....	0.12
			.03			
9:33:01 .....	2.31 x 2.65 .....	2.38 .....	.....	2.48 .....	.....	0.10
			.02			
9:33:48 .....	2.31 x 2.39 .....	2.38 .....	.....	2.35 .....	.....	0.03
			.13			
9:36:41 .....	Trade @ 2.37 .....	2.37 .....	.....	2.35 .....	.....	0.02
			.01			
9:38:34 .....	2.32 x 2.40 .....	2.37 .....	.....	2.36 .....	.....	0.01
			.01			
9:38:52 .....	2.00 x 6.00 .....	2.37 .....	.....	4.00 .....	.....	1.63
			1.64			
9:39:02 .....	Trade @ 3.10 .....	3.10 .....	.....	4.00 .....	.....	0.90
			.73			
9:39:20 .....	3.05 x 3.50 .....	3.10 .....	.....	3.275 .....	.....	0.175
			0.725			

The example shows a hypothetical market for a specific option used as an input to SPIKES. The results of price dragging are shown in the column “SPIKES Input,” and a hypothetical result using an alternative method of calculating the option input price using the midpoint method is shown in the column “Midpoint Input.” The difference between the result using the SPIKES Input and the Midpoint Input is shown in the “Difference b/t SPIKES Input and Midpoint Input Column.” The shaded cells illustrate changes in the input prices of the two methods after each update to the market. The Exchange believes that the example illustrates that, given the hypothetical market prices, the price dragging technique results in a smoother Index price because it relies primarily on trade prices (which are more indicative of actual value), only using quote prices when a quote bid is higher than the last

trade or a quote offer is lower than the last trade. Additionally, the Index performance has been evaluated using alternative calculation methodologies. This evaluation included a comparison of the performance of the Index when calculated using the price dragging technique, versus the performance of the Index when calculated using an alternative midpoint method, and covered periods of both low and high volatility in SPY. The Exchange believes that the price dragging technique consistently outperformed the midpoint method, as measured by the Index’s overall stability and smoothness of price changes, resulting from primarily relying on trade prices (which are more indicative of actual value).

The price dragging technique is used to determine the Reference Price for each individual option used in the Index calculation. The Exchange believes that this technique is a material enhancement that may improve Index stability by smoothing out options price inputs into the Index calculation,

especially as options quotes are rapidly changing. The price dragging technique is used for intraday calculation of the Index. The Exchange believes that the price dragging technique may be a more accurate and effective way to determine the Index value because the primary factor considered when updating the Reference Price is whether or not a trade has occurred. If a trade occurred, the Reference Price is set to the trade price. This methodology represents a Reference Price which is based on a “meeting of the minds,” or the creation of a contract. The Exchange believes that this more accurately represents the fair value at that given time, and thus will benefit investors and market participants trading options on the Index.

A competing volatility index uses an alternative method for calculating its reference price. Specifically, that competing volatility index utilizes the mid-point of the bid and ask and only updates the reference price when there is a change in the bid or ask. The

<sup>6</sup> This value is also referred to as the Reference Price, as defined above.

Exchange believes that this methodology could be less reliable because it creates the potential for skewed reference prices in the event of a wide market. Options are often quoted in bulk by market makers, which in some cases, causes a divergence from the orthodox supply-demand dynamics as quotes are constantly updated across a series of strikes throughout the day. As a result, there can be more notable movements within the bid/ask spread that impact the calculation of an index based on mid-point prices.

Therefore, the Exchange believes that the price dragging technique may create a more accurate and stable Index value and may better represent volatility in the market by emphasizing the actual trade price versus simply the midpoint spread. Furthermore, the Exchange believes that the enhanced feature may provide greater consistency in the marketplace because the price dragging

technique results in a Reference Price that is supported by the fair market value at the time versus using the mid-point, which is not necessarily an accurate representation of the fair market value at the time.

## 2. Select the Options

Another key feature of SPIKES is its exclusion rule (truncation method). The exclusion rule determines how far away from the money to exclude strikes from the volatility calculation. For each of the expirations, the securities to be used in the calculation are selected by removing in-the-money and OTM options, as follows:

- To determine the ATM strike, find the intersection of the put and call linearly interpolated price curves. Select the strike closest to the value of the intersection of the curves—this becomes the ATM strike. If the intersection falls exactly in the middle of two strikes, or if the whole segments overlap (*i.e.*,

when four neighboring calls and puts have the same price), use the lower strike. In case of more than one intersection point (in rare cases of highly irregular market prices), use the one closest to the current value of SPY.

- Use all listed puts below the ATM strike and all listed calls above the ATM strike, and both the ATM call and put. When two consecutive option prices of \$0.05 or less are encountered when moving away from the ATM, exclude all the strikes beyond that level, from each of the put and call side.

A competing volatility index that uses the midpoint for its option input prices uses a different exclusion rule, which similarly moves away from the ATM, but excludes individual strikes if they have no bid, and excludes all the strikes beyond two consecutive no bid strikes. A comparison of a hypothetical list of put option inputs and the resulting inclusion decision is given below.

Strike	SPIKES input <sup>7</sup>	SPIKES input included?	Market	VIX input	VIX input included?
201 .....	0.06	Include .....	0.05 x 0.07	0.06	Include.
200.5 .....	0.06	Include .....	0.05 x 0.07	0.06	Include.
200 .....	0.05	Include .....	0.05 x 0.07	0.06	Include.
199.5 .....	0.04	Include .....	0.04 x 0.06	0.05	Include.
199 .....	0.05	Exclude .....	0 x 0.11	0.055	Exclude.
198.5 .....	0.03	Exclude .....	0.01 x 0.1	0.055	Include.
198 .....	0.04	Exclude .....	0.02 x 0.08	0.05	Include.
197.5 .....	0.03	Exclude .....	0.01 x 0.07	0.04	Include.
197 .....	0.04	Exclude .....	0.01 x 0.06	0.035	Include.
196.5 .....	0.02	Exclude .....	0 x 0.05	0.025	Exclude.
196 .....	0.01	Exclude .....	0.01 x 0.06	0.035	Include.
195.5 .....	0.01	Exclude .....	0 x 0.05	0.025	Exclude.

The purpose of the exclusion rule is to remove option inputs from the calculation that could be deemed less reliable and thus potentially negatively impact the calculation outcome. The Exchange believes that its exclusion methodology is a material enhancement over existing methodologies, and should result in a calculation outcome that

better reflects the expected measure of volatility.

As discussed previously, the price dragging method reduces the variability of the option inputs. Since the option inputs have reduced variability, and those values are used to determine which strikes make it into the index calculation, the combination of price dragging and exclusion rules work

together to, in the Exchange's opinion, create a more reliable Index value.

## 3. Weight the Options and Estimate Volatility

For each term, the volatility is estimated using the variance swap approximation, with the selected options' prices weighted according to the SPIKES formula:

$$\sigma^2 = \frac{1}{T} \left[ 2e^{RT} \sum_i \frac{\Delta K_i p_i}{K_i^2} - \left( \frac{e^{RT} (p_{ATM}^c - p_{ATM}^p)}{K_{ATM}} \right)^2 \right]$$

Each eligible option's contribution is proportional to the change in the strike (half the difference between the strike on either side of the option) and the price, and inversely proportional to the square of the option's strike. After calculating for each option, these are

summed and multiplied by two times the exponential of the risk free rate times time-to-expiration. The next step is to subtract from this value, the square of, the difference between the ATM call and put prices, times the exponential of the risk free rate times time-to-

expiration, divided by the ATM strike. Lastly, divide the result by the time to expiration to arrive at the final value.

