

Item 1. Text of the Proposed Rule Change

(a) Cboe Exchange, Inc. (the “Exchange” or “Cboe Options”) proposes to amend its opening process. The Exchange initially submitted this rule filing SR-CBOE-2019-034 to the Securities and Exchange Commission on July 2, 2019 (the “Initial Rule Filing”). This Amendment No. 1 supersedes the Initial Rule Filing and replaces it in its entirety. Amendment No. 1 notes changes it makes to the Initial Rule Filing. The text of the proposed rule change is provided in Exhibit 5.

(b) Not applicable.

(c) Not applicable.

Item 2. Procedures of the Self-Regulatory Organization

(a) The Exchange’s President (or designee) and Chief Regulatory Officer (or designee) each pursuant to delegated authority approved the proposed rule change on July 2, 2019. The proposed rule change would become operative on the date on which the Exchange completes the migration of its trading platform to the same system used by the Cboe Affiliated Exchanges (as defined below), which is expected to occur on October 7, 2019.

(b) Please refer questions and comments on the proposed rule change to Pat Sexton, Executive Vice President, General Counsel, and Corporate Secretary, (312) 786-7467, or Laura G. Dickman, (312) 786-7572, Cboe Exchange, Inc., 400 South LaSalle, Chicago, Illinois 60605.

Item 3. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

(a) Purpose

In 2016, the Exchange's parent company, Cboe Global Markets, Inc. (formerly named CBOE Holdings, Inc.) ("Cboe Global"), which is also the parent company of Cboe C2 Exchange, Inc. ("C2"), acquired Cboe EDGA Exchange, Inc. ("EDGA"), Cboe EDGX Exchange, Inc. ("EDGX" or "EDGX Options"), Cboe BZX Exchange, Inc. ("BZX" or "BZX Options"), and Cboe BYX Exchange, Inc. ("BYX" and, together with Cboe Options, C2, EDGX, EDGA, and BZX, the "Cboe Affiliated Exchanges"). The Cboe Affiliated Exchanges are working to align certain system functionality, retaining only intended differences between the Cboe Affiliated Exchanges, in the context of a technology migration. Cboe Options intends to migrate its trading platform to the same system used by the Cboe Affiliated Exchanges, which the Exchange expects to complete on October 7, 2019. Cboe Options believes offering similar functionality to the extent practicable will reduce potential confusion for market participants.

In connection with this technology migration, the Exchange has a shell structure for the Exchange's Rulebook that will become effective upon the migration of the Exchange's trading platform to the same system used by the Cboe Affiliated Exchanges ("shell Rulebook") that resides alongside its currently effective Rulebook ("current Rulebook"), which shell Rulebook will contain the Rules that will be in place upon completion of the Cboe Options technology migration.

The proposed rule change amends the Exchange's opening auction process.¹ Pursuant to the proposed opening auction process, the Exchange will have a Queuing Period, during which the System will accept orders and quotes and disseminate expected opening information (similar to the pre-opening period described in current Rule 6.2(a)); will initiate an opening rotation upon the occurrence of certain triggers (similar to the current opening rotation triggers described in current Rule 6.2(b)); will conduct an opening rotation during which the System matches and executes orders and quotes against each other in order to establish an opening Exchange best bid and offer and trade price, if any, for each series, subject to certain price protections (similar to the opening rotation period described in current Rule 6.2(c) and the opening conditions in Rule 6.2(d)); and will open series for trading. This order of events that comprise the proposed opening auction process corresponds to the Exchange's current opening auction process described in current Rule 6.2.

Proposed Rule 5.31(a) sets forth the definitions of the following terms for purposes of the opening auction process in proposed Rule 5.31²:

- Composite Market: The term "Composite Market" means the market for a series comprised of (1) the higher of the then-current best appointed Market-Maker bulk message bid on the Exchange and the away best bid ("ABB") (if there is an ABB) and (2) the lower of the then-current best appointed

¹ The Exchange's opening auction process is set forth in Rule 6.2 of the current Rulebook. The proposed rule change deletes Rule 6.2 of the current Rulebook and adopts Rule 5.31 in the shell Rulebook, which changes are expected to become operative on October 7, 2019.

² A term defined elsewhere in the Rules has the same meaning with respect to proposed Rule 5.31, unless otherwise defined in proposed Rule 5.31.

Market-Maker bulk message offer on the Exchange and the away best offer (“ABO”) (if there is an ABO). The term “Composite Bid (Offer)” means the bid (offer) used to determine the Composite Market.

The Exchange currently considers quotes of appointed Market-Makers on the Exchange³ and quotes from any away markets, if it has activated Hybrid Agency Liaison (“HAL”) at the open, as part of its current opening conditions.⁴ The Exchange does not intend to activate HAL at the open upon the technology migration and will thus apply the same opening conditions to all classes. The Exchange believes it is appropriate to consider any quotes from away markets in addition to quotes on its own market when determining whether to open a series in all classes, because consideration of all then-available pricing information may provide for more accurate opening prices.

- Composite Width: The term “Composite Width” means the width of the Composite Market (*i.e.*, the width between the Composite Bid and the Composite Offer) of a series.
- Maximum Composite Width: The term “Maximum Composite Width” means the amount that the Composite Width of a series may generally not be greater than for the series to open (subject to certain exceptions, as described

³ The term “quote” in the current Rulebook corresponds to the term “bulk message” in the shell Rulebook. Additionally, currently on Cboe Options, only Market-Makers may submit quotes in their appointed classes.

⁴ See current Rule 6.2(d).

below). The Market Composite Widths for all classes are as follows (based on the Composite Bid for a series)⁵:

<u>Composite Bid</u>	<u>Market Composite Width</u>
0 – 1.99	0.50
2.00 – 5.00	0.80
5.01 – 10.00	1.00
10.01 – 20.00	2.00
20.01 – 50.00	3.00
50.01 – 100.00	5.00
100.01 – 200.00	8.00
≥ 200.01	12.00

The Exchange may modify these amounts during the opening auction process (which modifications the Exchange disseminates to all subscribers to the Exchange’s data feeds that deliver opening auction updates).

The Maximum Composite Width corresponds to the opening exchange prescribed width range (“OEPW”) currently used on Cboe Options.⁶ The Exchange will determine the Maximum Composite Width in a slightly different manner than it currently determines the OEPW⁷; however, both are intended to create a reasonable quote width to protect against a market opening with an extreme width. Currently, if the opening quote width is wider than the OEPW, but other conditions exist, the Exchange will then consider a separate quote width setting used as a price protection measure

⁵ The Maximum Composite Widths are consistent with the Exchange’s current authority to determine the OEPW (as defined below); the Exchange is adding this detail to the Rules. The proposed widths are similar, but narrower, than the Exchange’s current width settings. See Cboe Options Regulatory Circular RG16-080.

⁶ See Cboe Options Rule 6.2(d)(i)(A).

⁷ The Exchange will set the Maximum Composite Width on a Composite Bid basis rather than premium basis.

after trading opens.⁸ The proposed protection measure is simplified to only be based on the Maximum Composite Width.

- Opening Auction Updates: The term “opening auction updates” means Exchange-disseminated messages that contain information regarding the expected opening of a series based on orders and quotes in the Queuing Book for the applicable trading session and, if applicable, the Global Trading Hours (“GTH”) Book,⁹ including the expected opening price, the then-current cumulative size on each side at or more aggressive than the expected opening price, and whether the series would open (and any reason why a series would not open pursuant to proposed paragraphs (e) and (j)(5), as described below).¹⁰

The proposed auction update messages correspond to the expected opening information messages (“EOIs”) the Exchange currently disseminates.¹¹ The information to be included in auction update messages will differ slightly from the information the Exchange currently disseminates in EOIs. For example, the Exchange currently disseminates the expected size of an

⁸ See current Rule 6.2(d) (such intraday width is referred to as the IEPW).

⁹ In other words, for the Regular Trading Hours (“RTH”) opening auction in an All Sessions class, the expected opening information to be disseminated in opening auction updates prior to the conclusion of the GTH trading session will be based on orders and quotes in the RTH Queuing Book (*i.e.*, RTH Only orders) and in the GTH Book (*i.e.*, All Sessions orders).

¹⁰ Amendment No. 1 makes a nonsubstantive change to the proposed definition of “opening auction updates” that was included in the Initial Rule Filing to add a cross-reference to the proposed paragraphs in Rule 5.31 that set forth the reasons why a series may not open.

¹¹ See current Rule 6.2(a)(ii).

opening trade and the size and side of any imbalance. As proposed, the Exchange will disseminate the then-current cumulative size on each side at or more aggressive than the expected opening price, along with information regarding whether a series will or will not open, which ultimately provides market participants with equivalent information.

- Opening Collar: The term “Opening Collar” means the price range that establishes limits at or inside of which the System determines the Opening Trade Price for a series. The Opening Collar is determined by determining the midpoint of the Composite Market, and adding and subtracting half of the applicable width amount above and below, respectively, that midpoint. The Opening Collar widths for all classes are as follows (based on the Composite Bid for a series):

<u>Composite Bid</u>	<u>Opening Collar Width</u>
0 – 1.99	0.50
2.00 – 5.00	0.80
5.01 – 10.00	1.00
10.01 – 20.00	2.00
20.01 – 50.00	3.00
50.01 – 100.00	5.00
100.01 – 200.00	8.00
≥ 200.01	12.00

The Exchange may modify these amounts during the opening auction process (which modifications the Exchange disseminates to all subscribers to the Exchange’s data feeds that deliver opening auction updates).

The Exchange currently uses the OEPW (or IEPW in certain circumstances) as the range within which the opening price must be.¹² While the Exchange proposes to use a different measure to protect against a market opening at an extreme price than it uses to protect a market against opening too wide, the new Opening Collar will be based on appointed Market-Maker quotes and away market quotes, and will be used in a similar manner to protect against the market opening at an extreme price.

- Opening Trade Price: The term “Opening Trade Price” means the price at which the System executes opening trades in a series during the opening rotation.¹³
- Queuing Book: The term “Queuing Book” means the book into which Users may submit orders and quotes (and onto which good-til-cancelled (“GTC”) and good-til-day (“GTD”) orders¹⁴ remaining on the Book from the previous trading session or trading day, as applicable, are entered) during the Queuing Period for participation in the applicable opening rotation.¹⁵ Orders and

¹² See current Rule 6.2(d)(i)(C). The proposed Opening Collar widths are consistent with the Exchange’s current authority to determine the OEPW; the Exchange is adding this detail to the Rules. The proposed widths are similar, but narrower, than the Exchange’s current width settings. See Cboe Options Regulatory Circular RG16-080.

¹³ See current Rule 6.2(c)(i)(A).

¹⁴ See Rule 5.6(d) in the shell Rulebook.

¹⁵ In other words, at 2:00 a.m., All Sessions orders will rest on the GTH Queuing Book and be eligible to participate in the GTH opening auction process. Pursuant to Rule 5.7 in the shell Rulebook, Users may also enter RTH Only into the RTH Queuing Book beginning at 2:00 a.m., which orders would rest on the RTH Queuing Book and be eligible to participate in the RTH opening auction process. Amendment No. 1 deletes the phrase “a time” in the first sentence of proposed paragraph (c), which was inadvertently included in the rule text in the Initial Rule

quotes on the Queuing Book may not execute until the opening rotation. The Queuing Book for the GTH opening auction process may be referred to as the “GTH Queuing Book,” and the Queuing Book for the RTH opening auction process may be referred to as the “RTH Queuing Book.” There is no equivalent term to a Queuing Book in current Rule 6.2. However, the System currently accepts orders and quotes during the pre-opening period, which orders and quotes rest on the book and are eligible for execution during the opening rotation.

- Queuing Period: The term “Queueing Period” means the time period prior to the initiation of an opening rotation during which the System accepts orders and quotes for participation in the opening rotation for the applicable trading session.¹⁶ The Queuing Period is equivalent to the pre-open period described in current Rule 6.2(a).

Proposed Rule 5.31(b) describes the Queuing Period. The Queuing Period will begin at 2:00 a.m. Eastern Time for All Sessions Classes and at 7:30 a.m. Eastern Time for

Filing. Amendment No. 1 updates an inadvertent reference to 7:30 a.m. in this footnote in the Initial Rule Filing to 2:00 a.m., which is the time at which Users may begin submitting orders to the Exchange pursuant to Rule 5.7 in the shell Rulebook (and which is constituent with the rule text in the proposed subparagraph (b)(1) in the Initial Rule Filing and this Amendment No. 1). In addition, Amendment No. 1 makes some clarifications in this footnote regarding the Queuing Books for each trading session. __Additionally, unexecuted All Sessions orders resting on the GTH Book at the end of the GTH trading session will enter the RTH Queuing Book and be eligible to participate in the RTH opening auction process. This does not currently occur, because the GTH and RTH trading sessions currently operate separately and do not interact. Following the technology migration, these trading sessions will be able to interact, as they will use the same book and connectivity. See Rules 1.1 (definition of Book) in the shell Rulebook.

¹⁶ See current Rule 6.2(a).

RTH Only Classes.¹⁷ The System currently begins accepting orders in quotes at 5:00 p.m. Eastern Time¹⁸ the previous trading day for the GTH trading session and at 7:30 a.m. Eastern Time for the RTH trading session.¹⁹ While Users will have less time to submit orders and quotes prior to the GTH opening, the Exchange believes having one hour to submit orders and quotes in All Sessions Classes prior to the GTH opening is sufficient given that the Exchange lists fewer classes for trading during GTH, and it is the same amount of time they have to submit orders and quotes in RTH Only classes prior to the RTH trading session.²⁰

Proposed Rule 5.31(b)(2) clarifies that orders and quotes on the Queuing Book are not eligible for execution until the opening rotation pursuant to proposed paragraph (e), as described below.²¹ This is consistent with the current order entry period, pursuant to which orders and quotes entered for inclusion in the opening process do not execute until the opening trade pursuant to current Rule 6.2(c). During the Queuing Period, the System

¹⁷ See proposed Rule 5.31(b)(1); see also Rule 5.7 in the shell Rulebook (Amendment No. 1 adds the citation to Rule 5.7 in this footnote).

¹⁸ The Exchange notes the times in its current Rule are in Central Time rather than Eastern Time, as is the case in its proposed Rule.

¹⁹ See current Rule 6.2(a); see also Cboe Options Regulatory Circular RG15-103 (July 13, 2015). The Exchange currently begins accepting orders and quotes at 7:30 a.m. Eastern Time for the RTH trading session, which time is not changing.

²⁰ Pursuant to C2 Options Rule 6.11(a) and EDGX Options Rule 21.7(a), the Queuing Period for the GTH trading session will similarly begin one hour prior to the beginning of that trading session on those exchanges. Current Rule 6.2(a) provides the Exchange with flexibility regarding when to begin the pre-opening period. The Exchange proposes to eliminate this flexibility from the Rules, as it does not believe it is necessary any more. If the Exchange determines to change the time at which the Queuing Period will begin, it will submit a rule filing.

²¹ The proposed rule change moves the provision that states that GTC and GTD orders remaining on the Book from the previous trading day may participate in the opening process from current Rule 6.2(b) to the definition of Queuing Book in proposed Rule 5.31(a).

accepts all orders and quotes that are available for a class and trading session pursuant to Rule 5.30,²² which are eligible for execution during the opening rotation, except as follows:

- the System rejects immediate-or-cancel (“IOC”) and fill-or-kill (“FOK”) orders during the Queuing Period²³;
- the System accepts orders and quotes with MTP Modifiers during the Queuing Period, but does not enforce them during the opening rotation²⁴;
- the System accepts stop and stop-limit orders²⁵ during the Queuing Period, but they do not participate during the opening rotation. The System enters any of these orders it receives during the Queuing Period into the Book following completion of the opening rotation (in time priority)²⁶;
- the System converts all intermarket sweep orders (“ISOs”) received prior to the completion of the opening rotation into non-ISOs²⁷; and

²² The Exchange intends to add Rule 5.30 to the shell Rulebook in a separate rule filing, which will set forth the order types, instructions, and times-in-force the Exchange may make available for electronic trading.

²³ See current Rule 6.2(a)(i) and proposed Rule 5.31(a)(2)(A).

²⁴ See proposed Rule 5.31(a)(2)(B). The Exchange currently has Market-Maker trade prevention orders, which it does not accept prior to the opening. See Rule 6.2(a)(i).

²⁵ See proposed Rule 5.31(a)(2)(C). Current Rule 6.2(c)(i)(A) provides that all-or-none orders and orders with a stop contingency will not participate in the opening rotation in classes in which the Exchange has not activated HAL at the open. As noted above, the Exchange intends to not activate HAL at the open for any classes following the technology migration, so proposed Rule 5.31(a)(2)(C) is consistent with that current Rule.

²⁶ This is consistent with current functionality, and the proposed rule change is adding this detail to the Rules. See also Cboe Options Rule 6.2(c)(i)(B) (which states that order with a stop contingency do not participate in the opening rotation).

²⁷ See proposed Rule 5.31(a)(2)(D); see also current Rule 6.2(a)(i) (which does not permit ISOs to be entered during the pre-opening period).

- complex orders do not participate in the opening auction described in proposed Rule 5.31 and instead may participate in the complex order book (“COB”) opening process pursuant to proposed Rule 5.33(c).²⁸

Proposed Rule 5.31(c) describes the opening auction updates the Exchange will disseminate as part of the opening auction process. As noted above, opening auction updates contain information regarding the expected opening of a series and are similar to the EOIs the Exchange currently disseminates during the pre-opening period. These messages provide market participants with information that may contribute to enhanced liquidity and price discovery during the opening auction process. Beginning at 2:00 a.m. Eastern Time for the GTH trading session and at 8:30 a.m. Eastern Time for the RTH trading session, the Exchange disseminates opening auction updates for the series.²⁹ The Exchange disseminates opening auction updates every five seconds, unless there are no updates to the opening information since the previously disseminated update, in which case the Exchange disseminates updates every minute, to all subscribers to the Exchange’s data feeds that

²⁸ See current Rule 6.2(c)(i)(B) and proposed Rule 5.31(a)(2)(E). The Exchange intends to add Rule 5.33 to the shell Rulebook (equivalent to current Rule 6.53C in the current Rulebook) in a separate rule filing, which will describe the COB opening process.

²⁹ Amendment No. 1 deletes the statement in this footnote in the Initial Rule Filing regarding when the Exchange will begin disseminating opening auction updates. The Exchange will begin disseminating opening auction updates at the times set forth in proposed paragraph (c), with no exception. Cboe Options currently begins disseminating EOIs at 8:30 a.m. or 9:00 a.m. Eastern Time (depending on the class), which is consistent with the proposed rule change to begin dissemination of opening auction messages no earlier than one hour prior to the expected initiation of the opening rotation for a series. The Exchange believes market participants generally want to receive this information closer to the opening of trading.

deliver these messages until a series opens.³⁰ If there have been no changes since the previous update, the Exchange does not believe it is necessary to disseminate duplicate updates to market participants at the next interval of time.

Proposed Rule 5.31(d) describes the events that will trigger the opening rotation for a class. Pursuant to current Rule 6.2(b), unless unusual circumstances exist, the System initiates the opening rotation procedure on a class-by-class basis for Regular Trading Hours:

- with respect to equity and exchange-traded product options, after the opening trade or the opening quote is disseminated in the market for the underlying security,³¹ or at 9:30 a.m. Eastern Time for classes determined by the Exchange (including over-the-counter equity classes); or
- with respect to index options, at 9:30 a.m. Eastern Time, or at the later of 9:30 a.m. and the time the Exchange receives a disseminated index value for classes determined by the Exchange.

The System currently initiates the opening rotation procedure for Global Trading Hours at 3:00 a.m. Eastern Time.

The proposed opening rotation triggers are similar to the current opening rotation triggers, except the Exchange proposes to have the same trigger for all equity options and the same trigger for all index options. As proposed for Regular Trading Hours, after a time period (which the Exchange determines for all classes) following the System's observation

³⁰ See current Rule 6.2(a)(ii) (the Exchange currently disseminates EOIs at regular intervals or less frequently if there are no updates, and will not disseminate EOIs in certain circumstances, including if there is no locked or crossed interest (because there would be no expected opening price or size)).

³¹ The "market for the underlying security" is either the primary listing exchange or the first exchange to open the underlying security, as determined by the Exchange on a class-by-class basis.

after 9:30 a.m. Eastern Time of the first disseminated (1) transaction on the primary market³² in the security underlying an equity option³³ or (2) index value for the index underlying an index option, the System will initiate the opening rotation for the series in that class, and will disseminate a message to market participants indicating the initiation of the opening rotation.³⁴ For Global Trading Hours, the System will initiate the opening rotation at 3:00 a.m. Eastern Time.³⁵ For Regular Trading Hours, the opening rotation will be triggered in all equity classes by observation of the first transaction in the underlying security on the primary market (rather than some classes being triggered by a timer), and the opening rotation will be triggered in all index classes by observation of the first index value (rather than some classes being triggered by a timer), after 9:30 a.m. Eastern Time. The Exchange believes that it no longer needs the flexibility to open either equity option classes or index option classes based on a timer, and believes the proposed opening rotation triggers will simplify the process. Upon the occurrence of one of these proposed triggers for a class,

³² The term “primary market” means the primary exchange on which an underlying security is listed. See Rule 1.1 in the shell Rulebook.

³³ The term equity option includes options on exchange-traded products. See definition of “equity option” in Rule 1.1 in the shell Rulebook.

³⁴ Amendment No. 1 makes nonsubstantive changes to the proposed rule text in subparagraph (d)(1)(A), and the sentence accompanying this footnote. The opening trigger for equity options in the RTH session will continue to be based on the dissemination of the first transaction in the underlying security from the primary market.

³⁵ Amendment No. 1 updates an inadvertent reference to 8:30 a.m. in the accompanying sentence in the Initial Rule Filing to 3:00 a.m., which is the time at which the GTH trading session begins on the Exchange pursuant to Rule 5.1 in the shell Rulebook (and is consistent with proposed subparagraph (d)(2) in the Initial Rule Filing and this Amendment No. 1).

the System will initiate the opening rotation for the series in that class, and will disseminate a message to market participants indicating the initiation of the opening rotation.³⁶

Proposed Rule 5.31(e) describes the opening rotation process, during which the System will determine whether the Composite Market for a series is not wider than a maximum width, will determine the opening price, and will open series for trading.³⁷ The Maximum Composite Width Check and Opening Collar are intended to facilitate that series opening in a fair and orderly manner and at prices consistent with the current market conditions for the series and not at extreme prices, while taking into consideration prices disseminated from other options exchanges that may be better than the Exchange's at the open.

Proposed Rule 5.31(e)(1) describes the Maximum Composite Width Check, and the two sets of conditions under which a series will be eligible to open.

- If the Composite Market of a series is not crossed, and the Composite Width of a series is less than or equal to the Maximum Composite Width, the series is eligible to open (and the System determines the Opening Price as described below).
- If the Composite Market of a series is not crossed, and the Composite Width of a series is greater than the Maximum Composite Width, but there are no

³⁶ See current Rule 6.2(b)(ii) and proposed Rule 5.31(d).

³⁷ See current Rule 6.2(d) (pursuant to which the Exchange will generally not open a series if the width is wider than an acceptable price range or if the opening trade price is outside of an acceptable price range). As noted above, the Exchange will similarly have a maximum quote width and acceptable opening price range, however, as noted above, the proposed ranges will be determined in a slightly different manner.

non-M Capacity³⁸ market orders or buy (sell) limit orders with prices higher (lower) than the Composite Bid (Offer) and there are no locked or crossed orders or quotes, the series is eligible to open (and the System determines the Opening Price as described below).³⁹

- If neither of the conditions above are satisfied for a series, or if the Composite Market of a series is crossed, the series is ineligible to open.⁴⁰ The Queuing Period for the series continues (including the dissemination of opening auction updates) until one of the above conditions for the series is satisfied.⁴¹

The following examples show the application of the Maximum Composite Width

Check:

Example #1

³⁸ Capacity M is used for orders for the account of a Market-Maker (with an appointment in the class). See Rule 1.1 (definition of Capacity).

³⁹ Similarly, pursuant to current Rule 6.2(d)(ii)(B), if the opening quote is wider than the OEPW range (but not outside another acceptable price range) and there are no orders or quotes marketable against each other or that lock or cross the OEPW range, Cboe Options will open the series.

⁴⁰ Amendment No. 1 adds to proposed subparagraph (e)(1)(C) (and the sentence accompanying this footnote) that a series will not open if the Composite Market of a series is crossed. This is consistent with the original proposal that the Maximum Composite Width Check for a series can only be satisfied if the Composite Market is not crossed and merely clarifies this in the subparagraph describing when a series does not satisfy the Maximum Composite Width Check.

⁴¹ Similarly, pursuant to current Rule 6.2(d)(ii)(B), if the opening quote is wider than the OEPW range and there are orders or quotes marketable against each other or that lock or cross the OEPW range, the System does not open a series. If the opening quote is no wider than the IEPW range and there are no orders or quotes marketable against each other or that lock or cross the OEPW range, the System opens the series. Pursuant to current Rule 6.2(d)(iii), if the opening conditions are not satisfied, the opening rotation period continues, including the dissemination of EOIs until the opening conditions are satisfied.

The Maximum Composite Width for a class is 0.50, and the Composite Market is 2.00 x 1.00, comprised of an appointed Market-Maker bulk message bid of 2.00 and an appointed Market-Maker bulk message offer of 1.00. There is no other interest in the Queuing Book. The series is not eligible to open, because the Composite Market is crossed. The Queuing Period for the series will continue until the series satisfies the Maximum Composite Width Check.

Example #2

The Maximum Composite Width for a class is 0.50, and the Composite Market is 1.00 x 2.00, comprised of an appointed Market-Maker bulk message bid of 1.00 and an appointed Market-Maker bulk message offer of 2.00. There is no other interest in the Queuing Book. The series is eligible to open, because the width of the Composite Market is greater than the Maximum Composite Width and there are no locked orders or quotes in the series or non-M Capacity orders. The System will then determine the Opening Trade Price.

Example #3

The Maximum Composite Width for a class is 0.50, and the Composite Market is 1.00 x 2.00, comprised of an appointed Market-Maker bulk message bid of 1.00 and an appointed Market-Maker bulk message offer of 2.00. There is a non-M Capacity limit order to buy for \$1.99 in Queuing Book. The series is not eligible to open, because the width of the Composite Market is greater than the Maximum Composite Width, and there is a non-M Capacity order at a price inside of the Composite Market. The Queuing Period for the series will continue until the series satisfies the Maximum Composite Width Check.

Example #4

The Maximum Composite Width for a class is 0.50, and the Composite Market is 1.00 x 2.00, comprised of an appointed Market-Maker bulk message bid of 1.00 and an appointed Market-Maker bulk message offer of 2.00. There is a market order to buy in the Queuing Book. The series is not eligible to open, because the width of the Composite Market is greater than the Maximum Composite Width and there is a marketable order. The Queuing Period for the series will continue until the series satisfies the Maximum Composite Width Check.

Proposed subparagraph (e)(2) describes how the System determines the Opening Trade Price. After a series satisfies the Maximum Composite Width Check described above, if there are orders and quotes marketable against each other at a price not outside the Opening Collar, the System determines the Opening Trade Price for the series.⁴² The Opening Trade Price is the volume-maximizing, imbalance-minimizing price (“VMIM price”) that is not outside the Opening Collar. The VMIM price is:

- the price at which the largest number of contracts can execute (*i.e.*, the volume-maximizing price);
- if there are multiple volume-maximizing prices, the price at which the fewest number of contracts remain unexecuted (*i.e.*, the imbalance-minimizing price); or
- if there are multiple volume-maximizing, imbalance-minimizing prices, (1) the highest (lowest) price, if there is a buy (sell) imbalance, or (2) the

⁴² If there are no such orders, there is no Opening Trade Price. See current Rule 6.2(c)(i) (pursuant to which there may or may not currently be an opening trade price).

price at or nearest to the midpoint of the Opening Collar, if there is no imbalance.

The proposed process to determine an opening trade price is substantially similar to the process the Exchange currently uses. Pursuant to current Rule 6.2(c)(i)(A), the opening trade price of a series is the “market-clearing” price, which is the single price at which the largest number of contracts in the Book can execute (*i.e.*, the volume-maximizing price), leaving bids and offers that cannot trade with each other. If there are multiple prices at which the same number of contracts would clear, the System currently uses (1) the price at or nearest to the midpoint of the opening best bid or offer, or the widest offer (bid) point of the OEPW range if the midpoint is higher (lower) than that price point, in classes in which the Exchange has not activated HAL at the open, or (2) the price at or nearest to the midpoint of the range consisting of the higher of the opening national best bid and widest bid point of the OEPW range, and the lower of the opening national best offer and widest offer point of the OEPW range, in classes in which the Exchange has activated HAL at the open. The proposed “tiebreakers” described above will apply to all classes. While the proposed tiebreakers are different than the current tiebreakers, the Exchange believes the proposed volume-maximizing, imbalance-minimizing procedure is reasonable, as it will provide for the largest number of contracts in the Queuing Book that can execute at a price not outside the Opening Collar range, leaving as few as possible bids and offers in the Book that cannot execute, and will consider all pricing information available on the Exchange and from away markets.

The Exchange currently applies different opening conditions to classes in which the Exchange has activated HAL at the open and to classes in which the Exchange has not

activated HAL at the open.⁴³ The proposed opening conditions are similar to the opening conditions the Exchange currently applies pursuant to current Rule 6.2(d)(ii), which are the opening conditions that apply to classes in which HAL is activated at the open. As noted above, the Exchange does not intend to activate HAL at the open in any classes following the technology migration, and will apply the same opening conditions to all classes. The Exchange has currently activated HAL at the open in the majority of classes that trade on the Exchange, and therefore the Exchange believes it is appropriate that the proposed opening conditions correspond to the opening conditions in Rule 6.2(d)(ii). Additionally, those opening conditions consider price information from away markets, as the proposed opening conditions do. The Exchange believes considering all available information will provide for more accurate pricing at the open.

Pursuant to current Rule 6.2(d)(ii):

- If there are no quotes on the Exchange or disseminated from at least one away exchange present in the series, the System does not open the series.⁴⁴
- If the width between the best quote bid and best quote offer, which quotes may consist of Market-Maker quotes or bids and offers disseminated from an away exchange(s) (for purposes of this subparagraph (d)(ii), the “opening quote”) is wider than the OEPW range and there are orders or quotes marketable against each other

⁴³ The proposed rule change deletes all the references in current Rule 6.2(d) to the exposure of orders via HAL, and excludes those references in the description of the current opening conditions below.

⁴⁴ Pursuant to the proposed rule change, a series will similarly not open in this case. The proposed opening conditions require a Composite Market. Therefore, the System will not open a series (as it will not today) without bulk message bids and offers from appointed Market-Makers or bids and offers from at least one away exchange.

or that lock or cross the OEPW range, the System does not open the series. However, if the opening quote width is no wider than the IEPW range and there are no orders or quotes marketable against each other or that lock or cross the OEPW range, the System opens the series. If the opening quote width is wider than the IEPW range, the System does not open the series.

- If the opening trade price would be outside of the OEPW range or NBBO, the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at an opening trade price not outside either the OEPW range or NBBO.
- If the opening trade would leave a market order imbalance (i.e., there are more market orders to buy or to sell for the particular series than can be satisfied by the orders and quotes on the opposite side), the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at the opening trade price.
- If the opening quote bid (offer) or NBB (NBO) crosses the opening quote offer (bid) or NBO (NBB) by more than a specified amount determined by the Exchange on a class- by-class and premium basis, the System does not open the series. If the opening quote bid (offer) or NBB (NBO) crosses the opening quote offer (bid) or NBO (NBB) by no more than the specified amount, the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at the opening trade price.

The Exchange will use the Maximum Composite Width Check as a price protection measure to prevent orders from executing at extreme prices at the open, as it currently uses

the OEPW range pursuant to the second bullet above.⁴⁵ If the width of the Composite Market (which represents the best market, as it is comprised of the better of Market-Maker bulk messages on the Exchange or any away market quotes) is no greater than the Maximum Composite Width, the Exchange believes it is appropriate to open a series under these circumstances and provide marketable orders with an opportunity to execute at a reasonable opening price (as discussed below), because there is minimal risk of execution at an extreme price.⁴⁶ However, if the Composite Width is greater than the Maximum Composite Width but there are no non-M Capacity orders⁴⁷ that lock or cross the opposite-side widest point of the Composite Market (and thus not marketable at a price at which the Exchange would open, as described below), there is similarly no risk of an order executing at an extreme price on the open. Because the risk that the Maximum Composite Width Check is intended to address is not present in this situation, the Exchange believes it is appropriate to open a series in either of these conditions. However, if neither of these

⁴⁵ See current Rule 6.2(d)(ii)(B), pursuant to which the Exchange will open a series if the opening quote is not outside the OEPW.

⁴⁶ This corresponds to current Rule 6.2(d)(ii)(B), pursuant to which the Exchange will open even if the opening quote is too wide but there are no marketable orders or quotes.

⁴⁷ Market-Maker bulk messages are considered when determining the Composite Market. The Exchange believes it is appropriate to consider Market-Maker bulk messages when determining an opening quote to ensure there will be liquidity in a series when it opens. Additionally, while it is possible for Market-Makers to submit M orders, the Exchange believes there is less risk of a Market-Maker inputting an order at an extreme price given that Market-Makers are the primary liquidity providers in the options market, and thus generally responsible for pricing the market.

conditions is satisfied, the Exchange believes there may be risk that orders would execute at an extreme price if the series open, and therefore the Exchange will not open a series.⁴⁸

The Exchange will use the Opening Collar as a further price protection measure to prevent orders from executing at extreme prices at the open, as it currently uses the OEPW range pursuant to the third bullet above. If the Opening Trade Price is not outside the Opening Collar (which will be based on the best then-current market), the Exchange believes it is appropriate to open a series at that price, because there is minimal risk of execution at an extreme price. The Exchange believes there may be risk that orders would execute at an extreme price if the Opening Trade Price were outside of the Opening Collar.

As set forth above in the fifth bullet, the Exchange will similarly not open a series today if the opening quote is crossed by more than a specified amount. However, as proposed, a series will not be eligible to open if the Composite Market is crossed. The Exchange believes this slight change is appropriate given that the existence of a crossed market may indicate pricing uncertainty within the market. The Exchange believes this proposed rule change will reduce price risk for any executions that may occur during the opening rotation due to the existence of a crossed market.

The Exchange may also open a series pursuant to current Rule 6.2(e) (proposed Rule 5.31(h)), which permits the Exchange to deviate from the standard manner of the opening auction process, including by adjusting the timing of the opening rotation in any class, modifying any time periods described in proposed Rule 5.31, and delaying or compelling the opening of a series if the opening width is wider than Maximum Composite Width,

⁴⁸ Pursuant to current Rule 6.2(d)(ii), the Exchange will not open a series if similar conditions exist that could create risk that orders would execute at an extreme price if the series open.

when it believes it is necessary in the interests of a fair and orderly market. The Exchange will continue to make and maintain records to document all determinations to deviate from the standard manner of the opening auction process, and will periodically review these determinations for consistency with the interests of a fair and orderly market.⁴⁹

Pursuant to proposed Rule 5.31(e)(3), if the System establishes an Opening Trade Price, the System will execute orders and quotes in the Queuing Book at the Opening Trade Price. The System will prioritize orders and quotes in the following order: market orders, limit orders and quotes with prices better than the Opening Trade Price, and orders and quotes at the Opening Trade Price.⁵⁰ The System allocates orders and quotes on a pro-rata basis pursuant to Rule 5.32). The System applies a Priority Customer overlay to all classes, except for SPX (including SPXW) and VIX (excluding VIXW).⁵¹ If there is no Opening Trade Price, the System opens a series without a trade.

The Exchange proposes to delete current Rule 6.2(c)(iii) regarding the order in which the System will open series. The order in which the System opens series for trading is generally immaterial. The Exchange currently opens series in the order set forth in Rule 6.2(c)(iii), because it believes opening series in this order on exercise settlement value determination days enhances liquidity during the modified opening auction process set forth

⁴⁹ See proposed Rule 5.31(h).

⁵⁰ See current Rule 6.2(c)(i)(C). The Exchange believes it is appropriate to prioritize orders with the most aggressive prices, as it provides market participants with incentive to submit their best-priced orders.

⁵¹ See current Rule 6.2, Interpretation and Policy .04. The proposed allocation during the opening rotation is consistent with the Exchange's current authority to determine the allocation algorithm used at the open, and is the same one applied to classes (and groups) today. The Exchange applies different algorithm to different classes (and groups) based on the market model and characteristics of different products. The proposed rule change merely codifies this in the Rules.

in current Rule 6.2, Interpretation and Policy .01. As discussed below, the Exchange proposes other enhancements to the modified opening auction process, and thus no longer believes it will be necessary to open series in this specific order. Therefore, the System will open series as the opening conditions in those series are satisfied, in no particular order.

Pursuant to proposed subparagraph (f), as is the case today, following the conclusion of the opening rotation, the System enters any unexecuted orders and quotes (or remaining portions) from the Queuing Book into the Book in time sequence (subject to a User's instructions – for example, a User may cancel an order), where they may be processed in accordance with Rule 5.32. Consistent with the OPG contingency (and current functionality), the System cancels any unexecuted OPG orders (or remaining portions) following the conclusion of the opening rotation.

Proposed Rule 5.31(g)⁵² states the Exchange will open series using the same opening auction process described above following a trading halt in the class declared by the Exchange pursuant to Rule 5.20,⁵³ except:

- The Queuing Period will begin immediately when the Exchange halts trading in the class.
- If a User has orders or quotes resting on the Book at the time of a trading halt, the System queues those orders and quotes in the Queueing Book for

⁵² See current Rule 6.2(f). The proposed rule regarding the opening auction process to be used following a trading halt eliminates the flexibility regarding whether there may or may not be a Queuing Period during a trading halt. The proposed rule change also provides Users with the ability to decide how their resting orders and quotes should be handled in the event of a trading halt.

⁵³ The Exchange intends to adopt Rule 5.20 in the shell Rulebook in a separate rule filing, which rule will correspond to Rules 6.3 and 24.7 in the current Rulebook.

participation in the opening rotation following the trading halt, unless the User entered instructions to cancel its resting orders and quotes.

- The System initiates the opening rotation for a class upon the Exchange's determination to resume trading pursuant to Rule 5.20.

The proposed rule change deletes current Rule 6.2(g) regarding the use of the opening auction process to conduct a closing rotation upon determination by the Exchange. The Exchange does not currently use the opening auction process to conduct a closing rotation, and does not intend to use the proposed opening auction process to conduct a closing rotation following the technology migration.

Proposed Rule 5.31(j) describes the modified opening auction process⁵⁴ the Exchange will use to calculate the exercise or final settlement value of expiring volatility index derivatives. As described below, the Exchange proposes to make certain enhancements to the current process, which is described in current Rule 6.2, Interpretation and Policy .01. Cboe Options and Cboe Futures Exchange, LLC ("CFE") list options and futures, respectively, on the Cboe Volatility Index ("VIX").⁵⁵ The exercise settlement value for VIX derivatives is determined on the morning of their expiration date through a special opening quotation ("SOQ") of the VIX using the opening prices of a portfolio of SPX

⁵⁴ Current Rule 6.2, Interpretation and Policy .01 currently refers to this process as the Modified HOSS (Hybrid Opening System) Procedure.

⁵⁵ Cboe Options and CFE previously listed options and futures on other volatility indexes; however, currently, they only list VIX options and VIX futures, respectively. Options expire on an expiration date and settle to an exercise settlement value, and futures settle on a final settlement date to a final settlement value. For ease of reference, the Exchange will use the options terminology throughout the filing when referring to the final settlement date and final settlement value for VIX derivatives.

options that expire approximately 30 days later, which opening prices are determined through a modified version of the Exchange's standard opening auction process.

By providing market participants with a mechanism to buy and sell options that will be used to calculate the exercise settlement value at the prices that will be used to calculate the exercise settlement value of VIX derivatives, the VIX settlement process is "tradable." A tradable settlement creates the opportunity to convert the exposure of an expiring VIX derivative into a portfolio of SPX options that will be used to calculate the exercise settlement value of the expiring contract. Specifically, some market participants may desire to maintain the vega, or volatility, risk exposure of expiring VIX derivatives. Since VIX derivatives expire 30 days prior to the SPX options used to calculate their settlement value, a market participant may have a vega risk from its portfolio of index positions that the participant wants to continue to hedge after the participant's VIX derivatives expire.⁵⁶ To continue that vega coverage following expiration of a VIX derivative, a market participant may determine to trade the portfolio of SPX options used to calculate the exercise settlement value of an expiring VIX derivative, since those SPX options still have 30 more days to expiration. This trade essentially replaces the uncovered vega exposure "hole" created by an expiring VIX derivative.