## 4. Calculate the Index

Compute the 30-day weighted average of the near- and next-term variances,

<sup>7</sup> See *supra* note 6.

take the square root, and multiply by 100, as follows:

$$SPIKES = 100 \times \sqrt{\left(\frac{t_1}{t_M} \frac{t_2 - t_1}{t_2 - t_1} \sigma_1^2 + \frac{t_2}{t_M} \frac{t_M - t_1}{t_2 - t_1} \sigma_2^2\right)}$$

$t_1$  Time (in seconds) to near-term expiration  
 $\sigma_1$  Estimated volatility computed by variance swap approximation, near-term  
 $t_2$  Time (in seconds) to next-term expiration  
 $\sigma_2$  Estimated volatility computed by variance swap approximation, next-term  
 $t_M$  Number of seconds in 30 days ( $30 \times 86,400 = 2,592,000$ )

#### Background Information

SPY is the largest and most actively traded ETF in the U.S.<sup>8</sup> According to State Street Global Advisor, the Trustee of SPY, as of May 14, 2018, the net assets under management in SPY was approximately \$263 billion; the weighted average market capitalization of the portfolio components was approximately \$217 billion; the smallest market capitalization was approximately \$3.6 billion (Range Resources Corporation, ticker: RRC), and the largest was approximately \$930 billion (Apple, Inc., ticker: AAPL).<sup>9</sup> For the three months ending April 30, 2018, the average daily volume in SPY shares was 119 million, and the average value of shares traded was approximately \$31.8 billion.<sup>10</sup> For the same period, the average daily volume in SPY options was approximately 4.2 million contracts.<sup>11</sup> The most recent open interest in SPY options was approximately 23.9 million contracts as of May 14, 2018.<sup>12</sup>

The Exchange believes that, in addition to the other unique and proprietary attributes associated with the Index's calculation and settlement methodology, as well as the Exchange's fully-electronic, transparent, highly-deterministic trading system, using SPY options as the components for a volatility index, in the manner proposed by the Exchange, will offer a number of significant, distinct advantages over other types of volatility indexes. The Exchange believes that the advantages of using SPY options have the potential to result in an extremely liquid volatility

product with exceptionally tight spreads, and consequently would not be readily susceptible to fraudulent and manipulative acts. First, SPY options are extremely liquid (they regularly trade 4–5 million contracts a day, and have 20–30 million contracts in open interest). Second, SPY options have consistently tighter bid-ask spreads than SPX options, which are the components for the Cboe Exchange, Inc. ("Cboe") VIX index. Since SPY options are traded on all 15 option exchanges, it allows market participants to take advantage of arbitrage opportunities across multiple venues. This is in contrast to SPX options which only trade on Cboe, and thus those arbitrage opportunities across venues are not possible. Since SPY options are traded on all 15 option exchanges, at the time of the final settlement of the SPIKES Index on the Exchange,<sup>13</sup> there will be up to 14 other options exchanges open for trading SPY options, thus serving as real-time cross-reference prices for those SPY options included in the Exchange's SPIKES Special Settlement Auction. This is in contrast to SPX options during Cboe's VIX settlement auction, where there are no real-time cross-reference prices for those SPX options included in Cboe's VIX settlement, as SPX options are only traded on one exchange—Cboe. In terms of spreads, SPY spreads are significantly tighter and exhibit much higher consistency with a much narrower range of typical values and far fewer numbers of outliers than SPX. For example, when examining daily closing bid and ask prices of regular monthly options (with time to expiry closest to 30 calendar days) from October 2007 (when SPY options started trading in penny increments) to May 2018, and comparing the following three strike ranges: (A) 1% ATM—at-the-money options within 1% (plus or minus) of the underlying forward price; (B) 1–5% OTM—out-of-the-money options (higher strikes for calls, lower strikes for puts); and (C) 85–95% Puts—far out-of-the-money put options typically included in volatility index calculations, SPY

spreads are consistently tighter than SPX spreads, both across strike prices and through time, by a factor of 2 to 4 times (this is after normalizing SPY spreads to SPX spreads, by multiplying SPY spreads by 10). Accordingly, the Exchange believes that these advantages of using SPY options in the manner proposed by the Exchange, when combined with the other features and attributes of the SPIKES Index, have the potential to result in an extremely liquid volatility product with exceptionally tight spreads, and consequently would not be readily susceptible to fraudulent and manipulative acts.

As set forth in Exhibit 3–1, the following are the characteristics of the Index: (i) The initial index value was 13.05 on January 10, 2005; (ii) the index value on May 14, 2018 was 13.44; (iii) the lowest index value since inception was 9.80 and occurred on July 20, 2007; and (iv) the highest index value since inception was 81.85 and occurred on November 20, 2008.

#### Index Calculation and Maintenance

As noted above, the Index will be maintained and calculated by the Exchange. The level of the Index will reflect the current expected volatility of SPY. The Index will be updated on a real-time basis on each trading day beginning at 9:30 a.m. and ending at 4:15 p.m. (New York time). If the current published value of a component is not available, the last published value will be used in the calculation. Values of the Index will be disseminated to the Options Price Reporting Authority ("OPRA") at least every 15 seconds during the Exchange's regular trading hours, pursuant to Exchange Rules 1802 and 1803. The Exchange is currently disseminating the cash values of the Index to OPRA under the ticker symbol 'SPIKE' in at least 15 second intervals. In the event the Index ceases to be maintained or calculated, or its values are not disseminated at least every 15 seconds by a widely available source, the Exchange will not list any additional series for trading, and may, for the purpose of maintaining a fair and orderly market and protecting investors, limit transactions in certain options on the Index to closing transactions only.

<sup>8</sup> SPY holds the shares of up to 500 companies listed on U.S. securities exchanges (SPY currently has 506 securities due to multi-share classes for some companies).

<sup>9</sup> See <https://www.spdrs.com/product/fund.seam?ticker=SPY>.

<sup>10</sup> Calculated using data from Thompson Reuters as of May 14, 2018.

<sup>11</sup> Calculated using data from The Options Clearing Corp. as of May 14, 2018.

<sup>12</sup> *Id.*

<sup>13</sup> The final settlement of the SPIKES Index occurs during the SPIKES Special Settlement Auction (defined and discussed below), which commences immediately following the opening of trading on the Exchange.

### Exercise and Settlement Value

On the expiration date for expiring SPIKES options, the Exchange will calculate the final settlement value of the Index for expiring SPIKES options. The expiration date for expiring SPIKES options is the same day that the final settlement value of the Index is calculated for those options. This date is the Wednesday that is thirty days prior to the third Friday of the calendar month immediately following the month in which the applicable SPIKES options expire. If that Wednesday or the Friday that is thirty days following that Wednesday is an Exchange holiday, the final settlement value shall be calculated on the business day immediately preceding that Wednesday. The exercise-settlement amount is equal to the difference between the final settlement value of the Index and the exercise price of the option, multiplied by \$100. Exercise will result in the delivery of cash on the business day following expiration.

To determine the final settlement value of the Index, the Exchange will perform an Index settlement price calculation which includes all SPY options that expire 30 days after the SPIKES settlement that are included in the settlement (these options are referred to in this rule filing as the “constituent options”). In order to perform the Index settlement price calculation, each constituent option will be assigned a Settlement Reference Price or “SRP,” defined and discussed in more detail below. Each SRP will be determined through a new “SPIKES Special Settlement Auction,” which will be conducted once per month, in the constituent options traded on the Exchange, on final settlement day. The SPIKES Special Settlement Auction will utilize the Exchange’s standard, existing Opening Process, as defined and fully-described in Exchange Rule 503(f), with a new proposed modification to account for situations where there remains an order imbalance<sup>14</sup> that must be filled at the opening price after the requisite number of iterations of the imbalance process takes place under the Exchange’s existing Opening Process (the Exchange’s existing Opening Process provides that the Exchange can open with an imbalance after the requisite number of iterations of the imbalance process takes place).<sup>15</sup> This new proposed modification to the Exchange’s existing Opening Process to

facilitate the execution of this remaining must-fill interest is referred to as the special settlement imbalance process (“SSIP”), which will be governed by new proposed Interpretations and Policies .06 to Exchange Rule 1809, as described more fully below. The Exchange believes that using its fully-electronic and fully-transparent Opening Process functionality, which is accessible to all Members of the Exchange for participation, in highly liquid SPY options (which are simultaneously opening and available for trading on up to 14 other exchanges, thus providing real-time cross-reference prices for the SPY options included in the settlement) to conduct the SPIKES Special Settlement Auction to settle expiring SPIKES options, will offer significant advantages over other types of volatility index auction processes, resulting in a robust Opening Process that presents arbitrage opportunities across multiple venues to drive prices into line and reach equilibrium, and thus consequently would not be readily susceptible to fraudulent and manipulative acts.

The Exchange believes that the SPIKES Special Settlement Auction would not be readily susceptible to fraudulent and manipulative acts for a number of reasons. As discussed more fully below, the Exchange’s existing Opening Process runs to completion and precedes the engagement of the new SSIP. The existing Opening Process cannot occur prior to 9:30 a.m. Eastern Time and only begins following the dissemination of a quote or trade in the market for the underlying security.<sup>16</sup> Following the dissemination of a quote or trade in the market for the underlying security, the System will pause for a period of time no longer than one half second to allow the marketplace to absorb this information.<sup>17</sup> When there is an imbalance,<sup>18</sup> the System will broadcast a System Imbalance Message (which includes the symbol, side of the market, quantity of matched contracts, the imbalance quantity, must fill quantity (*i.e.*, the number of contracts that must be filled in order for that option to open on the Exchange at the indicated price), quantity of routable contracts, and price of the affected series) to subscribers of the Exchange’s data feeds and begin an Imbalance Timer<sup>19</sup> not to exceed three seconds.<sup>20</sup>

Under the existing Opening Process the Exchange may repeat this process up to three times.<sup>21</sup> While the Exchange is conducting its Opening Process, all 14 other option exchanges will also be conducting their opening process for SPY options. As the Exchange works through its process to resolve imbalances under the existing Opening Process, other Exchanges will be open and will serve as real-time cross-reference prices for those SPY options, enabling market participants to send orders to the Exchange if there are pricing anomalies for these SPY options across venues. The longer it takes the Exchange to work through the imbalance, the greater the likelihood that other exchanges will have opened their SPY options market and the natural pressures of a competitive market will help to eliminate any pricing anomalies and aid in eliminating the imbalance on the Exchange. Further, the Exchange’s imbalance process is transparent, as every subscriber to the Exchange’s data feed receives the imbalance messages, and every Member of the Exchange can participate in the imbalance process.

As previously discussed, on the day the settlement value for the Index is calculated, the Exchange will conduct the SPIKES Special Settlement Auction, using its standard, existing Opening Process for all options on the Exchange, including the constituent options.<sup>22</sup> The following paragraphs provide a high level overview of the Exchange’s standard, existing Opening Process, in order to illustrate the complete operation of the SPIKES Special Settlement Auction.

Pursuant to the standard, existing Opening Process, if there are no quotes or orders that lock or cross each other, the System<sup>23</sup> will open by disseminating the Exchange’s best bid and offer among quotes and orders that exist in the System at that time. If there are quotes or orders that lock each other, the System will calculate an Expanded Quote Range (“EQR”), as described in Rule 503(f)(2). The EQR represents the limits of the range in which transactions may occur during the Opening Process.<sup>24</sup> The EQR is recalculated any

<sup>21</sup> See Exchange Rule 503(f)(2)(vii)(B)(4).

<sup>22</sup> For a complete description of the Exchange’s standard, existing Opening Process, refer to Exchange Rule 503, Openings on the Exchange.

<sup>23</sup> The term “System” means the automated trading system used by the Exchange for the trading of securities. See Exchange Rule 100.

<sup>24</sup> See Exchange Rule 503(f)(2)(i). See also Exchange Regulatory Circular 2012–02, which sets forth the tables that describe the calculation of the EQR for option classes traded on the Exchange, at <http://www.miaoptions.com/sites/default/files/>

Continued

<sup>14</sup> An “imbalance” occurs when there is insufficient liquidity to satisfy all trading interest due an execution at a certain price. See Exchange Rule 503(f)(2)(v).

<sup>15</sup> See Exchange Rule 503(f)(2)(vii)(B)(5).

<sup>16</sup> See Exchange Rule 503(e)(1).

<sup>17</sup> The Exchange notes that the current setting is one half second.

<sup>18</sup> See *supra* note 14.

<sup>19</sup> The Exchange notes that the current Imbalance Timer setting is one second.

<sup>20</sup> See Exchange Rule 503(f)(2)(vii).

time a route timer or Imbalance Timer expires if material conditions of the market (imbalance size, ABBO<sup>25</sup> price and size, liquidity price or size, etc.) have changed during the timer. Once calculated, the EQR represents the limits of the range in which transactions may occur during the Opening Process.<sup>26</sup> The System uses the EQR to determine the highest and lowest price of the opening price range.

To calculate the opening price, the System takes into consideration all valid Exchange quotes and all valid orders, together with other exchanges' markets for the series, and identifies the price at which the maximum number of contracts can trade. If that price is within the EQR and leaves no imbalance, the Exchange will open at that price, executing marketable trading interest as long as the opening price includes only Exchange interest.<sup>27</sup> If the calculated opening price included interest other than solely Exchange interest, the System will broadcast a system imbalance message (which includes the symbol, side of the market, quantity of matched contracts, the imbalance quantity, must fill quantity, quantity of routable contracts, and price of the affected series) to Exchange Members<sup>28</sup> and initiate a "route timer," not to exceed one second.<sup>29</sup>

If all opening and marketable interest cannot be completely executed at or within the EQR without trading at a price inferior to the ABBO, or cannot trade at or within the quality opening market range in the absence of a valid width NBBO,<sup>30</sup> the System will automatically institute an imbalance process.<sup>31</sup> The System will broadcast a system imbalance message (which includes the symbol, side of the market, quantity of matched contracts, the imbalance quantity, must fill quantity, quantity of routable contracts, and price of the affected series) to subscribers of the Exchange's data feeds, and begin an

Imbalance Timer, not to exceed three seconds.<sup>32</sup> Market Makers<sup>33</sup> may enter Opening Only ("OPG") eQuotes,<sup>34</sup> Auction or Cancel ("AOC") eQuotes,<sup>35</sup> Standard quotes,<sup>36</sup> Opening Orders ("OPG Orders"),<sup>37</sup> AOC Orders<sup>38</sup> and limit orders during the Imbalance Timer. Other Exchange Members may enter OPG Orders, AOC Orders and other order types (except those order types not valid during the Opening Process, as described in Rule 516) during the Imbalance Timer.<sup>39</sup> If, at the conclusion of the timer, quotes and orders submitted during the Imbalance Timer, or other changes to the ABBO, would not allow the entire imbalance amount to trade at the Exchange at or within the EQR without trading at a price inferior to the ABBO, the System will send a new system imbalance message to Exchange Members and initiate a route timer for routable Public Customer orders not to exceed one second. If, during the route timer, interest is received by the System which would allow all interest to trade on the System (*i.e.*, there is no longer an imbalance) at the opening price without trading at a price inferior to other markets, the System will trade and the route timer will end.<sup>40</sup> The System may repeat the imbalance process up to three times (as established by the Exchange).<sup>41</sup> Following completion of the third imbalance process, if there is an opening transaction, any unexecuted contracts from the imbalance not traded or routed will be cancelled back to the entering Member if the price for those contracts crosses the opening price, in

effect cancelling that must fill interest.<sup>42</sup> That is the completion of the Exchange's standard, existing Opening Process.