Since the VIX settlement value converges with the value of the portfolio of SPX options used to calculate the VIX settlement value, trading this SPX option portfolio

⁵⁶ The orders for an SPX option portfolio a market participant submits to the modified opening auction process to replicate the vega risk exposure of its expiring VIX derivatives may be referred to as a "vega replicating order" in this rule filing.

mitigates settlement risk.⁵⁷ This is because, if the SPX options that will be used to calculate the VIX settlement value execute at the open in the proportions that those options will be used in that calculation, the vega exposure obtained in the SPX option portfolio will replicate the vega exposure of the expiring VIX derivative. Because a market participant is converting vega exposure from one instrument (an expiring VIX derivative) to another (a portfolio of SPX options expiring in 30 days), the market participant is likely to be indifferent to the settlement price received for the expiring VIX derivative. Importantly, trading the next VIX derivative expiration (*i.e.*, rolling) will not accomplish the conversion of vega exposure since that VIX derivative contract would necessarily cover a different period of expected volatility and would be based on an entirely different portfolio of SPX options.

The VIX settlement process is patterned after the process used to calculate the exercise settlement value of SPX options. On the days SPX options expire, S&P calculates an SOQ of the S&P 500 Index using the opening prices of the component stocks in their primary markets. Market participants can seek to replicate the exposure of their expiring SPX options by entering orders to buy and sell the component stocks of the S&P 500 Index

⁵⁷ In the absence of a tradable settlement, settlement risk refers to the difference between the exercise settlement value of the expiring VIX derivatives and the value of the portfolio of the option series used to calculate the exercise settlement value. The potential disparity between the exercise settlement value for expiring VIX derivatives and the value of the replicating portfolio of option series that will be used to calculate the exercise settlement value is referred to as “slippage.” A tradable settlement provides convergence between the exercise settlement value and the value of the portfolio of option series used to calculate the exercise settlement value (*i.e.*, eliminates slippage). While it is possible to construct a replicating portfolio of SPX options, it is highly unlikely that, absent a tradable settlement, traders would be able to trade SPX options that will be used to calculate the exercise settlement value at prices that would match the final settlement price.

at their opening prices. If they are successful, market participants can effectively construct a portfolio that matches the value of the SOQ of the S&P 500 Index. At this point, the values of the derivatives and cash markets converge. In a similar way, the VIX exercise settlement value is calculated using the opening prices of SPX options that expire approximately 30 days later. Analogous to the settlement process for SPX options, market participants can replicate the exposure of their expiring VIX derivatives by entering buy and sell orders in SPX options that will be used to calculate the VIX settlement value in the proportions the Exchange will use when calculating the VIX settlement value. If they are successful, market participants can effectively construct a portfolio of SPX option positions whose value matches the exercise settlement value of the participants' VIX derivatives.

The primary feature of the modified opening auction process that currently distinguishes it from the standard opening auction process is a cut-off time for the entry of strategy orders,⁵⁸ which market participants currently submit for participation in the modified opening auction process to replicate the vega exposure of their expiring VIX derivatives. The Exchange understands that the entry of strategy orders may lead to order

⁵⁸ The Exchange deems individual orders (considered collectively) that a market participant submits for participation in the modified opening auction process to be a "strategy" order, based on related facts and circumstances considered by the Exchange, only if the orders: (1) relate to the market participant's positions in expiring VIX derivatives; (2) are for option series with the expiration that the Exchange will use to calculate the exercise or final settlement value, as applicable, of the applicable VIX derivative; (3) are for option series with strike prices approximating the range of series that are later determined to constitute the constituent option series for the applicable expiration; (4) are for put (call) options with strike prices equal to or less (greater) than the "at-the-money" strike price; and (5) have quantities approximating the weighting formula used to determine the exercise or final settlement value, as applicable, in accordance with the VIX methodology. See current Rule 6.2, Interpretation and Policy .01(a) (definition of "strategy order"). As proposed, there will continue to be a cut-off time during the modified opening auction process; however, the Exchange is eliminating the concept of a strategy order.

imbalances in the series in the settlement strip. To the extent (1) market participants seeking to replicate the vega exposure of an expiring VIX derivative position are on one side of the market (*e.g.*, strategy orders to buy SPX options) and (2) those market participants' orders predominate over other orders during the modified opening auction process, those trades may contribute to an order imbalance prior to the open. The Exchange established the strategy order cut-off time to provide market participants with time to enter additional orders and quotes to offset any such imbalances prior to the opening of these series.⁵⁹ Market participants may also, among other things, submit competitively priced non-strategy orders and quotes in response to changing market conditions following the strategy order cut-off time until the open of trading to contribute to a fair and orderly opening process.⁶⁰

When the Exchange initially adopted the concept of a strategy order and strategy order cut-off time, VIX derivatives had only just begun trading. The Exchange believed some flexibility within the rules regarding what constituted a strategy order was appropriate in applying the strategy order cut-off time. Additionally, the flexibility permitted market participants to submit strategy orders in a manner consistent with their businesses. The flexibility within the rule provided the Exchange with the ability to gain experience in

⁵⁹ See Securities Exchange Act Release Nos. 52367 (August 31, 2005), 70 FR 53401 (September 8, 2005) (SR-CBOE-2004-86) (established for the rapid opening system procedure, which is no longer used). The Commission stated it believed that the proposed rule change may serve the intended benefits of the strategy order cut-off time without imposing an undue burden on market participants. *Id.* at 53402. Pursuant to current Rule 6.2, Interpretation and Policy .01(b), the Exchange may determine a strategy order cut-off time, which may be no earlier than 9:00 a.m. Eastern Time and no later than the opening of trading. The current strategy order cut-off time is 9:20 a.m. Eastern Time.

⁶⁰ Pursuant to current Rule 6.2, Interpretation and Policy .01(b), the Exchange may determine a non-strategy order cut-off time, which may be no earlier than 9:25 a.m. Eastern Time and no later than the opening of trading. The current non-strategy order cut-off time is the opening of trading.

monitoring trading in these products and evaluating the use of strategy orders.⁶¹ The Exchange understands this flexibility has created some uncertainty among market participants regarding what constitutes a strategy order. As a result of this uncertainty, the Exchange understands certain market participants have hesitated to submit orders in the modified opening auction process out of concern that such orders could be deemed either a new strategy order or a modification to or cancellation of an existing strategy order.

The Exchange recently amended the rule that sets forth the characteristics of a strategy order to attempt to reduce some of this uncertainty by eliminating some of the flexibility within the rule regarding the characteristics of a strategy order, and to provide additional clarity to market participants regarding what orders they may submit following the strategy order cut-off time. The Exchange believed this clarity would reduce uncertainty among market participants and promote increased liquidity in series in the settlement strip on exercise settlement value determination days.⁶²

The Exchange believes recent enhancements have eliminated some uncertainty and alleviated certain perceived risk; however, the current characteristics of a strategy order retain some level of flexibility. The Exchange understands that, due to this retained flexibility, some market participants continue to believe there is risk regarding what orders submitted after the strategy order cut-off time will be deemed either a new strategy order or a modification to or cancellation of an existing strategy order. This perceived risk may lead to reduced liquidity and may increase the time it takes to open a series at a competitive price. Therefore, the Exchange proposes to eliminate the concept of a strategy order from

⁶¹ See supra note 59.

⁶² See Securities Exchange Act Release No. 84436 (October 16, 2018), 83 FR 53337 (October 22, 2018) (SR-CBOE-2018-062).

the modified opening auction process. There will continue to be a cut-off time (the time of which will be the same time as the current strategy order cut-off time) to provide the market with time to resolve any imbalances created by the submission of vega replicating orders. However, to further reduce any perceived risk described above, the Exchange proposes a more define approach regarding the types of orders market participants may submit following the cut-off time. The Exchange believes providing market participants with a definitive order type they may submit following the cut-off time that cannot be deemed an improper modification of an earlier submitted order will promote additional liquidity in the modified opening auction process.

All provisions of proposed Rule 5.31 will apply to the opening of constituent option series for Regular Trading Hours on exercise settlement value determination days, except as provided in proposed Rule 5.31(j).⁶³ The opening auction process used on those days as modified by proposed paragraph (j) is referred to as the “modified opening auction process.”⁶⁴

⁶³ See current Rule 6.2, Interpretation and Policy .01(b).

⁶⁴ The Exchange uses the opening trade prices of series in the settlement strip (or the average of the opening bid and offer prices of a series in the settlement strip if there is no opening trade in that series) established by the modified opening auction process to calculate the exercise or final settlement value, as applicable, of expiring volatility index derivatives. See current Rule 24.9(a)(5)(B) (the proposed rule change moves this language to proposed Rule 5.31(j), so that all provisions in the Rules regarding the modified opening auction process are included in a single place).

Proposed Rule 5.31(j)(1) defines the following terms for purposes of the modified opening auction process⁶⁵:

- VIX Derivatives: The term “VIX derivatives” means VIX options listed for trading on the Exchange (as determined under Rule 4.11), VIX futures listed for trading on an affiliated designated contract market, or over-the-counter derivatives overlying VIX whose exercise or final settlement values, as applicable, are calculated pursuant to, or by reference to, as applicable, the modified opening auction process.
- Exercise Settlement Value Determination Day: The term “exercise settlement value determination day” means a day on which the Exchange determines the exercise or final settlement value, as applicable, of expiring VIX derivatives.
- Constituent Option Series: The term “constituent option series” means all SPX (including SPXW) option series listed on the Exchange with the expirations the

⁶⁵ See current Rule 6.2, Interpretation and Policy .01(a). Except for the definition of settlement strip (which corresponds to the definition of constituent option series in current Rule 6.2, Interpretation and Policy .01), as discussed below, the proposed rule change makes no changes to the definitions that are in current Rule 6.2, Interpretation and Policy .01(a) and proposed to be moved to Rule 5.31(j)(1), except: (a) the proposed rule refers to volatility index derivatives as VIX derivatives, because, as noted above, those are currently the only volatility index derivatives for which the Exchange uses the modified opening auction process to determine the exercise settlement value, and to update cross-references as necessary; (b) the Exchange proposes to use the term “constituent option series” to refer to all SPX series with the expiration the Exchange uses to calculate the exercise or final settlement value, as that corresponds to the terminology used in the Exchange’s technical specifications and documentation to which Users often refer; and (c) the Exchange proposes to use the term “settlement strip” instead of “constituent option series” to refer to the series that the Exchange will use to determine the exercise settlement value, as that corresponds to terminology regularly used by market participants.

Exchange uses to calculate the exercise or final settlement value of the expiring VIX derivative on exercise settlement value determination days.

- Maximum Composite Width: The term “Maximum Composite Width” has the meaning set forth in proposed Rule 5.31(a) (as described above), except the following Maximum Composite Widths apply to constituent option series on exercise settlement value determination days⁶⁶:

<u>Composite Bid</u>	<u>Market Composite Width</u>
<u>0 – 0.25</u>	<u>0.25</u>
<u>0.25 – 0.50</u>	<u>0.30</u>
<u>0.51 – 1.00</u>	<u>0.35</u>
<u>1.01 – 2.00</u>	<u>0.40</u>
<u>2.01 – 5.00</u>	<u>0.60</u>
<u>5.01 – 10.00</u>	<u>0.70</u>
<u>10.01 – 20.00</u>	<u>1.00</u>
<u>20.01 – 30.00</u>	<u>1.80</u>
<u>30.01 – 40.00</u>	<u>2.40</u>
<u>40.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>6.00</u>
<u>100.01 – 200.00</u>	<u>9.00</u>
<u>≥ 200.01</u>	<u>14.00</u>

⁶⁶ The proposed Maximum Composite Widths on exercise settlement value determination days are consistent with the Exchange’s current authority to determine the OEPW; the Exchange is adding this detail to the Rules. The proposed widths on these are the same as the Exchange’s current width settings. See Cboe Options Notice, *Operational Setting Changes for Cboe Options Acceptable Price Range (APR) and Opening Exchange Prescribed Width (OEPW)* (May 4, 2018).

- Opening Collar: The term “Opening Collar” has the meaning set forth in proposed Rule 5.31(a) (as described above), except the following Opening Collar widths apply to constituent option series on exercise settlement value determination days⁶⁷:

<u>Composite Bid</u>	<u>Opening Collar Width</u>
<u>0 – 0.25</u>	<u>0.25</u>
<u>0.25 – 0.50</u>	<u>0.30</u>
<u>0.51 – 1.00</u>	<u>0.35</u>
<u>1.01 – 2.00</u>	<u>0.40</u>
<u>2.01 – 5.00</u>	<u>0.60</u>
<u>5.01 – 10.00</u>	<u>0.70</u>
<u>10.01 – 20.00</u>	<u>1.00</u>
<u>20.01 – 30.00</u>	<u>1.80</u>
<u>30.01 – 40.00</u>	<u>2.40</u>
<u>40.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>6.00</u>
<u>100.01 – 200.00</u>	<u>9.00</u>
<u>≥ 200.01</u>	<u>14.00</u>

- Settlement Strip⁶⁸: The term “settlement strip” means the constituent option series used to calculate the exercise or final settlement value, as applicable, of expiring VIX derivatives. As further discussed below, the proposed rule change provides that the Exchange will determine the highest call strike and lowest put strike that establish the “strike range” for the settlement strip pursuant to an algorithm. The at-the-money strike price is determined in

⁶⁷ The proposed Opening Collar widths on exercise settlement value determination days are consistent with the Exchange’s current authority to determine the OEPW; the Exchange is adding this detail to the Rules. The proposed widths on these days are the same as the Exchange’s current width settings. See Cboe Options Notice, *Operational Setting Changes for Cboe Options Acceptable Price Range (APR) and Opening Exchange Prescribed Width (OEPW)* (May 4, 2018).

⁶⁸ Amendment No. 1 adds detail to the proposed settlement strip, including what information the Exchange will disseminate and which constituent series will constitute the settlement strip, but does not modify the process to determine the settlement strip as proposed in the Initial Rule Filing.

accordance with the VIX methodology, using opening bid and offer information of each constituent option series.⁶⁹ The Exchange will disseminate the highest call strike and the lowest put strike of the strike range to all subscribers to the Exchange's data feeds that deliver opening auction update messages, no later than 8:45 a.m. Eastern Time on exercise settlement value determination days. Each call (put) constituent option series with a strike price not outside the strike range (i.e., a strike price equal to or greater (less) than the at-the-money strike price up (down) to the highest call (lowest put) strike of the strike range) is included in the settlement strip. The Exchange may update the strike range until 9:15 a.m. Eastern Time pursuant to an algorithm due to changes to the value of the VIX Index, prices of related futures, or other algorithmic inputs. The Exchange disseminates any such updates as soon as reasonably possible.

- Settlement Liquidity Opening Order and SLOO: The terms "settlement liquidity opening order" and "SLOO" mean a limit order in a constituent option series designated with an OPG Time-in-Force that Users may submit to the Exchange only on exercise settlement value determination days following the cut-off time described below. The System cancels a SLOO (or remaining portion) that does not execute during the modified opening auction process.⁷⁰

⁶⁹ The VIX methodology is available on the Exchange's website. The Exchange intends to continue to determine the at-the-money strike price as it does today, which strike price may change in response to changing market conditions up to the market open (including after the Exchange determines the final settlement strip, as discussed below). The Exchange does not currently, and does not intend, to disseminate the at-the-money strike price.

⁷⁰ Users may not designate bulk messages as SLOOs.

- If the limit price of a buy (sell) SLOO crosses the midpoint of the then-current Opening Collar upon entry, the System adjusts the SLOO's price to equal the midpoint of the Opening Collar (rounded up (down) to the nearest minimum increment), except for a sell SLOO when the midpoint is less than or equal to 0.175. If the midpoint of the Opening Collar changes during the Queuing Period, the System re-adjusts the SLOO's price to equal the new Opening Collar midpoint (rounded as provided above), up to its limit price.
- The prices of SLOOs in the Queuing Book are not disseminated in the Exchange's Multicast PITCH and Multicast TOP data feeds.

As discussed above, the Exchange proposes to eliminate the concept of a strategy order, and thus the proposed rule change deletes the portions of the current rule describing the characteristics of strategy orders and non-strategy orders.

Proposed Rule 5.31(j)(3) states that during the Queuing Period, the System accepts orders and quotes in constituent option series as follows, subject to proposed Rule 5.31(b)(2)⁷¹:

- The System accepts all orders and quotes (except SLOOs, which the System rejects), and any changes to or cancellations of those orders and quotes, prior to 9:20 a.m. (Eastern Time).⁷²

⁷¹ In other words, the conditions regarding order and quote entry set forth in proposed Rule 5.31(b)(2) apply to the submission of orders and quotes to the modified opening auction process.

⁷² As noted above, this is the same time as the current strategy order cut-off time. The proposed rule change eliminates the Exchange's current flexibility regarding the cut-off time. There is currently only one class to which the modified opening

- After 9:20 a.m. (Eastern Time) (until the opening of trading in a series), the System only accepts (1) SLOOs (including changes to and cancellations of SLOOs); and (2) bulk message bids and offers (including changes to and cancellations of bulk message bids and offers submitted before and after the cut-off time) from Market-Makers with an SPX appointment. The System rejects all other orders and quotes (and changes to and cancellations of orders and quotes submitted prior to the cut-off time).

While the proposed rule change eliminates the concept of strategy orders, the proposed modified opening auction process is similar to the current process. The proposed rule change will have no impact on orders that may be submitted prior to the cut-off time. All market participants may currently submit all orders and quotes, including vega replicating orders (*i.e.*, strategy orders), in constituent option series (subject to restrictions set forth in current Rule 6.2, which are similar to the restrictions in proposed Rule 5.31(b) and, as noted above, will apply to the modified opening auction process). The proposed rule change will permit this same order and quote entry activity prior to the cut-off time, including the submission of orders to replicate the vega exposure of expiring VIX derivatives (*i.e.*, the equivalent of current strategy orders).

The Exchange expects market participants to continue to use the modified opening auction process to replicate the vega exposure of their expiring VIX derivatives. To continue to provide market participants with sufficient time to submit additional interest to offset any imbalances that may be created by the submission of these orders, the Exchange will retain an order entry cut-off time. Currently, only non-strategy orders may be submitted

auction process applies, so there is no need for class-by-class flexibility. The Exchange will submit a rule filing if it determines to change the cut-off time.

following the strategy order cut-off time. While a non-strategy order is defined as any order that is not, or that does not modify or cancel, a strategy order, the current rule identifies two specific types of interest that are not strategy orders, and they are therefore permissible following the cut-off time:

- a buy (sell) order in a settlement strip series if an EOI disseminated no more than two minutes prior to the time a market participant submitted the order included a sell (buy) imbalance and the size of the order is not larger than the size of the imbalance in the EOI, regardless of whether the market participant previously submitted a strategy order or has positions in expiring volatility index derivatives; or
- a bid or offer in a settlement strip series submitted by a Market-Maker with an appointment in a class with settlement strip series, for bona fide market-making purposes in accordance with current Rule 8.7 and the Exchange Act for its market-maker account prior to the open of trading for participation in the modified opening auction process.

The explicit permission to submit these orders and quotes following the strategy order cut-off time is consistent with the operational purpose of establishing a strategy order cut-off time, which was to provide sufficient time for market participants to submit liquidity to offset the size of any imbalances created by the submission of volatility replicating orders and to contribute to a competitively priced opening process. The orders and quotes that may be submitted after the cut-off time will continue to be limited in a manner consistent with this purpose. The System, however, will automatically enforce these order entry limitations, which will eliminate any responsibility currently placed on market participants to determine

whether the orders and quotes they submit following the strategy order cut-off time would be permissible under current Rules.

By eliminating the concept of a strategy order and only permitting two specific types of market activity following the cut-off time, the Exchange believes the proposed rule change will eliminate any existing uncertainty among market participants with respect to what orders they may submit following the cut-off time. All market participants may submit SLOOs following the cut-off time, which will serve a similar purpose as the non-strategy orders that market participants may currently submit. The proposed SLOO repricing functionality will prevent the entry of a SLOO from creating or adding to an imbalance that would prevent a constituent option series from opening.

The Exchange believes permitting sell SLOOs to cross the midpoint of the Opening Collar in any series with a midpoint of 0.175 or less will provide market participants with opportunities to execute against bids in lower-valued series. If there is a low bid in a series, a market participant may be willing to sell at that price, and the Exchange believes that not adjusting the price of a sell SLOO in that situation will encourage liquidity and price improvement over Market-Maker quotes in these lower-valued series.⁷³ For example, assume the Composite Market (and the Opening Collar) for a series is 0 to 0.30, and thus the midpoint of the Opening Collar is \$0.15. An order to buy at \$0.05 rests in the Queuing Book. If a market participant submits a SLOO to sell at \$0.05, it would be able to execute against the resting order during the opening rotation, rather than be slid to a price of \$0.15. The Exchange believes this is reasonable, because it would allow for the potential execution

⁷³ For similar reasons, the Exchange will convert a market order to sell in a no-bid series into a limit order to sell at the minimum increment of the series. See Rule 6.13(b)(vi).

of sell orders in series with no Market-Maker bid and Market-Maker offers less than or equal to \$0.35 (which is the maximum possible Opening Collar offer for the midpoint to be \$0.175). The maximum midpoint of \$0.175 is reasonable because, with a higher maximum midpoint, there may be an increased risk of having a sell order execute at a potentially erroneous low price in a series that is not truly no-bid.