Now, where an imbalance exists in constituent options and the final imbalance process has been conducted as part of the Exchange's standard, existing Opening Process, instead of cancelling that must fill interest back to the entering Member, the Exchange is proposing to conduct the SSIP,<sup>43</sup> where the Exchange will satisfy that must fill interest. The Exchange does not want to cancel any must fill interest, as this liquidity could represent previously hedged interest that must be unwound.

The SSIP is employed to satisfy all liquidity identified as must fill which is creating the imbalance, referred to as the must fill imbalance. The SSIP is an iterative process that is designed to determine a price at which all must fill imbalance interest can be satisfied.<sup>44</sup> In the SPIKES Special Settlement Auction, in addition to any order types that may be regularly accepted by the Exchange, the Exchange will also accept settlement auction only orders ("SAO Orders") and settlement auction only eQuotes ("SAO eQuotes") (SAO Orders and SAO eQuotes are collectively referred to as "SAOs") at any time after the opening of the Live Order Window ("LOW")<sup>45</sup> and the Live Quote Window ("LQW"),<sup>46</sup> respectively. SAOs are specific order types that allow a Member to voluntarily tag such order as a SPIKES strategy order, defined below. All orders for participation in the SPIKES Special Settlement Auction that are related to positions in, or a trading strategy involving, SPIKES Index options ("SPIKES strategy orders"), and any change to or cancellation of any such order: (i) Must be received prior to the applicable SPIKES strategy order cut-off time for the constituent option series, as determined by the Exchange, which may be no earlier than the opening of the LOQ or the LQW, and no later than the opening of trading in the series. The Exchange will announce all determinations regarding changes to the applicable SPIKES strategy order cut-off time via Regulatory Circular at least one day prior to implementation (however the Exchange anticipates initially establishing the cut-off time at 9:20 a.m.

*circular-files/MIAX\_Opening\_Process\_and\_Pause\_Timer.pdf.*

<sup>25</sup> The term "ABBO" or "Away Best Bid or Offer" means the best bid(s) or offer(s) disseminated by other Eligible Exchanges (defined in Rule 1400(f)) and calculated by the Exchange based on market information received by the Exchange from OPRA. See Exchange Rule 100.

<sup>26</sup> See Exchange Rule 503(f)(2)(i).

<sup>27</sup> See Exchange Rule 503(f)(2)(iv).

<sup>28</sup> The term "Member" means an individual or organization approved to exercise the trading rights associated with a Trading Permit. Members are deemed "members" under the Exchange Act. See Exchange Rule 100.

<sup>29</sup> See Exchange Rule 503(f)(2)(iv)(A).

<sup>30</sup> The term "NBBO" means the national best bid or offer as calculated by the Exchange based on market information received by the Exchange from OPRA. See Exchange Rule 100.

<sup>31</sup> See Exchange Rule 503(f)(2)(vii).

<sup>32</sup> See Exchange Rule 503(f)(2)(vii)(A).

<sup>33</sup> The term "Market Makers" refers to "Lead Market Makers", "Primary Lead Market Makers" and "Registered Market Makers" collectively. See Exchange Rule 100.

<sup>34</sup> An opening only or "OPG" eQuote is a quote that can be submitted by a Market Maker only during the Opening as set forth in Rule 503. OPG eQuotes will automatically expire at the end of the Opening Process. See Exchange Rule 517(a)(2)(iii).

<sup>35</sup> An Auction or Cancel or "AOC" eQuote is a quote submitted by a Market Maker to provide liquidity in a specific Exchange process with a time in force that corresponds with the duration of that event and will automatically expire at the end of that event. See Exchange Rule 517(a)(2)(ii).

<sup>36</sup> A Standard quote is a quote submitted by a Market Maker that cancels and replaces the Market Maker's previous Standard quote, if any. See Exchange Rule 517(a)(1).

<sup>37</sup> An Opening or "OPG" Order is an order that is valid only for the opening process. See Exchange Rule 516(h).

<sup>38</sup> An Auction-or-Cancel or "AOC" order is a limit order used to provide liquidity during a specific Exchange process with a time in force that corresponds with that event. See Exchange Rule 516(b)(4).

<sup>39</sup> See *supra* note 22.

<sup>40</sup> See Exchange Rule 503(f)(2)(vii)(B)(2).

<sup>41</sup> See Exchange Rule 503(f)(2)(vii)(B)(4).

<sup>42</sup> See Exchange Rule 503(f)(2)(vii)(B)(5).

<sup>43</sup> See proposed Exchange Rule 503(f)(2)(vii)(B)(5)(a).

<sup>44</sup> See proposed Exchange Rule 1809, Interpretations and Policies .06.

<sup>45</sup> The Exchange notes that the current Live Order Window opens at 7:30 a.m.

<sup>46</sup> The Exchange notes that the current Live Quote Window setting opens at 9:25 a.m., however the Exchange plans to open the Live Quote Window for the SPIKES Special Settlement Auction at 8:30 a.m.

Eastern); and (ii) may not be cancelled or modified after the applicable SPIKES strategy order cut-off time, unless the SPIKES strategy order is not executed in the SPIKES Special Settlement Auction and the cancellation or modification is submitted after the SPIKES Special Settlement Auction is concluded (provided that any such SPIKES strategy order may be modified or cancelled after the applicable SPIKES strategy order cut-off time and prior to the applicable non-SPIKES strategy order cut-off time in order to correct a legitimate error, in which case the Member submitting the change or cancellation will prepare and maintain a memorandum setting forth the circumstances that resulted in the change or cancellation and will file a copy of the memorandum with the Exchange no later than the next business day in a form and manner prescribed by the Exchange). In general, the Exchange will consider orders to be SPIKES strategy orders for purposes of Rule 1809 Interpretation and Policy .06, if the orders possess the following three characteristics: (A) Are for options with the expiration that will be used to calculate the exercise or final settlement value of the applicable volatility index option contract; (B) are for options spanning the full range of strike prices for the appropriate expiration for options that will be used to calculate the exercise or final settlement value of the applicable volatility index option contract, but not necessarily every available strike price; and (C) are for put options with strike prices less than the “at-the-money” strike price and for call options with strike prices greater than the “at-the-money” strike price. They may also be for put and call options with “at-the-money” strike prices.

Whether certain orders are SPIKES strategy orders for purposes of Interpretation and Policy .06 depends upon specific facts and circumstances. The Exchange may also deem order types other than those provided above as SPIKES strategy orders if the

Exchange determines that to be the case based upon the applicable facts and circumstances.

These requirements are substantially similar to Cboe’s requirements for “strategy orders” participating in the VIX settlement auction.<sup>47</sup>

The Exchange anticipates that market participants that actively trade SPIKES options may hedge their positions with SPY option series that will also be used to calculate the SPIKES exercise settlement/final settlement value. Market participants holding hedged SPIKES options positions may trade out of their SPY option series on the relevant SPIKES expiration/final settlement date. Specifically, market participants holding short, hedged SPIKES options could liquidate that hedge by selling their SPY options series, while traders holding long, hedged SPIKES options could liquidate their hedge by buying SPY option series. In order to seek convergence with the SPIKE exercise/final settlement value, these market participants may liquidate their hedges by submitting SPIKES strategy orders in the appropriate SPY option series during the SPIKES Special Settlement Auction on the SPIKES expiration/final settlement date.

The SPIKES strategy order cut-off time exists because trades to liquidate hedges can contribute to an order imbalance during the SPIKES Special Settlement Auction in SPY option series on expiration/final settlement dates. For example, traders liquidating hedges could predominantly be on one side of the market and those market participants’ orders may create buy or sell order imbalances during the SPIKES Special Settlement Auction in SPY option series on expiration/final settlement dates. As a result of having a SPIKES strategy order cut-off time in place, the Exchange has created a defined window to encourage participation in the SPIKES Special Settlement Auction among market participants who may wish to place off-

setting orders against imbalances to which SPIKES strategy orders may have contributed. Additionally, by precluding the modification or cancellation of SPIKES strategy orders from occurring after the cut-off time, the Exchange is ensuring that the order book reflects bona-fide interest for execution, and is a feature designed to prevent manipulation of the final settlement price.

Following is a description of the proposed operation of the SSIP portion of the SPIKES Special Settlement Auction, as set forth in Exchange Rule 1809, proposed Interpretations and Policies .06. To begin the SSIP, the System will broadcast a system imbalance message to all subscribers of the Exchange’s relevant data feed and begin an SSIP Imbalance Timer, the duration of which is to be determined by the Exchange, not to exceed ten seconds, and communicated via Regulatory Circular. During the SSIP Imbalance Timer, the System accepts all quote and order types supported during the standard Opening Process. Next, the System will evaluate the must fill imbalance and adjust the EQR by a defined amount by appending to the EQR (adding to offers or subtracting from bids) the EQR value (as previously determined by the Exchange and communicated via Regulatory Circular). During the SSIP, the allowable EQR will be increased .5 times the EQR value upon each iteration of the SSIP. The SSIP will be repeated until a price is reached at which there is no remaining must fill imbalance.

An example of a SPIKES Special Settlement Auction (which utilizes the Exchange’s standard, existing Opening Process, as modified by the SSIP), for a constituent option is provided to illustrate the process.

#### Example

SPY Mar 280 Call—constituent option

The Exchange market for the constituent option is as follows:

	Bid size	Bid	Offer	Offer size
PLMM .....	100	1.01	1.10	100
MM1 .....	50	1.02	1.10	50

The Exchange receives an SAO Order to purchase 500 SPY March 280 contracts with a “market” price. Accordingly, there are 150 contracts

offered at \$1.10 and a market order<sup>48</sup> to buy 500 contracts. This results in the following:

Imbalance Quantity .....	350
Must Fill Imbalance Quantity ....	350
Matched Quantity .....	150

<sup>47</sup> See Cboe Rule 6.2, Hybrid Opening (and Sometimes Closing) System (“HOSS”), Interpretations and Policies .01, Modified Opening

Procedure for Series Used to Calculate the Exercise/Final Settlement Values of Volatility Indexes.

<sup>48</sup> A market order is an order to buy or sell a stated number of option contracts at the best price

available at the time of execution. See Exchange Rule 516(a).



The Exchange's standard Opening Process is used, and because an imbalance exists, the Exchange's Standard Opening Imbalance Process (as defined in Rule 503(f)(2)(vii)) commences. The EQR is expanded by the EQR value of \$0.10,<sup>49</sup> becoming  $\$1.02 \times \$1.20$ .

After three iterations of the Exchange's Standard Opening Imbalance Process,<sup>50</sup> if the must fill imbalance quantity has not been satisfied, the new SSIP will be

employed. (For purposes of this example, assume that all such three iterations have completed and the must fill imbalance quantity still has not been satisfied.)

The SSIP will begin by using an EQR expanded by 1.0 times the EQR value (\$0.10). Therefore, the EQR for the first iteration of SSIP is  $\$1.02 \times \$1.20$ .

Since no responses have yet been received, a system imbalance message is broadcast to all subscribers of the Exchange's data feeds and the SSIP

auction period is started: The following responses are received:

- @20 Milliseconds BD1 response, AOC Order to sell 200 @ \$1.20 arrives

At the end of the SSIP auction period, the System evaluates the orders and responses to determine if the must fill imbalance quantity can be satisfied at, or within, the EQR.

The Exchange market for the constituent option is as follows:

	Bid size	Bid	Offer	Offer size
PLMM .....	100	1.01	1.10	100
MM1 .....	50	1.02	1.10	50
BD1 .....	.....	.....	1.20	200

The offer of 150 contracts at \$1.10 remains and there are now an additional 200 contracts offered at \$1.20. This results in the following:

Imbalance Quantity .....	150
Must Fill Imbalance Quantity ....	150
Matched Quantity .....	350

A must fill imbalance quantity of 150 contracts priced through the EQR remains, as there are a total of 350

contracts offered and a buy order for 500 at the market.

Because an imbalance still exists, a second iteration of the SSIP will begin by expanding the side of the EQR opposite the must fill imbalance quantity quote range, from the original EQR value to the quote range plus 1.5 times the original EQR value (\$0.10), becoming \$1.25 ( $\$1.10 + \$0.15$ ).

A new system imbalance message is broadcast to all subscribers of the

Exchange's data feeds and a second SSIP auction period is started:

The following responses are received:

- @500 milliseconds MM2 response, AOC eQuote to sell 1000 @ \$1.23 arrives

At the end of the SSIP auction period, the System evaluates the orders and responses to see if the must fill imbalance quantity can be satisfied at, or within, the EQR.

The Exchange market for the constituent option is as follows:

	Bid size	Bid	Offer	Offer size
PLMM .....	100	1.01	1.10	100
MM1 .....	50	1.02	1.10	50
BD1 .....	.....	.....	1.20	200
MM2 .....	.....	.....	1.23	1000

The offer of 150 contracts at \$1.10 remains, as well as the 200 contracts offered at \$1.20. In addition, there is now an offer to sell 1,000 contracts at \$1.23.

In this case, the entire must fill imbalance quantity can be satisfied at \$1.23. The SAO Order to purchase 500 contracts at the market price is filled in the following fashion:

- The SAO Order buys 100 from the PLMM @ \$1.23
- The SAO Order buys 50 from MM1 @ \$1.23
- The SAO Order buys 200 from BD1 @ \$1.23
- The SAO Order buys 150 from MM2 @ \$1.23

Once there is no remaining must fill imbalance, SAOs, AOC Orders, AOC eQuotes, OPG Orders, and OPG eQuotes

submitted into the SPIKES Special Settlement Auction are cancelled. Any unfilled day limit orders and GTC orders that are priced at the Opening Price are placed on the Book and managed by the System.

As previously discussed, the System will assign an SRP to each constituent option to facilitate the calculation of the final settlement price of the Index. If the System opens the constituent option with a trade, the System assigns the constituent option an SRP equal to the trade price in that option. If there is no locking or crossing interest and the System opens the constituent option without a trade, and the bid-ask spread is at or within a range as defined by the Exchange in an SRP opening width table and communicated via Regulatory Circular, the System assigns the

constituent option an SRP equal to the midpoint of the bid and ask prices. If the bid-ask spread is not within a range as defined in the SRP opening width table, the System will conduct an additional process to determine the SRP of the constituent option, as follows.

First, the System will start a settlement reference price timer ("SRPT") (the duration of which will be defined by the Exchange not to exceed sixty seconds and communicated via Regulatory Circular). If, during the SRPT, there is a trade on the Exchange, the System will set the SRP equal to the trade price. If, during the SRPT, the bid-ask spread changes so that it is within a range defined in the settlement price opening width table, the System will set the SRP equal to the midpoint of the bid and ask price.