Additionally, permitting SLOOs to cross the midpoint of the Opening Collar in these series will also not create or increase an imbalance that would prevent a series from opening. For example, assume the Composite Market is 0 – 0.25, as is the Opening Collar. The midpoint of the Opening Collar is 0.125. If there is a buy order for one contract at \$0.05, and a market participant enters a SLOO to sell 10,000 contracts at \$0.05, the VMIM price (\$0.05) is within the Opening Collar, and therefore series would be eligible to open. Instead, assume the Composite Market is 0.25 – 0.50, as is the Opening Collar. The midpoint of the Composite Market is 0.375. If there is a buy order for one contract at \$0.05, and a market participant enters a SLOO to sell 10,000 contracts at \$0.05, the VMIM price is \$0.05, which is outside of the Opening Collar, and thus the series would not open.

Pursuant to the proposed rule change, market participants will no longer need to manually review opening auction updates to determine if it is permissible to submit orders to offset any imbalances. The proposed rule change reduces the types of orders market participants may submit following the cut-off time; however, the Exchange believes it may attract greater liquidity than the current system, because it will reduce uncertainty for market participants regarding the submission of orders following the cut-off time, which may encourage them to submit SLOOs to offset order imbalances. SLOOs will also provide market participants with a definitive order type they may use to contribute to the competitive

pricing within constituent option series following the cut-off time, without creating an imbalance condition that would prevent a series from opening. The Exchange believes elimination of the perceived risk described above will enhance liquidity in the modified opening auction process, which would contribute to a fair and orderly opening in constituent option series.

Market-Makers with an SPX appointment will continue to be able to submit bulk message bids and offers (including changes to and cancellations of bulk message bids and offers submitted before and after the cut-off time) following the cut-off time, as they may currently do today.⁷⁴ In the options market, it is important for Market-Makers to be able to provide liquidity to execute against interest submitted by other market participants. Pursuant to current Rule 8.7 (which the Exchange expects to move to Rule 5.51 in the shell Rulebook), a Market-Maker has general obligations to, among other things, engage (to a reasonable degree under existing circumstances) in dealings for the Market-Maker's own account when there exists a lack of price continuity, a temporary disparity between the supply of and demand for an option (*i.e.*, an imbalance), to compete with other Market-Makers to improve markets in its appointed classes, and to update market quotations in response to changed market conditions in its appointed classes. As described above, the

⁷⁴ The term "bulk message" in the proposed rule is equivalent to the term "quote" in the current rule. The current rule requires a Trading Permit Holder with which the Market-Maker is affiliated to establish, maintain, and enforce reasonably designed written policies and procedure (including information barriers, as applicable), taking into consideration the nature of the Trading Permit Holder's business and other facts and circumstances, to prevent the misuse of material nonpublic information (including the submission of strategy orders); and that a Market-Maker have no actual knowledge of any previously submitted strategy orders. Because the proposed rule change eliminates the concept of a strategy order and the ability for any orders submitted prior to the cut-off time to be modified after the cut-off time, the proposed rule change eliminates these requirements.

submission of strategy orders (or any orders, including orders intended to replicate vega exposure of expiring VIX derivatives) may lead to order imbalances in constituent option series. As noted above, Market-Maker quotes also play a significant role in the price protection measures the Exchange uses to protect against opening executions occurring at extreme prices. In order for the System to open settlement strip series for trading and to achieve the most competitive prices, the Exchange believes Market-Market participation throughout the entire modified opening auction process may add liquidity to the process and promote a fair and orderly opening and settlement process. Therefore, the Exchange believes it is important to continue to permit Market-Makers to submit quotes (and updates to their quotes) following the cut-off time.

Market-Maker quoting activity on exercise settlement value determination days will continue to be subject to all applicable Rules, including:

- Current Rule 4.1 (which the Exchange intends to move to Rule 8.1 in the shell Rulebook), which prohibits a Trading Permit Holder from engaging in acts or practices inconsistent with just and equitable principles of trade.
- Current Rule 4.6 (which the Exchange intends to move to Rule 8.6 in the shell Rulebook), which prohibits (among other things) a Trading Permit Holder from effecting or inducing the purchase, sale, or exercise of any security for the purpose of creating or inducing a false, misleading, or artificial appearance of activity in such security or in the underlying security, or for the purpose of unduly or improperly influencing the market price of such security or of the underlying security or for the purpose of making a price that does not reflect the true state of the market in such security or in the underlying security.

- Current Rule 4.17 (which the Exchange intends to move to Rule 8.17 in the shell Rulebook), which requires a Trading Permit Holder to establish, maintain, and enforce written policies and procedures reasonably designed, taking into consideration the nature of such Trading Permit Holder's business, to prevent the misuse, in violation of the Exchange Act and the Rules, of material, nonpublic information by the Trading Permit Holder or persons associated with the Trading Permit Holder.
- Current Rule 8.7 (which the Exchange intends to move to Rule 5.51 in the shell Rulebook), which requires Market-Makers to, among other things, enter into transactions in their market-making capacity that constitute a course of dealings reasonably calculated to contribute to the maintenance of a fair and orderly market, and not to make bids or offers or enter into transactions that are inconsistent with such course of dealings.

The Exchange believes the proposed rule changes regarding permissible market activity following the cut-off time will encourage all market participants to participate and quote competitively in the modified opening auction process, including to offset imbalances and contribute to price transparency and liquidity in constituent option series at the open, which will promote a fair and orderly opening on exercise settlement value determination days. All Trading Permit Holder activity following the cut-off time will continue to be subject to all applicable Rules, including 8.1, 8.6, and 8.17 (each as described above). The Exchange will continue to review all Trading Permit Holder activity in constituent series on exercise settlement value determination days for compliance with these and all other applicable Rules.

As noted above, the proposed rule change adds to the definition of settlement strip (currently referred to as “constituent option series” in the current rules) that the Exchange will determine the strike range of the settlement strip and will disseminate it to all subscribers to the Exchange’s data feeds that deliver opening auction update messages, no later than 8:45 a.m. Eastern Time on exercise settlement value determination days. The Exchange may update this strike range until 9:15 a.m. Eastern Time, and will disseminate any updates during that time period as soon as reasonably possible. Therefore, the final strike range of the settlement strip that the Exchange disseminates at 9:15 a.m. Eastern Time to market participants will be identical to that which the Exchange will use to calculate the VIX settlement value itself.

Currently, to select the settlement strip, the VIX methodology excludes from the universe of out-of-the-money SPX put and call options in any SPX series that have a zero bid price. The methodology then truncates the SPX series used to calculate the VIX settlement value after encountering two consecutive series having “zero-bid” prices, even if further out-of-the-money series have an opening trade price and are “non-zero” bid. The current VIX settlement methodology selects these series based on the opening trade prices, and then posts the actual series used to calculate the SOQ after the settlement. In other words, the settlement strip is set after the opening rotation in those series is complete, because only those series that have a bid remaining immediately after the open are eligible for inclusion in the settlement calculation.

As proposed, the Exchange will determine the strike range of the settlement strip prior to the settlement pursuant to an algorithm designed to approximate the same settlement strip as would be used pursuant to the current methodology based on various market inputs

available on expiration settlement value determination days. As discussed above, one of the reasons the Exchange uses a tradable settlement is to provide market participants with the opportunity to convert the exposure of an expiring VIX derivative into a portfolio of series that comprise the settlement strip to maintain their vega risk exposure of expiring VIX derivatives. Market participants currently submit these vega replicating orders in the series they believe (but do not know when submitting them) will ultimately comprise the settlement strip. However, if their estimation is incorrect, their resulting vega risk exposure may not be perfectly replicated (*i.e.*, is subject to slippage). By setting the strike range of the final settlement strip no later than 9:15 a.m. Eastern Time, market participants will have sufficient time prior to the cut-off time to enter or modify their vega replicating orders to match the actual settlement strip. The Exchange believes determination of the strike range of the settlement strip prior to the cut-off time, and disseminating to market participants the high call strike and low call put of this strike range, is consistent with the purpose of the tradable settlement, as it will provide market participants with an opportunity to achieve accurate replication of the vega risk exposure of their expiring VIX derivatives.

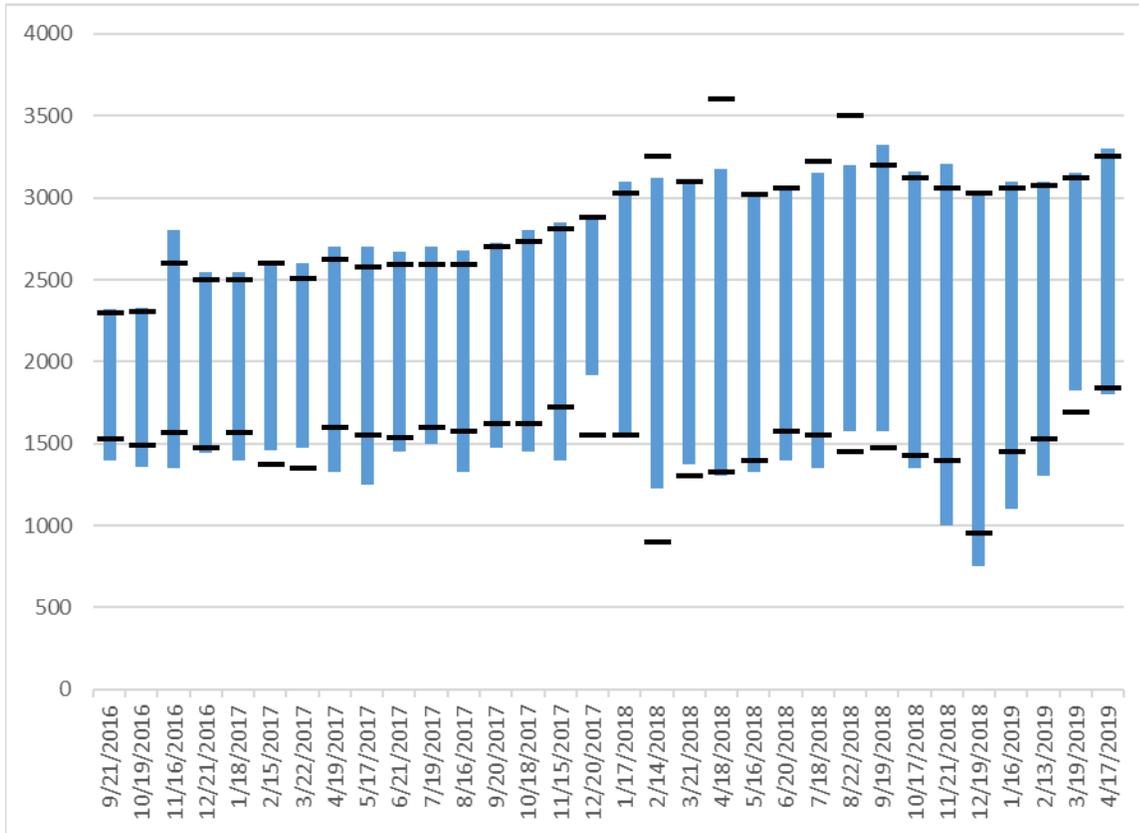
The following charts contrast the strikes ranges actually employed in previous exercise settlement value determination days versus the strike ranges the proposed approach would have employed. The vertical lines identify the actual strikes used in the settlement strips on the exercise settlement value determination days during the timeframes in the charts, and the horizontal lines identify the highest call strike and lowest put strike that

Exchange's algorithm would have used on those exercise settlement value determination days.⁷⁵

The Exchange applied the approach it intends to use to determine the strike range of the settlement strip to 32 previous exercise settlement value determination days for VIX derivatives with standard expirations between September 21, 2016 and April 19, 2019 to compare which settlement strip the formula would have selected to the actual settlement strip on those days. The Exchange also determined how use of the settlement strip determined by the formula as proposed would have changed the actual VIX settlement value on those days. There was no directional bias in the differences observed and the average absolute difference was 0.09 in those cases.

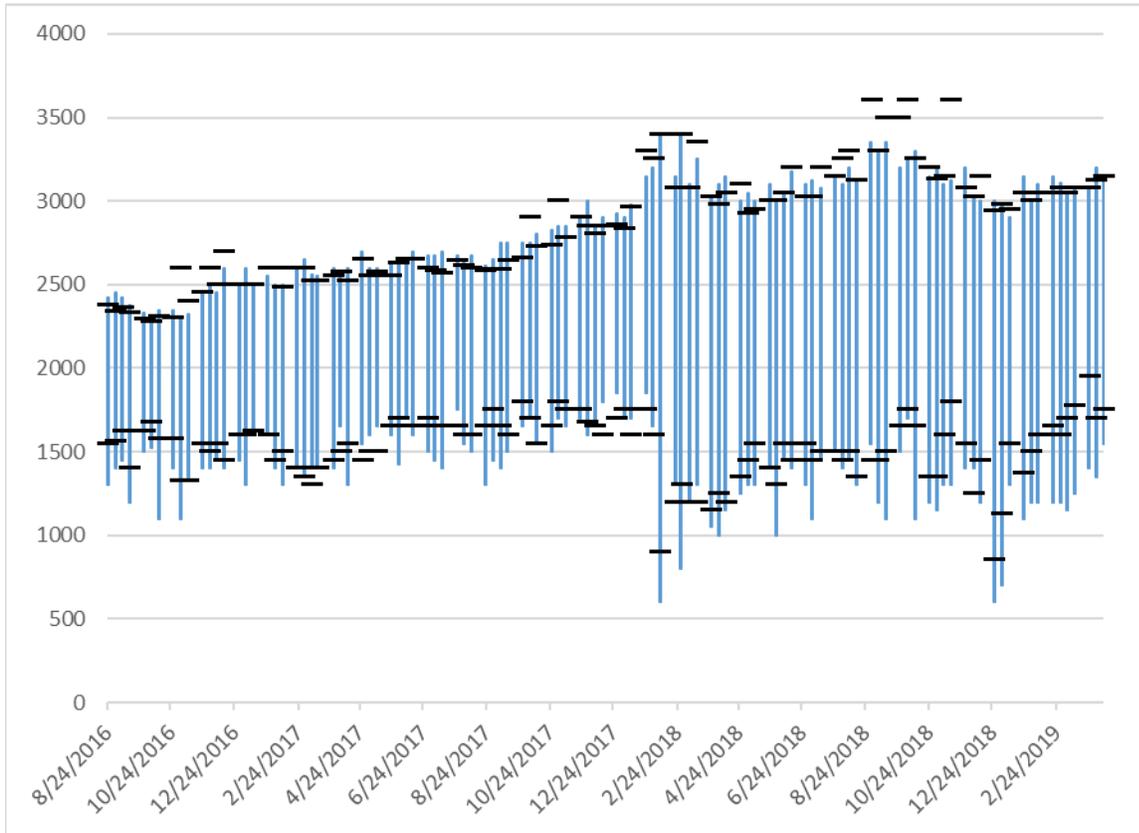
⁷⁵ Note the Exchange did not apply the algorithm it intends to use to make any updates to the strike range after 8:45 a.m. Eastern Time.

Comparison of Settlement Strip (VIX Derivatives with Standard Expirations)



Similarly, the Exchange applied the approach it intends to use to determine the strike range of the settlement strip to 107 previous exercise settlement value determination days for VIX derivatives with weekly expirations between August 24, 2016 and April 10, 2019 to compare which settlement strip the formula would have selected to the actual settlement strip on those days. The Exchange also determined how use of the settlement strip determined by the formula as proposed would have changed the actual VIX settlement value on those days. There was no directional bias in the differences observed and the average absolute difference was 0.07 in those cases.

Comparison of Settlement Strip (VIX Derivatives with Weekly Expirations)



The Exchange intends to begin determining the strike range for the settlement strip prior to the opening rotation on the first exercise settlement value determination date following the technology migration (which would be October 9, 2019), and thus, this selection process would apply to the settlement of VIX derivative positions that were created prior to this change. The Exchange believes the Exchange is providing the marketplace and investors with sufficient notice that the Exchange will determine the strike range for the settlement strip used to determine the exercise settlement value for all VIX derivative contracts listed for trading prior to and after the System migration. Additionally, because the approach the Exchange intends to use is designed to approximate the same settlement strip as would be used pursuant to the current methodology, and in light of the

Exchange's analysis described above, the Exchange believes the proposed rule change will have a de minimis impact, if any, on the settlement strip (and thus the VIX settlement value) that would have been selected (and thus the VIX settlement value) if the current procedure had been applied to existing VIX derivatives.

Additionally, while the Exchange believes the current settlement process is not readily susceptible to manipulation, the proposed rule change may provide additional protection against manipulation since the Exchange will be solely responsible for determining the strike range used of the settlement strip. This is because the non-zero bid provision and two consecutive zero-bid provisions in the current VIX settlement methodology will no longer be used for determining the settlement strip used to calculate the exercise settlement value for VIX derivatives. The Exchange's algorithm that will determine the strike range of the settlement strip will employ numerous market inputs, including prices (both on the exercise settlement value determination day (including during the GTH trading day) and the previous trading day) of SPX options, SPY options, e-mini S&P 500 options. Therefore it is unlikely for one of these inputs of the Exchange's algorithm to have a material impact on the determination of the strike range. The Exchange believes this feature will therefore will further enhance the modified opening auction process in a manner that contributes to a fair and orderly opening and settlement process and that protects investors.

Proposed Rule 5.31(j)(4) states the Exchange disseminates opening auction updates for constituent series as set forth in proposed paragraph (c) above, except the Exchange disseminates updates every five seconds, regardless of whether there are updates to the opening information since the previously disseminated update. As discussed above, on days

other than exercise settlement value determination days, and for non-constituent series on those days, the Exchange will disseminate updates every minute if there are no updates to the previously dissemination update. The Exchange believes providing frequent, regular updates in constituent series will further enhance transparency in the modified opening auction process. Because the opening trading prices that will be used to determine the settlement values of expiring VIX derivatives will be determined by prices of the constituent option series, the Exchange believes regular auction updates, and thus additional transparency, will contribute (as it does today) to a fair and orderly auction and settlement process.⁷⁶

Proposed Rule 5.31(j)(5) states the opening rotation on exercise settlement value determination days will be the same as the opening rotation that occurs on all other days, with one exception. Specifically, the opening rotation on exercise settlement value determination days will occur as follows:

- First, the System will conduct the Maximum Composite Width check.⁷⁷ As noted above, the Exchange will have different Maximum Composite Widths applicable to constituent series on exercise settlement value determination days. If the Composite Market of the series is not crossed and the Composite Width of the

⁷⁶ Amendment No. 1 adds proposed Rule 5.31(j)(4) to the Initial Rule Filing to clarify a difference between the timing of opening auction update dissemination on non-exercise settlement value determination days (and for non-constituent series on those days) and for constituent series on those days. Amendment No. 1 updates subparagraph numbering in proposed paragraph (j) as appropriate.

⁷⁷ Amendment No. 1 proposes to modify the application of the Maximum Composite Width Check on exercise settlement value determination days to provide additional price protection to the opening prices of constituent series. To add this price protection, Amendment No. 1 modifies the rule text in proposed subparagraph (j)(5) and the bulleted section accompanying this footnote.

series is less than or equal to the Maximum Composite Width, the series is eligible to open (and the System will determine the Opening Trade Price pursuant to proposed subparagraph (A)(2), as described below). If the Composite Market of the series is crossed, or the Composite Width of the series is greater than the Maximum Composite Width, the series is ineligible to open. The Queuing Period for the series will continue (including the dissemination of opening auction updates) until the condition in the preceding sentence is satisfied (or the Exchange opens the series pursuant to proposed paragraph (h), as described above). For example, assume the Maximum Composite Width for a class is 0.50, and the Composite Market is 1.00 x 2.00, comprised of an appointed Market-Maker bulk message bid of 1.00 and an appointed Market-Maker bulk message offer of 2.00. There is no other interest in the Queuing Book. The series is not eligible to open, because the width of the Composite Market is greater than the Maximum Composite Width. As discussed above, on a non-exercise settlement value determination day, this series would be eligible to open, because there are no locked orders or quotes in the series or non-M Capacity orders.

On exercise settlement value determination days for constituent series, this part of the opening rotation process will be different than on other days. Pursuant to proposed Rule 5.31(j)(5)(A), if the Composite Width of the series is greater than the Maximum Composite Width, the series does not open, without exception.⁷⁸ In this case, the Queuing Period for the series continues (including the dissemination of

⁷⁸ As is the case on all other days, no series is eligible to open if the Composite Market is crossed. However, as is the case on all other days, a series with a Composite Width that is greater than the Maximum Composite Width may still be eligible to open if other conditions are met.

opening auction updates) until the Composite Width is less than or equal to the Maximum Composite Width or until the Composite Market is not crossed (as applicable), or the Exchange opens the series pursuant to proposed paragraph (h).

While this approach is different than the proposed opening auction process on other days, it is similar to the current opening auction process in classes in which HAL is not activated at the open.⁷⁹ The Exchange does not activate HAL at the open for SPX, and therefore the proposed approach is consistent with an opening condition that applies to the current modified opening auction process. The Exchange proposes to keep a similar opening requirement in place for the modified opening auction process, because the opening trading prices that will be used to determine the settlement values of expiring VIX derivatives will be determined by prices of interest in the market (subject to, but not capped by, an Exchange-determined price range to protect against potentially erroneous executions). The Exchange believes imposing a similar opening condition related to the Composite Width of constituent series for the modified opening auction process as it imposes today will contribute to a continued fair and orderly auction and settlement process.

- Second, after a series satisfies the Maximum Composite Width Check described in proposed subparagraph (j)(5)(A), if there are orders and quotes marketable against each other at a price not outside the Opening Collar, the System

⁷⁹ See current Rule 6.2(d)(i)(C) and (D), which provides that a series will not open if the Exchange's best quote bid and best quote offer (which is equivalent to the Composite Market as proposed) is wider than a specified range (the intraday exchange prescribed width range). While the current Rules permit for a separate opening width (and the Exchange will open a series if the Exchange's best quote bid and best quote offer are outside of the range but other conditions are met), the practical effect is the same if, for example, the Exchange determine to make the intraday range the same as the opening range.

determines the Opening Trade Price for the series. As noted above, the Exchange will have different Opening Collar widths applicable to constituent series on exercise settlement value determination days. If there are no such orders or quotes, there is no Opening Trade Price. The System will determine the VMIM price pursuant to proposed subparagraphs (e)(2)(A) through (C), as described above (in the same manner as it determines the VMIM price on all other days). During the opening rotation on non-exercise settlement value determination days, the Opening Trade Price is the VMIM price that is not outside the Opening Collar. In other words, if the System determines that the VMIM price is outside of the Opening Collar, rather than not open, the System will use the collar limit as the opening price. For example, assume the Composite Market is 1.00 – 1.20, with size 100 x 100, and the Opening Collar range is 1.00 – 1.20. There is also an order to sell 100 at 1.25 and an order to buy 101 for 1.25 in the Queuing Book. The VMIM is 1.25, which is outside the Opening Collar. The System instead will use 1.20 as the Opening Trade Price, and trade 100 contracts of the buy order with 100 contracts of the Market-Maker offer at 1.20, which is the VMIM price not outside the Opening Collar.

On exercise settlement value determination days for constituent series, this part of the opening rotation process will be different than on other days. Pursuant to proposed Rule 5.31(j)(5)(B)(iii), if (1) the VMIM price is outside the Opening Collar or (2) there would be unexecuted market orders (or remaining portions), the series would not open.⁸⁰ In either case, the Queuing Period for the series continues

⁸⁰ As is the case on all other days, on an exercise settlement value determination day, if the VMIM price is not outside the Opening Collar, it is the Opening Trade

(including the dissemination of opening auction updates) until the VMIM price is not outside the Opening Collar, or the Exchange opens the series pursuant to proposed paragraph (h). Using the same example as above, assume the Composite Market is 1.00 – 1.20, with size 100 x 100, and the Opening Collar is 1.00 – 1.20. There is also an order to sell 100 at 1.25 and an order to buy 101 for 1.25 in the Queuing Book. The VMIM is 1.25, which is outside the Opening Collar range, so the series is not eligible to open. As another example, using the same Composite Market and Opening Collar, but the only liquidity in the Queuing Book is a market order to buy 101. The VMIM is 1.20, but the series is not eligible to open because there would be an unexecuted portion of a market order remaining.

While this approach is different than the proposed opening auction process on other days, it is consistent with the current opening auction process in classes in which HAL is not activated at the open.⁸¹ The Exchange does not activate HAL at the open for SPX, and therefore the proposed approach is consistent with an opening condition that applies to the current modified opening auction process. The Exchange proposes to keep this same opening requirement in place for the modified opening auction process, because the opening trading prices that will be used to determine the settlement values of expiring VIX derivatives will be determined by prices of interest in the market (subject to, but not capped by, an Exchange-determined price range to protect against potentially erroneous executions). The Exchange believes maintaining this same opening condition for the modified

Price, and the System opens the series pursuant to proposed subparagraph (e)(3). See proposed subparagraph (j)(5)(B)(ii).

⁸¹ See current Rule 6.2(d)(i)(C) and (D).

opening auction process will contribute (as it does today) to a fair and orderly auction and settlement process.

- Third, if the System establishes an Opening Trade Price, the System executes orders and quotes in the Queuing Book at the Opening Trade Price, and if there is no Opening Trade Price, the System opens a series without a trade, as set forth in proposed Rule 5.31(e)(3).

Proposed Rule 5.31(j)(2)(A) states that, to the extent the Exchange makes a determination for the opening auction process pursuant to proposed Rule 5.31, it may make a separate determination for the modified opening auction process pursuant to proposed paragraph (j), including but not limited to (1) the Opening Collar width, (2) the Maximum Composite Width, and (3) the time intervals at which the Exchange disseminates opening auction updates. This is consistent with current Exchange authority pursuant to current Rule 6.2, Interpretation and Policy .05; the proposed rule change merely states this explicitly in the Rules. Given the unique purpose of the modified opening auction process, the Exchange believes this flexibility is appropriate to permit the Exchange to facilitate a fair and orderly opening and settlement process.

Proposed Rule 5.31(j)(2)(B) states the Exchange may determine it is necessary in the interests of a fair and orderly market (for example, due to the existence of unusual market conditions or circumstances) to delay the time at which the System begins attempting to observe an opening rotation trigger pursuant to proposed subparagraph (d)(1) above for the modified opening auction process. If that delay occurs, the Exchange will determine a revised time and announce it to market participants as soon as reasonably possible. Additionally, to correspond to that revised time, the Exchange will adjust (1) the times at

which it determines the strike range of the settlement strip, and (2) the order entry cut-off time.⁸² Proposed Rule 5.31(j)(2)(C) states the Exchange may determine it is necessary in the interests of a fair and orderly market (for example, due to the existence of unusual market conditions or circumstances) to not use the modified opening auction process described in proposed paragraph (j). If that occurs, the Exchange will announce that to market participants as soon as reasonably possible. These proposed provisions are consistent with current Exchange authority pursuant to current Rule 6.2(e) and proposed Rule 5.31(h)⁸³; the proposed rule change merely states this explicitly in the Rules, and references the specific times in the proposed modified opening auction process that may be adjusted given such unusual conditions or circumstances.

Proposed Rule 5.31(j)(6) states a User may submit multiple orders and quotes in accordance with proposed subparagraph (j)(3). If, during the opening rotation, the System executes an order or quote of that User against another order or quote of that User, the Exchange does not deem that fact alone to cause these executions to be considered violations of Section 9(a)(1) of the Exchange Act, and instead will evaluate other facts and circumstances.⁸⁴ The Exchange reviews all activity, including these executions, during the

⁸² For example, if the Exchange determines to delay the time at which the System begins attempting to observe an opening rotation trigger from 9:30 a.m. to 12:00 p.m., the times between which the Exchange would determine the strike range of the settlement strip would move from 8:45 a.m. through 9:15 a.m. to 11:15 a.m. through 11:45 a.m.; and the cut-off time would move from 9:20 a.m. to 11:50 a.m.

⁸³ Amendment No. 1 clarifies in proposed Rule 5.31(j)(2)(D) that the Exchange will maintain and review records of any determinations it makes pursuant to proposed subparagraph (j)(2) in accordance with proposed paragraph (h), but makes no substantive changes to the proposed determinations the Exchange may make on exercise settlement value determination days as set forth in the Initial Rule Filing.

⁸⁴ Section 9(a)(1) of the Exchange Act states it is unlawful for any person, directly or indirectly, by the use of the mails or any means or instrumentality of interstate

modified opening auction process for compliance with the Rules and the Exchange Act, including current Rule 4.7 (which the Exchange intends to propose to move to Rule 10.6 in the shell Rulebook).⁸⁵

Market participants may currently submit multiple orders and quotes to the modified opening auction process.⁸⁶ It is possible that a User's order or quote may execute against another order or quote of that User. For example, if a User today submits a strategy order prior to the cut-off time, and then submits a non-strategy order in response to an imbalance EOI following the cut-off time, it is possible for those orders to execute against each other

commerce, or of any facility of any national securities exchange, or for any member of a national securities exchange, for the purpose of creating a false or misleading appearance of active trading in any security other than a government security, or a false or misleading appearance with respect to the market for any such security, (a) to effect any transaction in such security which involves no change in the beneficial ownership thereof, (b) to enter an order or orders for the purpose of such security with the knowledge that an order or orders of substantially the same size, at substantially the same time, and at substantially the same price, for the sale of any such security, has been or will be entered by or for the same or different parties, or (c) to enter any order or orders for the sale of any such security with the knowledge that an order or orders of substantially the same size, at substantially the same time, and at substantially the same price, for the purchase of such security, has been or will be entered by or for the same or different parties.

⁸⁵ Current Rule 4.17 (which the Exchange intends to move to Rule 8.17 in the shell Rulebook) states no TPH may effect or induce the purchase, sale, or exercise of any security for the purpose of creating or inducing a false, misleading, or artificial appearance of activity in such security or in the underlying security, or for the purpose of unduly or improperly influencing the market price of such security or of the underlying security or for the purpose of making a price that does not reflect the true state of the market in such security or in the underlying security. No TPH or any other person or organization subject to the jurisdiction of the Exchange may directly or indirectly participate in or have any interest in the profit of a manipulative operation or knowingly manage or finance a manipulative operation.

⁸⁶ While current Rule 6.2, Interpretation and Policy .01 does not explicitly state this principle, there is no restriction on market participants submitting multiple orders and quotes to the modified opening auction process.

during the opening rotation. Similarly, as proposed, a market participant may submit orders that replicate the vega exposure of its expiring VIX derivatives prior to the cut-off time, and then submit a SLOO after the cut-off time to contribute liquidity to the opening process (including to offset any imbalances). In both cases, the purpose of submitting the second order (assuming there were no other factors demonstrating a different purpose) was not to execute against the strategy order (and thus effect a transaction that involves no change in beneficial ownership to create a false or misleading appearance of active trading in SPX options), but rather to contribute liquidity to the modified opening auction process to offset an existing imbalance and to contribute to a fair and orderly opening process for that series.

The Exchange proposes to expressly state in the Rules that, subject to other facts and circumstances (such as that may demonstrate a different purpose for the submission of the orders), the Exchange will not consider self-trades resulting from the execution of a User's orders against each other during the opening rotation of the modified opening auction process to be violations of Section 9(a)(1) of the Exchange Act. If the Exchange observes other facts and circumstances surrounding these executions that demonstrate these orders may have been submitted for improper purposes (*i.e.*, not for bona fide reasons to submit orders to the modified opening auction process), the Exchange may review that activity for compliance with Section 9(a)(1) of the Exchange Act, and all other sections of the Securities Exchange Act of 1934 (the "Act") and the Rules. The following are examples of occurrences of self-trades that, based on the facts and circumstances (assuming there were no other circumstances that may indicate manipulative intent), appear not to have been conducted for an improper purpose, and thus to be self-trades the Exchange would not deem to be violations of Section 9(a)(1) of the Exchange Act:

Example #1

Strike range of settlement strip determined at 9:15 a.m. Eastern Time: 2800 through 3200 calls, and 2800 through 1500 puts

Best SPX Market-Maker Quote Range in the 2000 put series at 9:20 a.m. Eastern Time: 0 – 0.20 (0 x 500 contracts)

Firm A submits vega replicating market order to buy 1,000,000 vega at 9:17 a.m. Eastern Time

Firm B submits vega replicating market order to buy 500,000 vega at 9:18 a.m. Eastern Time

This example focuses on the 2000 put series, in which Firm A has a market order to buy 1,000 contracts of the 2000 put and Firm B has a market order to buy 500 contracts of the 2000 put. At the 9:20 cut-off time, the book depth shows a GTC order to sell 10,000 of the 2000 put for 0.50 was previously submitted. The Opening Collar range is 0 to 0.25.⁸⁷ At 9:20 a.m., the then-current expected opening price based on orders and quotes in the Queuing Book is 0.50, at which price there are 1,500 contracts to buy (from the vega replicating orders of Firms A and B) and 1,500 contracts to sell (from the resting GTC order), which price is outside of the Opening Collar. As a result, the opening auction updates indicate more sellers are needed at a price of no more than 0.25 in order for the series to open. At 9:22 a.m., Firm A sees one of those messages and submits a SLOO to sell 500 of the 2000 put at 0.20. The same imbalance continues to exist (because more contracts will execute at a price of 0.50 than 0.20), so the opening auction updates continue, except the amount of the imbalance has been reduced (there are now 1,500 contracts to buy and 1,000 contracts to sell at that price). At 9:28 a.m., Firm C sees one of those messages and

⁸⁷ Assume for a Composite Bid of 0, the Exchange has determined the width of the Opening Collar is 0.30, and the range is determined by adding and subtracting half of that width to the Market-Maker quote midpoint of 0.10.

submits a SLOO to sell 500 at 0.15. As a result, there are 1500 contracts on each side of the market to open with an Opening Trade Price of 0.20. Assuming no other sellers enter the market prior to the opening of trading, during the opening rotation:

- Firm A buys 1,000 contracts of the 2000 put at 0.20
- Firm B buys 500 contracts of the 2000 put at 0.20
- Firm A sells 500 contracts of the 2000 put at 0.20
- Firm C sells 500 contracts of the 2000 put at 0.20
- Market-Makers sell 500 contracts of the 2000 put at 0.20

If the System executed some or all of the contracts comprising Firm A's SLOO against 500 contracts comprising part of Firm A's vega replicating market order to buy, based on this information (and in the absence of other facts and circumstances demonstrating a different intent), it appears Firm A submitted the SLOO because it deemed that submission to be in Firm A's interest to try to execute against contra-side interest causing the imbalance and ensure the series opens at a reasonable price, rather than to influence the settlement price. Therefore, the Exchange would not view execution of Firm A's SLOO against its vega replicating order would not be deemed a violation of Section 9(a)(1) of the Exchange Act.

Example #2

Strike range of settlement strip determined at 9:15 a.m. Eastern Time: 2800 through 3200 calls, and 2800 through 1500 puts

Best SPX Market-Maker Quote Range in the 2800 call series at 9:20 a.m. Eastern Time: 10.00 – 11.00 (500 x 500 contracts)

Firm A submits vega replicating market order to buy 1,000,000 vega at 9:17 a.m. Eastern Time

Firm B submits vega replicating market order to sell 500,000 vega at 9:18 a.m. Eastern Time

This example focuses on the 2800 call series, in which Firm A has a market order to buy 200 contracts of the 2800 call and Firm B has a market order to sell 100 contracts of the 2800 call. The Opening Collar range is 10.10 – 10.90.⁸⁸ At 9:20 a.m., the then-current expected opening price based on orders and quotes in the Queuing Book is 11.00, at which price there are 200 contracts to buy (from the vega replicating order of Firm A) and 200 contracts to sell (from Market-Makers), which price is outside of the Opening Collar. As a result, the opening auction updates indicate more sellers are needed at a price of no more than 10.90 in order for the series to open. At 9:22 a.m., Firm A sees one of those messages and submits a SLOO to sell 100 of the 2800 call at 10.80. As a result, there are 200 contracts on each side of the market to open with an Opening Trade Price of 10.90. Assuming no other sellers enter the market prior to the opening of trading, during the opening rotation:

- Firm A buys 200 contracts of the 2800 call at 10.90
- Firm A sells 100 contracts of the 2800 call at 10.90
- Firm B sells 100 contracts of the 2800 call at 10.90

In this case, the 100 contracts from Firm A's SLOO executed against 100 contracts of Firm A's vega replicating market order to buy. Based on this information (and in the absence of other facts and circumstances demonstrating a different intent), it appears Firm A submitted the SLOO because it deemed that submission to be in Firm A's interest to try to execute against contra-side interest causing the imbalance and ensure the series opens at a reasonable price, rather than to influence the settlement price. Therefore, the Exchange

⁸⁸ Assume for a Composite Bid of 10.00, the Exchange has determined the width of the Opening Collar is 0.80, and the range is determined by adding and subtracting half of that width to the Market-Maker quote midpoint of 10.50.

would not view execution of Firm A's SLOO against its vega replicating order would not be deemed a violation of Section 9(a)(1) of the Exchange Act.

Example #3

Strike range of settlement strip determined at 9:15 a.m.: 2800 through 3200 calls, and 2800 through 1500 puts

Firm A submits vega replicating market order to buy 3,000,000 vega at 9:17 a.m. Eastern Time
Firm B submits vega replicating market order to buy 1,500,000 vega at 9:18 a.m. Eastern Time

As a result, the opening auction updates indicate more sellers are needed in most of the strikes in the settlement strip series. At 9:25 a.m., Firm A determines from the auction update messages that the indicative VIX value may be above 17.5 with a total amount of 4,500,000 vega. Separately, the auction update messages indicate at least 1,000,000 vega to sell is necessary to open. Firm A responds to these auction update messages by submitting a SLOO in each series in the settlement strip that need sellers based on 1,000,000 vega with an indicative VIX value of 16.5. Other market participants also submit SLOOs to offset the imbalances. The indicative VIX settlement value is 16.75. Assuming no other sellers enter the market prior to the opening of trading, during the opening rotation:

- Firm A buys 3,000,000 vega at 16.75
- Firm B buys 1,500,000 vega at 16.75
- Firm A sells 1,000,000 vega at 16.75
- MMs sell 3,500,000 vega at 16.75

If the System executed some or all of the contracts comprising Firm A's SLOO to sell against contracts comprising part of Firm A's vega replicating market order to buy, based on this information (and in the absence of other facts and circumstances demonstrating a different intent), it appears Firm A submitted the SLOO because it deemed that submission

to be in Firm A's interest to try to execute against contra-side interest causing the imbalance and ensure the series opens at a reasonable price, rather than to influence the settlement price. Therefore, the Exchange would not view execution of Firm A's SLOO against its vega replicating order would not be deemed a violation of Section 9(a)(1) of the Exchange Act.

The Exchange has an adequate surveillance program in place to review options activity during the modified opening auction process that occurs on each exercise settlement value determination day. The Exchange is updating its surveillance program to reflect the proposed amendments to the process, and will continue to review its surveillance program to determine whether additional enhancements are necessary or appropriate.

The Exchange will continue to evaluate the modified opening auction process to identify potential enhancements, and intends to modify the procedure as it deems appropriate to contribute to a fair and orderly opening process. A fair and orderly opening in these series benefits all market participants who trade in the volatility index derivatives and series that comprise the settlement strip.

The proposed rule change deletes current Rule 6.2, Interpretation and Policy .02(a) regarding the Exchange's ability to determine minimum size requirements for Market-Maker opening quotes. The Exchange currently does not impose a minimum size requirement for opening quotes, and does not intend to. The proposed rule change also deletes current Rule 6.2, Interpretation and Policy .02(b) regarding the Exchange's ability to set bid/ask differential requirements for Market-Makers' opening quotes, as the Exchange

no longer intends to impose these requirements on Market-Maker opening quotes.⁸⁹ As noted above, pursuant to current Rule 8.7 (which the Exchange expects to move to Rule 5.51 in the shell Rulebook), a Market-Maker has general obligations to, among other things, engage (to a reasonable degree under existing circumstances) in dealings for the Market-Maker's own account when there exists a lack of price continuity, a temporary disparity between the supply of and demand for an option (*i.e.*, an imbalance), to compete with other Market-Makers to improve markets in its appointed classes, and to update market quotations in response to changed market conditions in its appointed classes. Therefore, the Exchange believes at this time it is unnecessary to impose other obligations on Market-Makers. Additionally, the Exchange believes the proposed Maximum Composite Width and Opening Collars that generally must be satisfied for a series to open will further incentive Market-Makers to submit competitive quotes.

The proposed rule change deletes current Rule 6.2, Interpretation and Policy .05 regarding Exchange determinations, as it is duplicative of Rule 1.5 in the shell Rulebook.

The Exchange intends to add a rule regarding the use of aftermarket valuation processes for SPX options, as currently described in Rule 6.2, Interpretation and Policy .06, to the shell Rulebook in a separate rule filing. Because proposed Rule 5.31 relates solely to the opening of option series, the Exchange believes it is appropriate to move the provision regarding non-trading closing rotations to a different rule.

The proposed rule change moves the provision regarding how the existence of a limit up-limit down state in a class will impact the opening auction process from current

⁸⁹ The Exchange notes other options exchanges do not impose these requirements on Market-Makers at the opening of trading. See, e.g., C2 Rule 6.11.