<sup>49</sup> The EQR value for options bid \$0.00 to \$1.00 is \$0.05; \$1.01 to \$2.00 is \$0.10; \$3.01 to \$5.00 is \$0.20; \$5.01 to \$10.00 is \$0.30; \$10.01 to \$20.00 is

\$0.50; \$20.01 to \$40.00 is \$0.70; and \$40.01 and above is \$0.90. See also *supra* note 14.

<sup>50</sup> The System may repeat the Standard Opening Imbalance Process up to three times (as established by the Exchange). See Exchange Rule 503(f)(2)(vii)(B)(4).

If the SRPT expires, the System will set the SRP equal to the Reference Price (the current price of that option utilizing the cash index calculation formula, described above) of the constituent option if it is equal to or inside the MBBO.<sup>51</sup> If the Reference Price is non-zero and less than the Exchange's bid, then the System will set the SRP equal to the Exchange's bid. If the Reference Price is non-zero and greater than the Exchange's ask, then the System will set the SRP equal to the Exchange's ask. If the Reference Price is zero and if one or both adjacent constituent options have a non-zero SRP, the constituent option will be excluded from the calculation. If the Reference Price is zero and there are multiple adjacent constituent options with a current Reference Price of zero, the System will use the midpoint of the NBBO for the SRP if the NBBO bid-ask spread is at or within a range defined in the settlement price opening width table. If the NBBO bid-ask spread is not within a range defined in the settlement price opening width table, the System will wait for either a trade, or a bid-ask spread that is within a range defined in the settlement price opening width table. Once all constituent options have been assigned an SRP, the System will perform the final settlement price calculation of the Index.

The Exchange believes that this fully-electronic and fully-transparent SPIKES Special Settlement Auction process, which is accessible to all Members of the Exchange for participation, in highly liquid SPY options (which are simultaneously opening and available for trading on 14 other exchanges, thus providing real-time cross-reference prices for the SPY options included in the settlement) to settle expiring SPIKES options, offers significant advantages over other types of volatility auction processes, and will result in a robust opening process that presents arbitrage opportunities across multiple venues to drive prices into line and reach equilibrium, and thus would not be readily susceptible to fraudulent and manipulative acts.

### Contract Specifications

The contract specifications for options on the Index are set forth in Exhibit 3–2. The Index is a broad-based index, as defined in MIAx Options Rule 1801(k), for the purpose of determining which of the Exchange's rules apply to options on the Index.<sup>52</sup> Options on the Index are

European-style and cash-settled. Standard trading hours for index options (9:30 a.m. to 4:15 p.m., New York time) will apply to the Index.<sup>53</sup> The Exchange proposes to apply margin requirements for the purchase and sale of options on the Index that are identical to those applied for other broad-based index options traded on other options exchanges.

The trading of options on the Index will be subject to the trading halt procedures applicable to index options traded on the Exchange.<sup>54</sup> Options on the Index will be quoted and traded in U.S. dollars.<sup>55</sup> Accordingly, all Exchange and Options Clearing Corporation ("OCC") members shall be able to accommodate trading, clearance and settlement of the Index without alteration. Furthermore, the Exchange believes that OCC will be able to accommodate trading, clearance and settlement of options on the Index without having to obtain any additional approval.

The Exchange proposes that the minimum trading increments for options on the Index shall be \$0.05 for series trading below \$3, and \$0.10 for series trading at or above \$3. This is the same pricing convention utilized by Cboe for VIX options. Accordingly, the Exchange is proposing to amend Exchange Rule 404, Series of Option Contracts Open for Trading, by adopting new Interpretations and Policies .11 to specify the minimum trading increments for options on the Index.

The Exchange proposes that there shall be no position or exercise limits for options on the Index. As noted above, the Index will settle using published prices and quotes from its corresponding SPY options. Because the size of SPY options market (as well as the underlying SPY market) is so large, the Exchange believes that there is minimal risk of manipulation by virtue of position size in SPIKES options. The Exchange notes that options on Cboe's VIX are also not subject to any position or exercise limits.<sup>56</sup> Accordingly, the Exchange is proposing to amend Exchange Rule 1804(a) to specify that there will be no position limits and no

exercise limits for options on the SPIKES Index.

The Exchange initially proposes to list options on the Index in up to twelve (12) standard monthly expirations. This is the same number of monthly expirations that are permitted for VIX options, pursuant to Cboe Rule 24.9(a).<sup>57</sup> Accordingly, the Exchange is proposing to amend Exchange Rule 1809(a)(3) to permit the listing of up to twelve (12) standard monthly expirations for SPIKES options. The Exchange is also proposing to make changes to Exchange Rule 1809(a)(3), in order to conform the structure of such rule to Cboe's Rule 24.9(a), to allow for the listing of short-term options and quarterly options.

The Exchange proposes to set the minimum strike price interval for options on the Index at \$0.50 where the strike price is less than \$15, \$1 or greater where the strike price is between \$15 and \$200, and \$5 or greater where the strike price is greater than \$200. The Exchange believes that \$0.50 and \$1 strike price intervals will provide investors with greater flexibility by allowing them to establish positions that are better tailored to meet their investment objectives. Further, as proposed, when new series of options on the Index with a new expiration date are opened for trading, or when additional series of options on the Index in an existing expiration date are opened for trading as the current value of the Index moves substantially from the exercise prices of series already opened, the exercise prices of such new or additional series shall be reasonably related to the current value of the Index at the time such series are first opened for trading.<sup>58</sup> The Exchange, however, proposes to eliminate this range limitation that will limit the number of \$1 strikes that may be listed in options on the Index. The Exchange's proposal to set minimum strike price intervals without a range limitation is identical to strike price intervals adopted by Cboe for the VIX.<sup>59</sup> Accordingly, the Exchange is proposing to amend Exchange Rule 1809(c), Procedures for Adding and Deleting Strike Prices, to adopt new sub-section (5) to specify the

"narrow-based index" as that term is defined under the Act. See 15 U.S.C. 78c(a)(55)(B).

<sup>53</sup> See Exchange Rule 1808.

<sup>54</sup> See Exchange Rule 1808(c).

<sup>55</sup> See Exchange Rule 1809(a)(1).

<sup>56</sup> See Securities Exchange Act Release No. 54019 (June 20, 2006), 71 FR 36569 (June 27, 2006) (SR-CBOE-2006-55). Additionally, the Exchange notes there are currently a number of actively-traded broad-based index options, *i.e.*, DJX, NDX, SPX, that are also not subject to any position or exercise limits.

<sup>57</sup> Cboe Rule 24.9 also permits for the listing of up to six weekly VIX expirations.

<sup>58</sup> See Exchange Rule 1809(c)(3). The term "reasonably related to the current index value of the underlying index" means that the exercise price is within thirty percent (30%) of the current index value, as defined in MIAx Options 1809(c)(4).

<sup>59</sup> See Securities Exchange Act Release No. 63155 (October 21, 2010), 75 FR 66402 (October 28, 2010) (SR-CBOE-2010-096).

<sup>51</sup> The term "MBBO" means the best bid or offer on the Exchange. See Exchange Rule 100.

<sup>52</sup> The proposed rule change relates solely to the Exchange's request to list and trade options on the Index and does not represent a request for the Commission to determine whether the Index is a

minimum strike price intervals for options on the Index.