Rule 6.2, Interpretation and Policy .07 to proposed Rule 5.31(i). The proposed rule change makes no substantive changes to that provision.

(b) Statutory Basis

The Exchange believes the proposed rule change is consistent with the Securities Exchange Act of 1934 (the “Act”) and the rules and regulations thereunder applicable to the Exchange and, in particular, the requirements of Section 6(b) of the Act.⁹⁰ Specifically, the Exchange believes the proposed rule change is consistent with the Section 6(b)(5)⁹¹ requirements that the rules of an exchange be 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. Additionally, the Exchange believes the proposed rule change is consistent with the Section 6(b)(5)⁹² requirement that the rules of an exchange not be designed to permit unfair discrimination between customers, issuers, brokers, or dealers.

In particular, the proposed opening auction process is substantially similar to the Exchange’s current opening auction process. The Exchange believes the proposed opening auction process will continue to create opportunities for price discovery based on then-current market conditions when the Exchange opens series for trading. The Exchange believes the proposed opening auction process will promote competitive

⁹⁰ 15 U.S.C. 78f(b).

⁹¹ 15 U.S.C. 78f(b)(5).

⁹² Id.

liquidity and open series at prices consistent with then-current market conditions, and thus will promote a fair and orderly opening process.

While the proposed Queuing Period for the GTH trading session begins later than the current order entry period, the Exchange believes market participants will continue to have sufficient time prior to the GTH trading session to submit orders and quotes for participation in the opening auction process for that trading session. This proposed rule change promotes just and equitable principles of trade, as it provides market participants with the same amount of time to submit orders and quotes for participation in the opening auction process for the RTH trading session (approximately one hour).

The proposed rule change will remove impediments to and perfect the mechanism of a free and open market, and protect investors by ensuring market participants will continue to have access to robust information regarding the opening of a series. While the information the Exchange will disseminate in opening auction updates will differ slightly from the information the Exchange currently disseminates in EOIs, the information to be disseminated is equivalent to the currently disseminated information, and will continue to provide market participants with transparency that will permit them to participate in the opening auction process and contribute to, and benefit from, the price discovery the auction may provide. The Exchange believes the proposed opening auction updates are not designed to permit unfair discrimination between customers, issuers, brokers, or dealers, because all market participants may subscribe to the Exchange's data feeds that deliver these messages, and thus all market participants will have access to this information.

The proposed opening rotation triggers are substantially similar to the current events that will trigger series openings on the Exchange. The proposed trigger events will remove impediments to and perfect the mechanism of a free and open market and a national market system, as they ensure that during Regular Trading Hours, the underlying securities will have begun trading, or the underlying index values will have begun being disseminated, before the System opens a series for trading. As this information will not be available during Global Trading Hours, the Exchange believes it is appropriate to continue to begin the opening rotation for Global Trading Hours at a specified time. Additionally, the Exchange believes its current flexibility to open certain equity option classes and certain index option classes based on different triggers is no longer necessary. The Exchange believes opening all equity option classes based on the same trigger will protect investors by simplifying the process.

The proposed Maximum Composite Width Check and Opening Collar will protect investors by providing price protection measures to prevent orders from executing at extreme prices at the open. The Exchange believes it is appropriate to open a series under the proposed circumstances and provide marketable orders with an opportunity to execute at a reasonable opening price (as discussed below), because there is minimal risk of execution at an extreme price. These proposed price protection mechanisms are substantially similar to the current price protection mechanisms the Exchange applies during the opening auction process, as they are based on all available pricing information, including Market-Maker bulk messages (which are generally used to price markets for series) and any quotes disseminated from away markets. The proposed price protection mechanisms, like the current price protection mechanisms, will also consider whether

there are crossing orders or quotes when determining whether the opening width and trade price are reasonable. As a result, the Exchange believes the proposed process to determine an Opening Trade Price will incorporate then-current market conditions. While the Exchange proposes to calculate the maximum width and opening price range in a slightly different manner, the Exchange believes this proposed manner is reasonable and will promote a fair and orderly opening.

The Exchange believes the proposed modified opening auction process will protect investors, as it will continue to provide investors with the opportunity to submit vega replicating orders and other liquidity into the auction. The proposed modified opening auction process will function in a substantially similar manner as the current modified opening auction process. The proposed elimination of the concept of strategy orders and the adoption of a systematically enforced (and thus definitive) approach regarding the types of orders market participants may submit following the cut-off time is the primary difference between the current and proposed auction process. The Exchange believes this change will provide clarity and certainty to market participants regarding the orders and quotes they may submit following the cut-off time, which may encourage them to provide additional liquidity to the modified opening auction process. All market participants will have the opportunity following the cut-off time to address order imbalances and provide price transparency to the auction process without the perceived risk of potentially modifying a previously submitted strategy order.

The Exchange believes the proposed rule change removes an impediment that may have discouraged market participants from submitting orders to offset imbalances and from providing price discovery in response to changing market conditions prior to the open. As a

result, the Exchange believes the proposed rule change to permit all Users to submit SLOOs, which functionally cannot create or increase an imbalance, and to continue to let appointed SPX Market-Makers update quotes following the cut-off time, should result in increased liquidity in the modified opening auction process. This increased liquidity may increase execution opportunities, reduce imbalances in series in the settlement strip, promote price transparency, and increase the presence of quotes within the Opening Collar range. This will ultimately benefit all market participants who trade VIX derivatives and the SPX option series that comprise the settlement strip.

The proposed rule change that the Exchange will determine the strike range of the settlement strip prior to the opening of trading is consistent with one of the primary purposes of the modified opening auction process, which is to provide investors with an opportunity to replicate the vega risk exposure of their expiring VIX derivatives. The proposed rule change will benefit investors, as it will provide market participants with the opportunity to perfectly replicate this exposure, as they will have a minimum of five minutes to enter or modify their vega replicating orders prior to the cut-off time to conform them to the actual settlement strip.

The Exchange also believes the modified opening auction process, including the change pursuant to which the Exchange will determine the strike range of the settlement strip prior to the cut-off time, will continue to be designed to prevent fraudulent and manipulative acts and practices. The proposed rule change may provide additional protection against manipulation since the Exchange will be solely responsible for determining the strike range of the settlement strip, meaning it would become impossible for anyone to attempt to manipulate the VIX settlement process by attempting to artificially

affect which SPX series will have zero bids at the opening. The Exchange believes this will therefore will further enhance the modified opening auction process in a manner that contributes to a fair and orderly opening and settlement process and that protects investors.

All market participants (include those that may submit orders and quotes following the cut-off time) will continue to be required to abide by current Rules 4.1 (Just and Equitable Principles of Trade), 4.7 (Manipulation), and 4.18 (Prevention of the Misuse of Material, Nonpublic Information). The Exchange will continue to conduct surveillance to monitor all trading activity in constituent option series on exercise settlement value determination days, including but not limited to monitoring the entry of orders and quotes following the cut-off time, as well as compliance with other Rules.

The proposed rule change is generally intended to align system functionality currently offered by the Exchange with other Cboe Affiliated Exchange functionality in order to provide a consistent technology offering for the Cboe Affiliated Exchanges. The proposed opening auction process (other than the modified opening auction process, which only occurs on the Exchange) is virtually identical to the opening auction process on two other Cboe Affiliated Exchanges.⁹³ A consistent technology offering, in turn, will simplify the technology implementation, changes, and maintenance by Users of the Exchange that are also participants on Cboe Affiliated Exchanges. The Exchange believes this consistency will promote a fair and orderly national options market system. When Cboe Options migrates to the same technology as that of the Cboe Affiliated Exchanges, Users of the Exchange and other Cboe Affiliated Exchanges will have access to similar functionality on all Cboe Affiliated Exchanges. As such, the proposed rule

⁹³ See C2 Rule 6.11 and EDGX Options Rule 21.7.

change would foster cooperation and coordination with persons engaged in facilitating transactions in securities and would remove impediments to and perfect the mechanism of a free and open market and a national market system.

Item 4. 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 that is not necessary or appropriate in furtherance of the purposes of the Act. The Exchange does not believe that the proposed rule change to amend the standard opening auction process will impose any burden on intramarket competition that is not necessary or appropriate in furtherance of the purposes of the Act, because it will apply to orders and quotes of all market participants in the same manner. The order types that may not be accepted prior to the opening of trading, or that may not participate in the opening of trading, are substantially similar to the restrictions currently in place. The Exchange does not believe that the proposed rule change to amend the standard opening auction process will impose any burden on intermarket competition that is not necessary or appropriate in furtherance of the purposes of the Act, because it is designed to open series on the Exchange in a fair and orderly manner. The Exchange believes the proposed opening auction process will continue to provide market participants with an opportunity for price discovery based on then-current market conditions when the Exchange opens series for trading. This will facilitate the presence of sufficient liquidity in a series when it opens, and increase the ability of series to open at prices consistent with then-current market conditions (at the Exchange and other exchanges) rather than at extreme prices that could result in unfavorable executions to market participants.

Additionally, as discussed above, the proposed opening auction process is substantially similar to the opening auction process in the rules of certain Cboe Affiliated Exchanges.⁹⁴

The Exchange does not believe that the proposed rule change to amend the modified opening auction process will impose any burden on intramarket competition that is not necessary or appropriate in furtherance of the purposes of the Act, because it will apply to orders and quotes of all market participants in the same manner. The proposed rule change will continue to permit all market participants to submit orders and quotes, including vega replicating orders, prior to a cut-off time that will provide market participants with sufficient time to respond to imbalances (which is consistent with the initial purpose of the cut-off time). All market participants may submit SLOOs following the cut-off time, which will be handled by the System in the same manner. Market-Makers will continue to have the ability to submit quotes following the cut-off time to offset imbalances and update the prices of their quotes in response to changing market conditions prior to the open.

The Exchange does not believe the proposed rule change to amend the modified opening auction process will impose any burden on intermarket competition that is not necessary or appropriate in furtherance of the purposes of the Act, because it is designed to promote a fair and orderly opening and settlement process for series that trade on the Exchange and are used to determine the exercise settlement value for VIX derivatives. The Exchange believes the proposed rule change will contribute to price transparency and liquidity in the series that comprise the settlement strip, and thus to a fair, competitive,

⁹⁴ See C2 Rule 6.11 and EDGX Options Rule 21.7.

and orderly opening and settlement process on exercise settlement value determination days.

Item 5. Self-Regulatory Organization’s Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

The Exchange neither solicited nor received comments on the proposed rule change.

Item 6. Extension of Time Period for Commission Action

The Exchange does not consent to an extension of the time period for Commission action on the proposed rule change specified in Section 19(b)(2) of the Act.⁹⁵

Item 7. Basis for Summary Effectiveness Pursuant to Section 19(b)(3) or for Accelerated Effectiveness Pursuant to Section 19(b)(2) or Section 19(b)(7)(D)

- (a) Not applicable.
- (b) Not applicable.
- (c) Not applicable.
- (d) The Exchange requests accelerated approval of Amendment No. 1.

As discussed above, the majority of the changes Amendment No. 1 makes are nonsubstantive changes to the Initial Rule Filing, including to conform certain references to time in the Form 19b-4 to the Exhibit 5, add applicable cross-references to the proposed rule text, make nonsubstantive changes to the language in the proposed rule text and make conforming changes to the Form 19b-4, add details to the proposed rule text regarding certain proposed changes and make conforming

⁹⁵ 15 U.S.C. 78s(b)(2).

changes to the Form 19b-4, and provide clarifying language to certain parts of the Form 19b-4.

Amendment No. 1 proposes one substantive change, which is to modify the Maximum Composite Width Check applicable on exercise settlement value determination days. The Initial Rule Filing proposed to determine the Opening Trade Price in a different manner for constituent series on exercise settlement value determination days than it does on all other days (and for non-constituent series). Amendment No. 1 similarly proposes to apply the Maximum Composite Width Check to constituent series on exercise settlement value determination days in a different manner than it does on all other days (and for non-constituent series). As discussed above, this is similar to a current provision in Rule 6.2 of the current Rulebook. The Exchange proposes to apply the Maximum Composite Width Check differently on exercise settlement value determination days for the same reason it proposed to determine the Opening Trade Price differently on exercise settlement value determination days in the Initial Rule Filing. The opening trading prices that will be used to determine the settlement values of expiring VIX derivatives will be determined by prices of interest in the market (subject to, but not capped by, an Exchange-determined price range to protect against potentially erroneous executions). The Exchange believes imposing a similar opening condition related to the Composite Width of constituent series for the modified opening auction process as it imposes today will contribute to a continued fair and orderly auction and settlement process.

Item 8. Proposed Rule Change Based on Rules of Another Self-Regulatory Organization or of the Commission

The proposed rule change for the standard opening auction process (described in proposed Rule 5.31(a) through (i)) is virtually identical to EDGX Options Rule 21.7 and C2 Options Rule 6.11, except the time at which Cboe Options proposes to begin the Queuing Period for GTH classes is earlier than it is for C2 and EDGX, because the GTH trading session on Cboe Options begins at 3:00 a.m. Eastern Time rather than 8:30 a.m. However, like for the RTH trading session, the Queuing Period for the GTH trading session as proposed will begin one hour prior to the time at which the System begins looking for the opening rotation triggers. The proposed modified opening auction process to be used on exercise settlement value determination days is not included in the EDGX Options and C2 Rules, as there is no equivalent process used on either of those exchanges.

Item 9. Security-Based Swap Submissions Filed Pursuant to Section 3C of the Act

Not applicable.

Item 10. Advance Notices Filed Pursuant to Section 806(e) of the Payment, Clearing and Settlement Supervision Act

Not applicable.

Item 11. Exhibits

Exhibit 1. Completed Notice of Proposed Rule Change for publication in the Federal Register.

Exhibit 4A. Marked copy of changes to the rule text in the current Rulebook proposed in an amendment compared against the version of the rule text that was initially filed.

Exhibit 4B. Marked copy of changes to the rule text in the shell Rulebook proposed in an amendment compared against the version of the rule text that was initially filed.

Exhibit 5A. Proposed rule text – current Rulebook.

Exhibit 5B. Proposed rule text – shell Rulebook.

EXHIBIT 1

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34- ; File No. SR-CBOE-2019-034]

[Insert date]

Self-Regulatory Organizations; Cboe Exchange, Inc.; Notice of Filing of a Proposed Rule Change Relating to Amend its Opening Process

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (the “Act”),¹ and Rule 19b-4 thereunder,² notice is hereby given that on [insert date], Cboe Exchange, Inc. (the “Exchange” or “Cboe Options”) filed with the Securities and Exchange Commission (the “Commission”) the proposed rule change as described in Items I, II, and III 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

Cboe Exchange, Inc. (the “Exchange” or “Cboe Options”) proposes to amend its opening process. The text of the proposed rule change is provided in Exhibit 5.

The text of the proposed rule change is also available on the Exchange’s website (<http://www.cboe.com/AboutCBOE/CBOELegalRegulatoryHome.aspx>), at the Exchange’s Office of the Secretary, 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

¹ 15 U.S.C. 78s(b)(1).

² 17 CFR 240.19b-4.

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.

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

1. Purpose

In 2016, the Exchange's parent company, Cboe Global Markets, Inc. (formerly named CBOE Holdings, Inc.) ("Cboe Global"), which is also the parent company of Cboe C2 Exchange, Inc. ("C2"), acquired Cboe EDGA Exchange, Inc. ("EDGA"), Cboe EDGX Exchange, Inc. ("EDGX" or "EDGX Options"), Cboe BZX Exchange, Inc. ("BZX" or "BZX Options"), and Cboe BYX Exchange, Inc. ("BYX" and, together with Cboe Options, C2, EDGX, EDGA, and BZX, the "Cboe Affiliated Exchanges"). The Cboe Affiliated Exchanges are working to align certain system functionality, retaining only intended differences between the Cboe Affiliated Exchanges, in the context of a technology migration. Cboe Options intends to migrate its trading platform to the same system used by the Cboe Affiliated Exchanges, which the Exchange expects to complete on October 7, 2019. Cboe Options believes offering similar functionality to the extent practicable will reduce potential confusion for market participants.

In connection with this technology migration, the Exchange has a shell structure for the Exchange's Rulebook that will become effective upon the migration of the Exchange's trading platform to the same system used by the Cboe Affiliated Exchanges ("shell Rulebook") that resides alongside its currently effective Rulebook ("current Rulebook"), which shell Rulebook will contain the Rules that will be in place upon completion of the Cboe Options technology migration.

The proposed rule change amends the Exchange's opening auction process.³

Pursuant to the proposed opening auction process, the Exchange will have a Queuing Period, during which the System will accept orders and quotes and disseminate expected opening information (similar to the pre-opening period described in current Rule 6.2(a)); will initiate an opening rotation upon the occurrence of certain triggers (similar to the current opening rotation triggers described in current Rule 6.2(b)); will conduct an opening rotation during which the System matches and executes orders and quotes against each other in order to establish an opening Exchange best bid and offer and trade price, if any, for each series, subject to certain price protections (similar to the opening rotation period described in current Rule 6.2(c) and the opening conditions in Rule 6.2(d)); and will open series for trading. This order of events that comprise the proposed opening auction process corresponds to the Exchange's current opening auction process described in current Rule 6.2.

Proposed Rule 5.31(a) sets forth the definitions of the following terms for purposes of the opening auction process in proposed Rule 5.31⁴:

- Composite Market: The term "Composite Market" means the market for a series comprised of (1) the higher of the then-current best appointed Market-Maker bulk message bid on the Exchange and the away best bid ("ABB") (if there is an ABB) and (2) the lower of the then-current best appointed Market-Maker bulk message offer on the Exchange and the away best offer

³ The Exchange's opening auction process is set forth in Rule 6.2 of the current Rulebook. The proposed rule change deletes Rule 6.2 of the current Rulebook and adopts Rule 5.31 in the shell Rulebook, which changes are expected to become operative on October 7, 2019.

⁴ A term defined elsewhere in the Rules has the same meaning with respect to proposed Rule 5.31, unless otherwise defined in proposed Rule 5.31.

(“ABO”) (if there is an ABO). The term “Composite Bid (Offer)” means the bid (offer) used to determine the Composite Market.

The Exchange currently considers quotes of appointed Market-Makers on the Exchange⁵ and quotes from any away markets, if it has activated Hybrid Agency Liaison (“HAL”) at the open, as part of its current opening conditions.⁶ The Exchange does not intend to activate HAL at the open upon the technology migration and will thus apply the same opening conditions to all classes. The Exchange believes it is appropriate to consider any quotes from away markets in addition to quotes on its own market when determining whether to open a series in all classes, because consideration of all then-available pricing information may provide for more accurate opening prices.

- Composite Width: The term “Composite Width” means the width of the Composite Market (*i.e.*, the width between the Composite Bid and the Composite Offer) of a series.
- Maximum Composite Width: The term “Maximum Composite Width” means the amount that the Composite Width of a series may generally not be greater than for the series to open (subject to certain exceptions, as described

⁵ The term “quote” in the current Rulebook corresponds to the term “bulk message” in the shell Rulebook. Additionally, currently on Cboe Options, only Market-Makers may submit quotes in their appointed classes.

⁶ See current Rule 6.2(d).

below). The Market Composite Widths for all classes are as follows (based on the Composite Bid for a series)⁷:

<u>Composite Bid</u>	<u>Market Composite Width</u>
0 – 1.99	0.50
2.00 – 5.00	0.80
5.01 – 10.00	1.00
10.01 – 20.00	2.00
20.01 – 50.00	3.00
50.01 – 100.00	5.00
100.01 – 200.00	8.00
≥ 200.01	12.00

The Exchange may modify these amounts during the opening auction process (which modifications the Exchange disseminates to all subscribers to the Exchange’s data feeds that deliver opening auction updates).

The Maximum Composite Width corresponds to the opening exchange prescribed width range (“OEPW”) currently used on Cboe Options.⁸ The Exchange will determine the Maximum Composite Width in a slightly different manner than it currently determines the OEPW⁹; however, both are intended to create a reasonable quote width to protect against a market opening with an extreme width. Currently, if the opening quote width is wider than the OEPW, but other conditions exist, the Exchange will then consider a separate quote width setting used as a price protection measure

⁷ The Maximum Composite Widths are consistent with the Exchange’s current authority to determine the OEPW (as defined below); the Exchange is adding this detail to the Rules. The proposed widths are similar, but narrower, than the Exchange’s current width settings. See Cboe Options Regulatory Circular RG16-080.

⁸ See Cboe Options Rule 6.2(d)(i)(A).

⁹ The Exchange will set the Maximum Composite Width on a Composite Bid basis rather than premium basis.

after trading opens.¹⁰ The proposed protection measure is simplified to only be based on the Maximum Composite Width.

- Opening Auction Updates: The term “opening auction updates” means Exchange-disseminated messages that contain information regarding the expected opening of a series based on orders and quotes in the Queuing Book for the applicable trading session and, if applicable, the Global Trading Hours (“GTH”) Book,¹¹ including the expected opening price, the then-current cumulative size on each side at or more aggressive than the expected opening price, and whether the series would open (and any reason why a series would not open pursuant to proposed paragraphs (e) and (j)(5), as described below).¹²

The proposed auction update messages correspond to the expected opening information messages (“EOIs”) the Exchange currently disseminates.¹³ The information to be included in auction update messages will differ slightly from the information the Exchange currently disseminates in EOIs. For example, the Exchange currently disseminates the expected size of an opening trade and the size and side of any imbalance. As proposed, the

¹⁰ See current Rule 6.2(d) (such intraday width is referred to as the IEPW).

¹¹ In other words, for the Regular Trading Hours (“RTH”) opening auction in an All Sessions class, the expected opening information to be disseminated in opening auction updates prior to the conclusion of the GTH trading session will be based on orders and quotes in the RTH Queuing Book (*i.e.*, RTH Only orders) and in the GTH Book (*i.e.*, All Sessions orders).

¹² Amendment No. 1 makes a nonsubstantive change to the proposed definition of “opening auction updates” that was included in the Initial Rule Filing to add a cross-reference to the proposed paragraphs in Rule 5.31 that set forth the reasons why a series may not open.

¹³ See current Rule 6.2(a)(ii).

Exchange will disseminate the then-current cumulative size on each side at or more aggressive than the expected opening price, along with information regarding whether a series will or will not open, which ultimately provides market participants with equivalent information.

- Opening Collar: The term “Opening Collar” means the price range that establishes limits at or inside of which the System determines the Opening Trade Price for a series. The Opening Collar is determined by determining the midpoint of the Composite Market, and adding and subtracting half of the applicable width amount above and below, respectively, that midpoint. The Opening Collar widths for all classes are as follows (based on the Composite Bid for a series):

<u>Composite Bid</u>	<u>Opening Collar Width</u>
0 – 1.99	0.50
2.00 – 5.00	0.80
5.01 – 10.00	1.00
10.01 – 20.00	2.00
20.01 – 50.00	3.00
50.01 – 100.00	5.00
100.01 – 200.00	8.00
≥ 200.01	12.00

The Exchange may modify these amounts during the opening auction process (which modifications the Exchange disseminates to all subscribers to the Exchange’s data feeds that deliver opening auction updates).

The Exchange currently uses the OEPW (or IEPW in certain circumstances) as the range within which the opening price must be.¹⁴ While the Exchange

¹⁴ See current Rule 6.2(d)(i)(C). The proposed Opening Collar widths are consistent with the Exchange’s current authority to determine the OEPW; the Exchange is adding this detail to the Rules. The proposed widths are similar, but narrower,

proposes to use a different measure to protect against a market opening at an extreme price than it uses to protect a market against opening too wide, the new Opening Collar will be based on appointed Market-Maker quotes and away market quotes, and will be used in a similar manner to protect against the market opening at an extreme price.

- Opening Trade Price: The term “Opening Trade Price” means the price at which the System executes opening trades in a series during the opening rotation.¹⁵
- Queuing Book: The term “Queuing Book” means the book into which Users may submit orders and quotes (and onto which good-til-cancelled (“GTC”) and good-til-day (“GTD”) orders¹⁶ remaining on the Book from the previous trading session or trading day, as applicable, are entered) during the Queuing Period for participation in the applicable opening rotation.¹⁷ Orders and

than the Exchange’s current width settings. See Cboe Options Regulatory Circular RG16-080.

¹⁵ See current Rule 6.2(c)(i)(A).

¹⁶ See Rule 5.6(d) in the shell Rulebook.

¹⁷ In other words, at 2:00 a.m., All Sessions orders will rest on the GTH Queuing Book and be eligible to participate in the GTH opening auction process. Pursuant to Rule 5.7 in the shell Rulebook, Users may also enter RTH Only into the RTH Queuing Book beginning at 2:00 a.m., which orders would rest on the RTH Queuing Book and be eligible to participate in the RTH opening auction process. Amendment No. 1 deletes the phrase “a time” in the first sentence of proposed paragraph (c), which was inadvertently included in the rule text in the Initial Rule Filing. Amendment No. 1 updates an inadvertent reference to 7:30 a.m. in this footnote in the Initial Rule Filing to 2:00 a.m., which is the time at which Users may begin submitting orders to the Exchange pursuant to Rule 5.7 in the shell Rulebook (and which is constituent with the rule text in the proposed subparagraph (b)(1) in the Initial Rule Filing and this Amendment No. 1). In addition, Amendment No. 1 makes some clarifications in this footnote regarding the Queuing Books for each trading session. Additionally, unexecuted All

quotes on the Queuing Book may not execute until the opening rotation.

The Queuing Book for the GTH opening auction process may be referred to as the “GTH Queuing Book,” and the Queuing Book for the RTH opening auction process may be referred to as the “RTH Queuing Book.” There is no equivalent term to a Queuing Book in current Rule 6.2. However, the System currently accepts orders and quotes during the pre-opening period, which orders and quotes rest on the book and are eligible for execution during the opening rotation.

- Queuing Period: The term “Queuing Period” means the time period prior to the initiation of an opening rotation during which the System accepts orders and quotes for participation in the opening rotation for the applicable trading session.¹⁸ The Queuing Period is equivalent to the pre-open period described in current Rule 6.2(a).

Proposed Rule 5.31(b) describes the Queuing Period. The Queuing Period will begin at 2:00 a.m. Eastern Time for All Sessions Classes and at 7:30 a.m. Eastern Time for RTH Only Classes.¹⁹ The System currently begins accepting orders in quotes at 5:00 p.m.

Sessions orders resting on the GTH Book at the end of the GTH trading session will enter the RTH Queuing Book and be eligible to participate in the RTH opening auction process. This does not currently occur, because the GTH and RTH trading sessions currently operate separately and do not interact. Following the technology migration, these trading sessions will be able to interact, as they will use the same book and connectivity. See Rules 1.1 (definition of Book) in the shell Rulebook.

¹⁸ See current Rule 6.2(a).

¹⁹ See proposed Rule 5.31(b)(1); see also Rule 5.7 in the shell Rulebook (Amendment No. 1 adds the citation to Rule 5.7 in this footnote).

Eastern Time²⁰ the previous trading day for the GTH trading session and at 7:30 a.m. Eastern Time for the RTH trading session.²¹ While Users will have less time to submit orders and quotes prior to the GTH opening, the Exchange believes having one hour to submit orders and quotes in All Sessions Classes prior to the GTH opening is sufficient given that the Exchange lists fewer classes for trading during GTH, and it is the same amount of time they have to submit orders and quotes in RTH Only classes prior to the RTH trading session.²²

Proposed Rule 5.31(b)(2) clarifies that orders and quotes on the Queuing Book are not eligible for execution until the opening rotation pursuant to proposed paragraph (e), as described below.²³ This is consistent with the current order entry period, pursuant to which orders and quotes entered for inclusion in the opening process do not execute until the opening trade pursuant to current Rule 6.2(c). During the Queueing Period, the System

²⁰ The Exchange notes the times in its current Rule are in Central Time rather than Eastern Time, as is the case in its proposed Rule.

²¹ See current Rule 6.2(a); see also Cboe Options Regulatory Circular RG15-103 (July 13, 2015). The Exchange currently begins accepting orders and quotes at 7:30 a.m. Eastern Time for the RTH trading session, which time is not changing.

²² Pursuant to C2 Options Rule 6.11(a) and EDGX Options Rule 21.7(a), the Queuing Period for the GTH trading session will similarly begin one hour prior to the beginning of that trading session on those exchanges. Current Rule 6.2(a) provides the Exchange with flexibility regarding when to begin the pre-opening period. The Exchange proposes to eliminate this flexibility from the Rules, as it does not believe it is necessary any more. If the Exchange determines to change the time at which the Queuing Period will begin, it will submit a rule filing.

²³ The proposed rule change moves the provision that states that GTC and GTD orders remaining on the Book from the previous trading day may participate in the opening process from current Rule 6.2(b) to the definition of Queuing Book in proposed Rule 5.31(a).

accepts all orders and quotes that are available for a class and trading session pursuant to Rule 5.30,²⁴ which are eligible for execution during the opening rotation, except as follows:

- the System rejects immediate-or-cancel (“IOC”) and fill-or-kill (“FOK”) orders during the Queuing Period²⁵;
- the System accepts orders and quotes with MTP Modifiers during the Queuing Period, but does not enforce them during the opening rotation²⁶;
- the System accepts stop and stop-limit orders²⁷ during the Queuing Period, but they do not participate during the opening rotation. The System enters any of these orders it receives during the Queuing Period into the Book following completion of the opening rotation (in time priority)²⁸;
- the System converts all intermarket sweep orders (“ISOs”) received prior to the completion of the opening rotation into non-ISOs²⁹; and

²⁴ The Exchange intends to add Rule 5.30 to the shell Rulebook in a separate rule filing, which will set forth the order types, instructions, and times-in-force the Exchange may make available for electronic trading.

²⁵ See current Rule 6.2(a)(i) and proposed Rule 5.31(a)(2)(A).

²⁶ See proposed Rule 5.31(a)(2)(B). The Exchange currently has Market-Maker trade prevention orders, which it does not accept prior to the opening. See Rule 6.2(a)(i).

²⁷ See proposed Rule 5.31(a)(2)(C). Current Rule 6.2(c)(i)(A) provides that all-or-none orders and orders with a stop contingency will not participate in the opening rotation in classes in which the Exchange has not activated HAL at the open. As noted above, the Exchange intends to not activate HAL at the open for any classes following the technology migration, so proposed Rule 5.31(a)(2)(C) is consistent with that current Rule.

²⁸ This is consistent with current functionality, and the proposed rule change is adding this detail to the Rules. See also Cboe Options Rule 6.2(c)(i)(B) (which states that order with a stop contingency do not participate in the opening rotation).

²⁹ See proposed Rule 5.31(a)(2)(D); see also current Rule 6.2(a)(i) (which does not permit ISOs to be entered during the pre-opening period).

- complex orders do not participate in the opening auction described in proposed Rule 5.31 and instead may participate in the complex order book (“COB”) opening process pursuant to proposed Rule 5.33(c).³⁰

Proposed Rule 5.31(c) describes the opening auction updates the Exchange will disseminate as part of the opening auction process. As noted above, opening auction updates contain information regarding the expected opening of a series and are similar to the EOIs the Exchange currently disseminates during the pre-opening period. These messages provide market participants with information that may contribute to enhanced liquidity and price discovery during the opening auction process. Beginning at 2:00 a.m. Eastern Time for the GTH trading session and at 8:30 a.m. Eastern Time for the RTH trading session, the Exchange disseminates opening auction updates for the series.³¹ The Exchange disseminates opening auction updates every five seconds, unless there are no updates to the opening information since the previously disseminated update, in which case the Exchange disseminates updates every minute, to all subscribers to the Exchange’s data feeds that deliver these messages until a series opens.³² If there have been no changes since the

³⁰ See current Rule 6.2(c)(i)(B) and proposed Rule 5.31(a)(2)(E). The Exchange intends to add Rule 5.33 to the shell Rulebook (equivalent to current Rule 6.53C in the current Rulebook) in a separate rule filing, which will describe the COB opening process.

³¹ Amendment No. 1 deletes the statement in this footnote in the Initial Rule Filing regarding when the Exchange will begin disseminating opening auction updates. The Exchange will begin disseminating opening auction updates at the times set forth in proposed paragraph (c), with no exception. Cboe Options currently begins disseminating EOIs at 8:30 a.m. or 9:00 a.m. Eastern Time (depending on the class), which is consistent with the proposed rule change to begin dissemination of opening auction messages no earlier than one hour prior to the expected initiation of the opening rotation for a series. The Exchange believes market participants generally want to receive this information closer to the opening of trading.

³² See current Rule 6.2(a)(ii) (the Exchange currently disseminates EOIs at regular

previous update, the Exchange does not believe it is necessary to disseminate duplicate updates to market participants at the next interval of time.

Proposed Rule 5.31(d) describes the events that will trigger the opening rotation for a class. Pursuant to current Rule 6.2(b), unless unusual circumstances exist, the System initiates the opening rotation procedure on a class-by-class basis for Regular Trading Hours:

- with respect to equity and exchange-traded product options, after the opening trade or the opening quote is disseminated in the market for the underlying security,³³ or at 9:30 a.m. Eastern Time for classes determined by the Exchange (including over-the-counter equity classes); or
- with respect to index options, at 9:30 a.m. Eastern Time, or at the later of 9:30 a.m. and the time the Exchange receives a disseminated index value for classes determined by the Exchange.

The System currently initiates the opening rotation procedure for Global Trading Hours at 3:00 a.m. Eastern Time.

The proposed opening rotation triggers are similar to the current opening rotation triggers, except the Exchange proposes to have the same trigger for all equity options and the same trigger for all index options. As proposed for Regular Trading Hours, after a time period (which the Exchange determines for all classes) following the System's observation after 9:30 a.m. Eastern Time of the first disseminated (1) transaction on the primary

intervals or less frequently if there are no updates, and will not disseminate EOIs in certain circumstances, including if there is no locked or crossed interest (because there would be no expected opening price or size)).

³³ The "market for the underlying security" is either the primary listing exchange or the first exchange to open the underlying security, as determined by the Exchange on a class-by-class basis.

market³⁴ in the security underlying an equity option³⁵ or (2) index value for the index underlying an index option, the System will initiate the opening rotation for the series in that class, and will disseminate a message to market participants indicating the initiation of the opening rotation.³⁶ For Global Trading Hours, the System will initiate the opening rotation at 3:00 a.m. Eastern Time.³⁷ For Regular Trading Hours, the opening rotation will be triggered in all equity classes by observation of the first transaction in the underlying security on the primary market (rather than some classes being triggered by a timer), and the opening rotation will be triggered in all index classes by observation of the first index value (rather than some classes being triggered by a timer), after 9:30 a.m. Eastern Time. The Exchange believes that it no longer needs the flexibility to open either equity option classes or index option classes based on a timer, and believes the proposed opening rotation triggers will simplify the process. Upon the occurrence of one of these proposed triggers for a class, the System will initiate the opening rotation for the series in that class, and will disseminate a message to market participants indicating the initiation of the opening rotation.³⁸

³⁴ The term “primary market” means the primary exchange on which an underlying security is listed. See Rule 1.1 in the shell Rulebook.

³⁵ The term equity option includes options on exchange-traded products. See definition of “equity option” in Rule 1.1 in the shell Rulebook.

³⁶ Amendment No. 1 makes nonsubstantive changes to the proposed rule text in subparagraph (d)(1)(A), and the sentence accompanying this footnote. The opening trigger for equity options in the RTH session will continue to be based on the dissemination of the first transaction in the underlying security from the primary market.

³⁷ Amendment No. 1 updates an inadvertent reference to 8:30 a.m. in the accompanying sentence in the Initial Rule Filing to 3:00 a.m., which is the time at which the GTH trading session begins on the Exchange pursuant to Rule 5.1 in the shell Rulebook (and is consistent with proposed subparagraph (d)(2) in the Initial Rule Filing and this Amendment No. 1).

³⁸ See current Rule 6.2(b)(ii) and proposed Rule 5.31(d).

Proposed Rule 5.31(e) describes the opening rotation process, during which the System will determine whether the Composite Market for a series is not wider than a maximum width, will determine the opening price, and will open series for trading.³⁹ The Maximum Composite Width Check and Opening Collar are intended to facilitate that series opening in a fair and orderly manner and at prices consistent with the current market conditions for the series and not at extreme prices, while taking into consideration prices disseminated from other options exchanges that may be better than the Exchange's at the open.

Proposed Rule 5.31(e)(1) describes the Maximum Composite Width Check, and the two sets of conditions under which a series will be eligible to open.

- If the Composite Market of a series is not crossed, and the Composite Width of a series is less than or equal to the Maximum Composite Width, the series is eligible to open (and the System determines the Opening Price as described below).
- If the Composite Market of a series is not crossed, and the Composite Width of a series is greater than the Maximum Composite Width, but there are no non-M Capacity⁴⁰ market orders or buy (sell) limit orders with prices higher (lower) than the Composite Bid (Offer) and there are no locked or crossed

³⁹ See current Rule 6.2(d) (pursuant to which the Exchange will generally not open a series if the width is wider than an acceptable price range or if the opening trade price is outside of an acceptable price range). As noted above, the Exchange will similarly have a maximum quote width and acceptable opening price range, however, as noted above, the proposed ranges will be determined in a slightly different manner.

⁴⁰ Capacity M is used for orders for the account of a Market-Maker (with an appointment in the class). See Rule 1.1 (definition of Capacity).

orders or quotes, the series is eligible to open (and the System determines the Opening Price as described below).⁴¹

- If neither of the conditions above are satisfied for a series, or if the Composite Market of a series is crossed, the series is ineligible to open.⁴²

The Queuing Period for the series continues (including the dissemination of opening auction updates) until one of the above conditions for the series is satisfied.⁴³

The following examples show the application of the Maximum Composite Width

Check:

Example #1

The Maximum Composite Width for a class is 0.50, and the Composite Market is 2.00 x 1.00, comprised of an appointed Market-Maker bulk message bid of 2.00 and an appointed Market-Maker bulk message offer of 1.00. There is no other interest in the

⁴¹ Similarly, pursuant to current Rule 6.2(d)(ii)(B), if the opening quote is wider than the OEPW range (but not outside another acceptable price range) and there are no orders or quotes marketable against each other or that lock or cross the OEPW range, Cboe Options will open the series.

⁴² Amendment No. 1 adds to proposed subparagraph (e)(1)(C) (and the sentence accompanying this footnote) that a series will not open if the Composite Market of a series is crossed. This is consistent with the original proposal that the Maximum Composite Width Check for a series can only be satisfied if the Composite Market is not crossed and merely clarifies this in the subparagraph describing when a series does not satisfy the Maximum Composite Width Check.

⁴³ Similarly, pursuant to current Rule 6.2(d)(ii)(B), if the opening quote is wider than the OEPW range and there are orders or quotes marketable against each other or that lock or cross the OEPW range, the System does not open a series. If the opening quote is no wider than the IEPW range and there are no orders or quotes marketable against each other or that lock or cross the OEPW range, the System opens the series. Pursuant to current Rule 6.2(d)(iii), if the opening conditions are not satisfied, the opening rotation period continues, including the dissemination of EOIs until the opening conditions are satisfied.

Queuing Book. The series is not eligible to open, because the Composite Market is crossed. The Queuing Period for the series will continue until the series satisfies the Maximum Composite Width Check.

Example #2

The Maximum Composite Width for a class is 0.50, and the Composite Market is 1.00 x 2.00, comprised of an appointed Market-Maker bulk message bid of 1.00 and an appointed Market-Maker bulk message offer of 2.00. There is no other interest in the Queuing Book. The series is eligible to open, because the width of the Composite Market is greater than the Maximum Composite Width and there are no locked orders or quotes in the series or non-M Capacity orders. The System will then determine the Opening Trade Price.

Example #3

The Maximum Composite Width for a class is 0.50, and the Composite Market is 1.00 x 2.00, comprised of an appointed Market-Maker bulk message bid of 1.00 and an appointed Market-Maker bulk message offer of 2.00. There is a non-M Capacity limit order to buy for \$1.99 in Queuing Book. The series is not eligible to open, because the width of the Composite Market is greater than the Maximum Composite Width, and there is a non-M Capacity order at a price inside of the Composite Market. The Queuing Period for the series will continue until the series satisfies the Maximum Composite Width Check.

Example #4

The Maximum Composite Width for a class is 0.50, and the Composite Market is 1.00 x 2.00, comprised of an appointed Market-Maker bulk message bid of 1.00 and an appointed Market-Maker bulk message offer of 2.00. There is a market order to buy in the Queuing Book. The series is not eligible to open, because the width of the Composite

Market is greater than the Maximum Composite Width and there is a marketable order. The Queuing Period for the series will continue until the series satisfies the Maximum Composite Width Check.

Proposed subparagraph (e)(2) describes how the System determines the Opening Trade Price. After a series satisfies the Maximum Composite Width Check described above, if there are orders and quotes marketable against each other at a price not outside the Opening Collar, the System determines the Opening Trade Price for the series.⁴⁴ The Opening Trade Price is the volume-maximizing, imbalance-minimizing price (“VMIM price”) that is not outside the Opening Collar. The VMIM price is:

- the price at which the largest number of contracts can execute (*i.e.*, the volume-maximizing price);
- if there are multiple volume-maximizing prices, the price at which the fewest number of contracts remain unexecuted (*i.e.*, the imbalance-minimizing price); or
- if there are multiple volume-maximizing, imbalance-minimizing prices, (1) the highest (lowest) price, if there is a buy (sell) imbalance, or (2) the price at or nearest to the midpoint of the Opening Collar, if there is no imbalance.