The trading of options on the Index shall be subject to the same rules that presently govern the trading of Exchange index options, including sales practice rules, margin requirements, and trading rules. In addition, long-term option series having up to sixty months to expiration may be traded.<sup>60</sup> The trading of long-term options on the Index shall also be subject to the same rules that govern the trading of all the Exchange's index options, including sales practice rules, margin requirements, and trading rules. Further, pursuant to Interpretations and Policies .01 of MIAX Options Rule 1809, the Exchange may also list Short Term Option Series and pursuant to Interpretations and Policies .02 of MIAX Options Rule 1809, the Exchange may also list Quarterly Options Series, respectively, on the Index.

Chapter XIII of the Exchange's rules is designed to protect public customer trading and shall apply to trading in options on the Index. Specifically, paragraphs (a) and (b) of MIAX Options Rule 1307 prohibit Members from accepting a customer order to purchase or write an option, including options on the Index, unless such customer's account has been approved in writing by a designated Options Principal of the Member. Additionally, MIAX Options Rule 1309 regarding suitability is designed to ensure that options, including options on the Index, are only sold to customers capable of evaluating and bearing the risks associated with trading in this instrument. Further, MIAX Options Rule 1310 permits Members to exercise discretionary power with respect to trading options, including options on the Index, in a customer's account only if the Member has received prior written authorization from the customer and the account had been accepted in writing by a designated Options Principal. MIAX Options Rule 1310 also requires designated Options Principals or Representatives of a Member to approve and initial each discretionary order, including discretionary orders for options on the Index, on the day the discretionary order is entered. Finally, MIAX Options Rule 1308, Supervision of Accounts, MIAX Options Rule 1311, Confirmation to Customers, and MIAX Options Rule 1315, Delivery of Current Options Disclosure Documents and Prospectus, will also apply to trading in options on the Index.

## Surveillance and Capacity

The Exchange has an adequate surveillance program in place for options traded on the Index and intends to apply those same program procedures that it applies to the Exchange's other options products. In addition, several new surveillances related to the Index will be added to the MIAX surveillance program. The Exchange has a Regulatory Services Agreement ("RSA") in place with the Financial Regulatory Authority ("FINRA") to conduct cross-market surveillances on its behalf and has expanded the RSA to include a new options pattern: Index Expiration for Cash Settled, A.M.-Settled, Index Options. The purpose of this pattern is to determine whether any market participants influenced the settlement price of an a.m. cash-settled index product to benefit their expiring index option position.

In addition to the Index Expiration for Cash Settled report mentioned above, both MIAX Option Regulation and FINRA Options Regulation will manually review options activity during each monthly settlement process. After manually reviewing settlement process activity over the course of months, MIAX Options and FINRA will determine whether additional reports or enhancements to the cash settled report(s) are required.

Further, the Exchange's regulatory department conducts routine surveillance in dozens of discrete areas. Index products and their respective symbols are integrated into the Exchange's existing surveillance system architecture and are thus subject to the relevant surveillance processes. This is true for both surveillance system processing and manual processes that support the Exchange's surveillance program. Additionally, the Exchange is also a member of the Intermarket Surveillance Group (ISG) under the Intermarket Surveillance Group Agreement, dated June 20, 1994. The members of the ISG include all of the U.S. registered stock and options markets.<sup>61</sup> The members of ISG work together to coordinate surveillance and investigative information sharing in the stock and options markets.

The Exchange represents that it has the necessary System capacity to support additional quotations and messages that will result from the listing and trading of options on the Index.

<sup>61</sup> For the current list of members of the ISG, see <https://www.isgportal.org/isgPortal/public/members.htm>.

## 2. Statutory Basis

The Exchange believes that the proposed rule change is consistent with the provisions of the Act,<sup>62</sup> in general and with Section 6(b)(5) of the Act,<sup>63</sup> in particular, in that it is designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to foster cooperation and coordination with persons engaged in regulating, clearing, settling, processing information with respect to, and facilitating transactions in securities, to remove impediments to and perfect the mechanism of a free and open market and a national market system, and, in general, to protect investors and the public interest; and are not designed to permit unfair discrimination between customers, issuers, brokers, or dealers.

The proposed change will permit options trading in the Index pursuant to rules designed to prevent fraudulent and manipulative acts and practices and promote just and equitable principles of trade. In particular, the Exchange believes the proposed rule change will further the Exchange's goal of introducing new and innovative products to the marketplace. The Exchange believes that listing options on the Index will provide an opportunity for investors to hedge, or speculate on, the market risk associated with changes in volatility.

The Exchange believes that the enhanced features to the Index may serve to prevent fraudulent and manipulative acts and practices. Specifically, the Exchange believes that its price dragging technique and truncation rule, in combination with the immense liquidity of the underlying options, make the Index less susceptible to market manipulation. The price dragging technique, which is used to determine the ongoing Reference Price for each individual option used in the calculation of the Index, helps prevent market manipulation by utilizing the most recent trade price as the Reference Price. The Exchange believes that this feature may be a more accurate methodology than only using the mid-point of the bid and ask, which is the methodology utilized by a competing volatility index. The Exchange believes the price dragging technique may create a more accurate and stable index value which better represents volatility in the market by emphasizing the actual trade price versus simply the mid-point spread.

Furthermore, the Exchange believes that the enhanced feature may provide

<sup>62</sup> 15 U.S.C. 78a *et seq.*

<sup>63</sup> 15 U.S.C. 78f(b)(5).

<sup>60</sup> See Exchange Rule 1809(b)(1).

greater consistency in the marketplace because the price dragging technique results in a Reference Price that is supported by the fair market value at the time versus using the mid-point, which is not necessarily an accurate representation of the fair market value at the time.

Furthermore, the truncation method, another key enhancement in the Index, determines how far away from the money to exclude strikes from the volatility calculation. This helps to ensure that values are not being included that would skew the resulting Index value by taking into account OTM options which are too far away to be accurately priced into the Index value calculation. By excluding these options from the calculation, the Exchange believes it is able to provide a more reliable Index value. The Exchange believes that its exclusion methodology is a material enhancement over existing methodologies, and should result in a calculation outcome that better reflects the expected measure of volatility.

As discussed previously, the price dragging method reduces the variability of the option inputs (which also referred to herein as the Reference Prices). Since the option inputs have reduced variability, and those values are used to determine which strikes make it into the Index's calculation, the combination of price dragging and exclusion rules work together to, in the Exchange's opinion, create a more reliable Index value. The Exchange believes that a more reliable Index value will benefit investors and market participants trading options on the Index, will promote just and equitable principles of trade, and should serve to prevent fraudulent and manipulative acts and practices.

The Exchange believes that, in addition to the other unique and proprietary attributes associated with the Index's calculation and settlement methodology, as well as the Exchange's fully-electronic, transparent, highly-deterministic trading system, using SPY options as the components for a volatility index, in the manner proposed by the Exchange, will offer a number of significant, distinct advantages over other types of volatility indexes. The Exchange believes that the advantages of using SPY options have the potential to result in an extremely liquid volatility product with exceptionally tight spreads, and consequently would not be readily susceptible to fraudulent and manipulative acts. First, SPY options are extremely liquid (they regularly trade 4–5 million contracts a day, and have 20–30 million contracts in open interest). Second, SPY options have consistently tighter bid-ask spreads than

SPX options, which are the components for Cboe's VIX index. Since SPY options are traded on all 15 option exchanges, it allows market participants to take advantage of arbitrage opportunities across multiple venues. This is in contrast to SPX options which only trade on Cboe, and thus those arbitrage opportunities across venues are not possible. Also, at the time of final settlement, there are 14 other options exchanges on which SPY options are traded, and may serve as real-time cross-reference prices for SPY options during the Exchange's SPIKES Special Settlement Auction. This is in contrast to SPX options during Cboe's VIX settlement auction, where there is no such reference market for SPX options open during the time of the VIX settlement, as SPX options are only traded on one exchange—Cboe. In terms of spreads, SPY spreads are significantly tighter and exhibit much higher consistency with a much narrower range of typical values and far fewer numbers of outliers than SPX. SPY spreads are consistently tighter than SPX spreads, both across strike prices and through time, by a factor of 2 to 4 times (this is after normalizing SPY spreads to SPX spreads, by multiplying SPY spreads by 10). Accordingly, the Exchange believes that these advantages of using SPY options in the manner proposed by the Exchange, when combined with the other features and attributes of the SPIKES Index, have the potential to result in an extremely liquid volatility product with exceptionally tight spreads, and consequently would not be readily susceptible to fraudulent and manipulative acts.

The Exchange is currently disseminating the cash values of the Index to OPRA under the ticker symbol 'SPIKE' in at least 15 second intervals. The Exchange believes that disseminating updates in at least 15 second intervals will benefit investors and other market participants, as they will be better able to track the current value of the Index at any given period of time, will promote just and equitable principles of trade, and should prevent fraudulent and manipulative acts and practices.

The Exchange believes that using its fully-electronic and fully-transparent Opening Process functionality, which is accessible to all Members of the Exchange for participation, in highly liquid SPY options (which are simultaneously opening and available for trading on 14 other exchanges, thus providing real-time cross-reference prices for the SPY options included in the settlement) to conduct the SPIKES Special Settlement Auction to settle

expiring SPIKES options, will offer significant advantages over other types of volatility auction processes, resulting in a robust opening process that presents arbitrage opportunities across multiple venues to drive prices into line and reach equilibrium, and thus benefiting investors and other market participants, promoting just and equitable principles of trade, and should prevent fraudulent and manipulative acts and practices.

The Exchange believes that having a SPIKES strategy order modification and cancellation cut-off time during the SPIKES Special Settlement Auction in SPY option series on expiration/final settlement date will help to ensure that the order book reflects bona-fide interest for execution, and is a feature designed to prevent manipulation of the final settlement price.

Volatility-focused products have become more prominent over the past several years, and in a number of different formats and types, including ETFs, exchange-traded notes, exchange-traded options, and exchange-traded futures. Such products offer investors the opportunity to manage their volatility risks associated with an underlying asset class. Currently, most of the products focus on underlying equity indexes or equity-based portfolios.

The Exchange proposes to introduce a cash-settled options contract on a new volatility index, which focuses on equity exposure using options on SPY. SPY is the largest and most liquid ETF in the United States, and the most actively traded equity option product. The Exchange believes that because the Index is derived from published SPY options prices, and given the immense liquidity found in the individual portfolio components of SPY, the concern that the Index will be subject to market manipulation is greatly reduced. Therefore, the Exchange believes that the proposed rule change to list options on the Index is appropriate.

The Exchange further notes that Exchange Rules that apply to the trading of other index options currently traded on the Exchange would also apply to the trading of options on the Index. Additionally, the trading of options on the Index would be subject to, among others, Exchange Rules governing margin requirements and trading halt procedures.

Finally, the Exchange represents that it has an adequate surveillance program in place to detect manipulative trading in options on the Index. The Exchange also represents that it has the necessary systems capacity to support the new options series. Additionally, as stated in

the filing, the Exchange has rules in place designed to protect public customer trading.

*B. Self-Regulatory Organization's Statement on Burden on Competition*

The Exchange does not believe that the proposed rule change will impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Act. The Exchange notes that the proposed rule change will facilitate the listing and trading of a novel index option product that will enhance competition among market participants, to the benefit of investors and the marketplace.

*C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others*

Written comments were neither solicited nor received.

**III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action**

Within 45 days of the date of publication of this notice in the **Federal Register** or within such longer period up to 90 days (i) as the Commission may designate if it finds such longer period to be appropriate and publishes its reasons for so finding or (ii) as to which the self-regulatory organization consents, the Commission will:

- (A) By order approve or disapprove the proposed rule change, or
- (B) institute proceedings to determine whether the proposed rule change should be disapproved.

**IV. Solicitation of Comments**

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. Among other things, the Exchange believes that the use of SPY options in the manner proposed by the Exchange, when combined with the other features and attributes of the SPIKES Index, has the potential to result in an extremely liquid volatility product with exceptionally tight spreads, and consequently would not be readily susceptible to fraudulent and manipulative acts. In particular, the Commission seeks comment on the following:

- Do commenters agree with this overall assertion by the Exchange?
- Do commenters believe any proposed features (e.g., inclusion of relatively illiquid OTM (Out-of-the-Money) put SPY options in SPIKES settlement, SPIKES settlement via a

short pre-open auction of SPY options, cash-settlement) of the SPIKES settlement could make options on SPIKES susceptible to manipulation? Why or why not?

- Do commenters believe the definition of "SPIKES strategy orders" is sufficiently clear? Why or why not?

• Do commenters believe the proposed SPIKES strategy order cut-off time is adequate to provide sufficient time to work off order imbalances during the SPIKES Special Settlement Auction in SPY option series on final settlement dates? Why or why not?

- Do commenters believe precluding the submission, modification, or cancellation of SPIKES strategy orders after the proposed cut-off time will be effective in reducing the likelihood of manipulation in the calculation of the final settlement value for the SPIKES Index? Why or why not?

• Do commenters believe the proposed exclusion rule/truncation method, which is designed to remove SPY option price inputs deemed less reliable in order to avoid a potential negative impact on the SPIKES calculation outcome, will be effective in reducing the likelihood of manipulation in the calculation of the final settlement value for the SPIKES Index? Why or why not?

• The Exchange discusses the price dragging technique used for intraday calculation of the SPIKES Index value to determine the Reference Price for each of the individual SPY options used in the calculation of the Index value. Do commenters believe that the price dragging technique would improve Index stability by smoothing out options price inputs into the Index calculation, especially as SPY options quotes are rapidly changing? Do commenters agree that the price dragging technique will result in a smoother Index price? What are commenters' views on any potential effect of the price dragging technique, in which the primary factor considered when updating the Reference Price for each of the individual SPY options is whether or not a trade has occurred, on the price efficiency of the SPIKES Index, including whether the price dragging technique may result in stale prices?

- Do commenters believe that the lack of proposed position limits on cash-settled SPIKES Index options could make the options more susceptible to manipulation?<sup>64</sup> Why or why not?

<sup>64</sup> See, e.g., Hans R. Dutt & Lawrence E. Harris, *Position Limits for Cash-Settled Derivative Contracts*, 25 J. Futures Mkts. 945 (2005) (arguing that limits on the positions that traders can carry into final settlement can be used to mitigate the susceptibility to manipulation of cash-settled derivative contracts).

Comments may be submitted by any of the following methods:

*Electronic Comments*

- Use the Commission's internet comment form (<http://www.sec.gov/rules/sro.shtml>); or
- Send an email to [rule-comments@sec.gov](mailto:rule-comments@sec.gov). Please include File Number SR-MIAX-2018-14 on the subject line.

*Paper Comments*

- Send paper comments in triplicate to Brent J. Fields, Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549-1090.

All submissions should refer to File Number SR-MIAX-2018-14. This file number should be included on the subject line if email is used. To help the Commission process and review your comments more efficiently, please use 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 10:00 a.m. and 3:00 p.m. Copies of such 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-MIAX-2018-14, and should be submitted on or before August 6, 2018.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.<sup>65</sup>

**Eduardo A. Aleman,**  
Assistant Secretary.

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<sup>65</sup> 17 CFR 200.30-3(a)(12).