The proposed process to determine an opening trade price is substantially similar to the process the Exchange currently uses. Pursuant to current Rule 6.2(c)(i)(A), the opening trade price of a series is the “market-clearing” price, which is the single price at which the

⁴⁴ If there are no such orders, there is no Opening Trade Price. See current Rule 6.2(c)(i) (pursuant to which there may or may not currently be an opening trade price).

largest number of contracts in the Book can execute (*i.e.*, the volume-maximizing price), leaving bids and offers that cannot trade with each other. If there are multiple prices at which the same number of contracts would clear, the System currently uses (1) the price at or nearest to the midpoint of the opening best bid or offer, or the widest offer (bid) point of the OEPW range if the midpoint is higher (lower) than that price point, in classes in which the Exchange has not activated HAL at the open, or (2) the price at or nearest to the midpoint of the range consisting of the higher of the opening national best bid and widest bid point of the OEPW range, and the lower of the opening national best offer and widest offer point of the OEPW range, in classes in which the Exchange has activated HAL at the open. The proposed “tiebreakers” described above will apply to all classes. While the proposed tiebreakers are different than the current tiebreakers, the Exchange believes the proposed volume-maximizing, imbalance-minimizing procedure is reasonable, as it will provide for the largest number of contracts in the Queuing Book that can execute at a price not outside the Opening Collar range, leaving as few as possible bids and offers in the Book that cannot execute, and will consider all pricing information available on the Exchange and from away markets.

The Exchange currently applies different opening conditions to classes in which the Exchange has activated HAL at the open and to classes in which the Exchange has not activated HAL at the open.⁴⁵ The proposed opening conditions are similar to the opening conditions the Exchange currently applies pursuant to current Rule 6.2(d)(ii), which are the opening conditions that apply to classes in which HAL is activated at the open. As noted

⁴⁵ The proposed rule change deletes all the references in current Rule 6.2(d) to the exposure of orders via HAL, and excludes those references in the description of the current opening conditions below.

above, the Exchange does not intend to activate HAL at the open in any classes following the technology migration, and will apply the same opening conditions to all classes. The Exchange has currently activated HAL at the open in the majority of classes that trade on the Exchange, and therefore the Exchange believes it is appropriate that the proposed opening conditions correspond to the opening conditions in Rule 6.2(d)(ii). Additionally, those opening conditions consider price information from away markets, as the proposed opening conditions do. The Exchange believes considering all available information will provide for more accurate pricing at the open.

Pursuant to current Rule 6.2(d)(ii):

- If there are no quotes on the Exchange or disseminated from at least one away exchange present in the series, the System does not open the series.⁴⁶
- If the width between the best quote bid and best quote offer, which quotes may consist of Market-Maker quotes or bids and offers disseminated from an away exchange(s) (for purposes of this subparagraph (d)(ii), the “opening quote”) is wider than the OEPW range and there are orders or quotes marketable against each other or that lock or cross the OEPW range, the System does not open the series. However, if the opening quote width is no wider than the IEPW range and there are no orders or quotes marketable against each other or that lock or cross the OEPW range, the System opens the series. If the opening quote width is wider than the IEPW range, the System does not open the series.

⁴⁶ Pursuant to the proposed rule change, a series will similarly not open in this case. The proposed opening conditions require a Composite Market. Therefore, the System will not open a series (as it will not today) without bulk message bids and offers from appointed Market-Makers or bids and offers from at least one away exchange.

- If the opening trade price would be outside of the OEPW range or NBBO, the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at an opening trade price not outside either the OEPW range or NBBO.
- If the opening trade would leave a market order imbalance (i.e., there are more market orders to buy or to sell for the particular series than can be satisfied by the orders and quotes on the opposite side), the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at the opening trade price.
- If the opening quote bid (offer) or NBB (NBO) crosses the opening quote offer (bid) or NBO (NBB) by more than a specified amount determined by the Exchange on a class- by-class and premium basis, the System does not open the series. If the opening quote bid (offer) or NBB (NBO) crosses the opening quote offer (bid) or NBO (NBB) by no more than the specified amount, the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at the opening trade price.

The Exchange will use the Maximum Composite Width Check as a price protection measure to prevent orders from executing at extreme prices at the open, as it currently uses the OEPW range pursuant to the second bullet above.⁴⁷ If the width of the Composite Market (which represents the best market, as it is comprised of the better of Market-Maker bulk messages on the Exchange or any away market quotes) is no greater than the Maximum Composite Width, the Exchange believes it is appropriate to open a series under

⁴⁷ See current Rule 6.2(d)(ii)(B), pursuant to which the Exchange will open a series if the opening quote is not outside the OEPW.

these circumstances and provide marketable orders with an opportunity to execute at a reasonable opening price (as discussed below), because there is minimal risk of execution at an extreme price.⁴⁸ However, if the Composite Width is greater than the Maximum Composite Width but there are no non-M Capacity orders⁴⁹ that lock or cross the opposite-side widest point of the Composite Market (and thus not marketable at a price at which the Exchange would open, as described below), there is similarly no risk of an order executing at an extreme price on the open. Because the risk that the Maximum Composite Width Check is intended to address is not present in this situation, the Exchange believes it is appropriate to open a series in either of these conditions. However, if neither of these conditions is satisfied, the Exchange believes there may be risk that orders would execute at an extreme price if the series open, and therefore the Exchange will not open a series.⁵⁰

The Exchange will use the Opening Collar as a further price protection measure to prevent orders from executing at extreme prices at the open, as it currently uses the OEPW range pursuant to the third bullet above. If the Opening Trade Price is not outside the Opening Collar (which will be based on the best then-current market), the Exchange

⁴⁸ This corresponds to current Rule 6.2(d)(ii)(B), pursuant to which the Exchange will open even if the opening quote is too wide but there are no marketable orders or quotes.

⁴⁹ Market-Maker bulk messages are considered when determining the Composite Market. The Exchange believes it is appropriate to consider Market-Maker bulk messages when determining an opening quote to ensure there will be liquidity in a series when it opens. Additionally, while it is possible for Market-Makers to submit M orders, the Exchange believes there is less risk of a Market-Maker inputting an order at an extreme price given that Market-Makers are the primary liquidity providers in the options market, and thus generally responsible for pricing the market.

⁵⁰ Pursuant to current Rule 6.2(d)(ii), the Exchange will not open a series if similar conditions exist that could create risk that orders would execute at an extreme price if the series open.

believes it is appropriate to open a series at that price, because there is minimal risk of execution at an extreme price. The Exchange believes there may be risk that orders would execute at an extreme price if the Opening Trade Price were outside of the Opening Collar.

As set forth above in the fifth bullet, the Exchange will similarly not open a series today if the opening quote is crossed by more than a specified amount. However, as proposed, a series will not be eligible to open if the Composite Market is crossed. The Exchange believes this slight change is appropriate given that the existence of a crossed market may indicate pricing uncertainty within the market. The Exchange believes this proposed rule change will reduce price risk for any executions that may occur during the opening rotation due to the existence of a crossed market.

The Exchange may also open a series pursuant to current Rule 6.2(e) (proposed Rule 5.31(h)), which permits the Exchange to deviate from the standard manner of the opening auction process, including by adjusting the timing of the opening rotation in any class, modifying any time periods described in proposed Rule 5.31, and delaying or compelling the opening of a series if the opening width is wider than Maximum Composite Width, when it believes it is necessary in the interests of a fair and orderly market. The Exchange will continue to make and maintain records to document all determinations to deviate from the standard manner of the opening auction process, and will periodically review these determinations for consistency with the interests of a fair and orderly market.⁵¹

Pursuant to proposed Rule 5.31(e)(3), if the System establishes an Opening Trade Price, the System will execute orders and quotes in the Queuing Book at the Opening Trade Price. The System will prioritize orders and quotes in the following order: market orders,

⁵¹ See proposed Rule 5.31(h).

limit orders and quotes with prices better than the Opening Trade Price, and orders and quotes at the Opening Trade Price.⁵² The System allocates orders and quotes on a pro-rata basis pursuant to Rule 5.32). The System applies a Priority Customer overlay to all classes, except for SPX (including SPXW) and VIX (excluding VIXW).⁵³ If there is no Opening Trade Price, the System opens a series without a trade.

The Exchange proposes to delete current Rule 6.2(c)(iii) regarding the order in which the System will open series. The order in which the System opens series for trading is generally immaterial. The Exchange currently opens series in the order set forth in Rule 6.2(c)(iii), because it believes opening series in this order on exercise settlement value determination days enhances liquidity during the modified opening auction process set forth in current Rule 6.2, Interpretation and Policy .01. As discussed below, the Exchange proposes other enhancements to the modified opening auction process, and thus no longer believes it will be necessary to open series in this specific order. Therefore, the System will open series as the opening conditions in those series are satisfied, in no particular order.

Pursuant to proposed subparagraph (f), as is the case today, following the conclusion of the opening rotation, the System enters any unexecuted orders and quotes (or remaining portions) from the Queuing Book into the Book in time sequence (subject to a User's instructions – for example, a User may cancel an order), where they may be processed in

⁵² See current Rule 6.2(c)(i)(C). The Exchange believes it is appropriate to prioritize orders with the most aggressive prices, as it provides market participants with incentive to submit their best-priced orders.

⁵³ See current Rule 6.2, Interpretation and Policy .04. The proposed allocation during the opening rotation is consistent with the Exchange's current authority to determine the allocation algorithm used at the open, and is the same one applied to classes (and groups) today. The Exchange applies different algorithm to different classes (and groups) based on the market model and characteristics of different products. The proposed rule change merely codifies this in the Rules.

accordance with Rule 5.32. Consistent with the OPG contingency (and current functionality), the System cancels any unexecuted OPG orders (or remaining portions) following the conclusion of the opening rotation.

Proposed Rule 5.31(g)⁵⁴ states the Exchange will open series using the same opening auction process described above following a trading halt in the class declared by the Exchange pursuant to Rule 5.20,⁵⁵ except:

- The Queuing Period will begin immediately when the Exchange halts trading in the class.
- If a User has orders or quotes resting on the Book at the time of a trading halt, the System queues those orders and quotes in the Queueing Book for participation in the opening rotation following the trading halt, unless the User entered instructions to cancel its resting orders and quotes.
- The System initiates the opening rotation for a class upon the Exchange's determination to resume trading pursuant to Rule 5.20.

The proposed rule change deletes current Rule 6.2(g) regarding the use of the opening auction process to conduct a closing rotation upon determination by the Exchange. The Exchange does not currently use the opening auction process to conduct a closing rotation, and does not intend to use the proposed opening auction process to conduct a closing rotation following the technology migration.

⁵⁴ See current Rule 6.2(f). The proposed rule regarding the opening auction process to be used following a trading halt eliminates the flexibility regarding whether there may or may not be a Queuing Period during a trading halt. The proposed rule change also provides Users with the ability to decide how their resting orders and quotes should be handled in the event of a trading halt.

⁵⁵ The Exchange intends to adopt Rule 5.20 in the shell Rulebook in a separate rule filing, which rule will correspond to Rules 6.3 and 24.7 in the current Rulebook.

Proposed Rule 5.31(j) describes the modified opening auction process⁵⁶ the Exchange will use to calculate the exercise or final settlement value of expiring volatility index derivatives. As described below, the Exchange proposes to make certain enhancements to the current process, which is described in current Rule 6.2, Interpretation and Policy .01. Cboe Options and Cboe Futures Exchange, LLC (“CFE”) list options and futures, respectively, on the Cboe Volatility Index (“VIX”).⁵⁷ The exercise settlement value for VIX derivatives is determined on the morning of their expiration date through a special opening quotation (“SOQ”) of the VIX using the opening prices of a portfolio of SPX options that expire approximately 30 days later, which opening prices are determined through a modified version of the Exchange’s standard opening auction process.

By providing market participants with a mechanism to buy and sell options that will be used to calculate the exercise settlement value at the prices that will be used to calculate the exercise settlement value of VIX derivatives, the VIX settlement process is “tradable.” A tradable settlement creates the opportunity to convert the exposure of an expiring VIX derivative into a portfolio of SPX options that will be used to calculate the exercise settlement value of the expiring contract. Specifically, some market participants may desire to maintain the vega, or volatility, risk exposure of expiring VIX derivatives. Since VIX derivatives expire 30 days prior to the SPX options used to calculate their settlement value, a

⁵⁶ Current Rule 6.2, Interpretation and Policy .01 currently refers to this process as the Modified HOSS (Hybrid Opening System) Procedure.

⁵⁷ Cboe Options and CFE previously listed options and futures on other volatility indexes; however, currently, they only list VIX options and VIX futures, respectively. Options expire on an expiration date and settle to an exercise settlement value, and futures settle on a final settlement date to a final settlement value. For ease of reference, the Exchange will use the options terminology throughout the filing when referring to the final settlement date and final settlement value for VIX derivatives.

market participant may have a vega risk from its portfolio of index positions that the participant wants to continue to hedge after the participant's VIX derivatives expire.⁵⁸ To continue that vega coverage following expiration of a VIX derivative, a market participant may determine to trade the portfolio of SPX options used to calculate the exercise settlement value of an expiring VIX derivative, since those SPX options still have 30 more days to expiration. This trade essentially replaces the uncovered vega exposure "hole" created by an expiring VIX derivative.

Since the VIX settlement value converges with the value of the portfolio of SPX options used to calculate the VIX settlement value, trading this SPX option portfolio mitigates settlement risk.⁵⁹ This is because, if the SPX options that will be used to calculate the VIX settlement value execute at the open in the proportions that those options will be used in that calculation, the vega exposure obtained in the SPX option portfolio will replicate the vega exposure of the expiring VIX derivative. Because a market participant is converting vega exposure from one instrument (an expiring VIX derivative) to another (a

⁵⁸ The orders for an SPX option portfolio a market participant submits to the modified opening auction process to replicate the vega risk exposure of its expiring VIX derivatives may be referred to as a "vega replicating order" in this rule filing.

⁵⁹ In the absence of a tradable settlement, settlement risk refers to the difference between the exercise settlement value of the expiring VIX derivatives and the value of the portfolio of the option series used to calculate the exercise settlement value. The potential disparity between the exercise settlement value for expiring VIX derivatives and the value of the replicating portfolio of option series that will be used to calculate the exercise settlement value is referred to as "slippage." A tradable settlement provides convergence between the exercise settlement value and the value of the portfolio of option series used to calculate the exercise settlement value (*i.e.*, eliminates slippage). While it is possible to construct a replicating portfolio of SPX options, it is highly unlikely that, absent a tradable settlement, traders would be able to trade SPX options that will be used to calculate the exercise settlement value at prices that would match the final settlement price.

portfolio of SPX options expiring in 30 days), the market participant is likely to be indifferent to the settlement price received for the expiring VIX derivative. Importantly, trading the next VIX derivative expiration (*i.e.*, rolling) will not accomplish the conversion of vega exposure since that VIX derivative contract would necessarily cover a different period of expected volatility and would be based on an entirely different portfolio of SPX options.

The VIX settlement process is patterned after the process used to calculate the exercise settlement value of SPX options. On the days SPX options expire, S&P calculates an SOQ of the S&P 500 Index using the opening prices of the component stocks in their primary markets. Market participants can seek to replicate the exposure of their expiring SPX options by entering orders to buy and sell the component stocks of the S&P 500 Index at their opening prices. If they are successful, market participants can effectively construct a portfolio that matches the value of the SOQ of the S&P 500 Index. At this point, the values of the derivatives and cash markets converge. In a similar way, the VIX exercise settlement value is calculated using the opening prices of SPX options that expire approximately 30 days later. Analogous to the settlement process for SPX options, market participants can replicate the exposure of their expiring VIX derivatives by entering buy and sell orders in SPX options that will be used to calculate the VIX settlement value in the proportions the Exchange will use when calculating the VIX settlement value. If they are successful, market participants can effectively construct a portfolio of SPX option positions whose value matches the exercise settlement value of the participants' VIX derivatives.

The primary feature of the modified opening auction process that currently distinguishes it from the standard opening auction process is a cut-off time for the entry of

strategy orders,⁶⁰ which market participants currently submit for participation in the modified opening auction process to replicate the vega exposure of their expiring VIX derivatives. The Exchange understands that the entry of strategy orders may lead to order imbalances in the series in the settlement strip. To the extent (1) market participants seeking to replicate the vega exposure of an expiring VIX derivative position are on one side of the market (*e.g.*, strategy orders to buy SPX options) and (2) those market participants' orders predominate over other orders during the modified opening auction process, those trades may contribute to an order imbalance prior to the open. The Exchange established the strategy order cut-off time to provide market participants with time to enter additional orders and quotes to offset any such imbalances prior to the opening of these series.⁶¹ Market

⁶⁰ The Exchange deems individual orders (considered collectively) that a market participant submits for participation in the modified opening auction process to be a “strategy” order, based on related facts and circumstances considered by the Exchange, only if the orders: (1) relate to the market participant’s positions in expiring VIX derivatives; (2) are for option series with the expiration that the Exchange will use to calculate the exercise or final settlement value, as applicable, of the applicable VIX derivative; (3) are for option series with strike prices approximating the range of series that are later determined to constitute the constituent option series for the applicable expiration; (4) are for put (call) options with strike prices equal to or less (greater) than the “at-the-money” strike price; and (5) have quantities approximating the weighting formula used to determine the exercise or final settlement value, as applicable, in accordance with the VIX methodology. See current Rule 6.2, Interpretation and Policy .01(a) (definition of “strategy order”). As proposed, there will continue to be a cut-off time during the modified opening auction process; however, the Exchange is eliminating the concept of a strategy order.

⁶¹ See Securities Exchange Act Release Nos. 52367 (August 31, 2005), 70 FR 53401 (September 8, 2005) (SR-CBOE-2004-86) (established for the rapid opening system procedure, which is no longer used). The Commission stated it believed that the proposed rule change may serve the intended benefits of the strategy order cut-off time without imposing an undue burden on market participants. Id. at 53402. Pursuant to current Rule 6.2, Interpretation and Policy .01(b), the Exchange may determine a strategy order cut-off time, which may be no earlier than 9:00 a.m. Eastern Time and no later than the opening of trading. The current strategy order cut-off time is 9:20 a.m. Eastern Time.

participants may also, among other things, submit competitively priced non-strategy orders and quotes in response to changing market conditions following the strategy order cut-off time until the open of trading to contribute to a fair and orderly opening process.⁶²

When the Exchange initially adopted the concept of a strategy order and strategy order cut-off time, VIX derivatives had only just begun trading. The Exchange believed some flexibility within the rules regarding what constituted a strategy order was appropriate in applying the strategy order cut-off time. Additionally, the flexibility permitted market participants to submit strategy orders in a manner consistent with their businesses. The flexibility within the rule provided the Exchange with the ability to gain experience in monitoring trading in these products and evaluating the use of strategy orders.⁶³ The Exchange understands this flexibility has created some uncertainty among market participants regarding what constitutes a strategy order. As a result of this uncertainty, the Exchange understands certain market participants have hesitated to submit orders in the modified opening auction process out of concern that such orders could be deemed either a new strategy order or a modification to or cancellation of an existing strategy order.

The Exchange recently amended the rule that sets forth the characteristics of a strategy order to attempt to reduce some of this uncertainty by eliminating some of the flexibility within the rule regarding the characteristics of a strategy order, and to provide additional clarity to market participants regarding what orders they may submit following the strategy order cut-off time. The Exchange believed this clarity would reduce uncertainty

⁶² Pursuant to current Rule 6.2, Interpretation and Policy .01(b), the Exchange may determine a non-strategy order cut-off time, which may be no earlier than 9:25 a.m. Eastern Time and no later than the opening of trading. The current non-strategy order cut-off time is the opening of trading.

⁶³ See supra note 61.

among market participants and promote increased liquidity in series in the settlement strip on exercise settlement value determination days.⁶⁴

The Exchange believes recent enhancements have eliminated some uncertainty and alleviated certain perceived risk; however, the current characteristics of a strategy order retain some level of flexibility. The Exchange understands that, due to this retained flexibility, some market participants continue to believe there is risk regarding what orders submitted after the strategy order cut-off time will be deemed either a new strategy order or a modification to or cancellation of an existing strategy order. This perceived risk may lead to reduced liquidity and may increase the time it takes to open a series at a competitive price. Therefore, the Exchange proposes to eliminate the concept of a strategy order from the modified opening auction process. There will continue to be a cut-off time (the time of which will be the same time as the current strategy order cut-off time) to provide the market with time to resolve any imbalances created by the submission of vega replicating orders. However, to further reduce any perceived risk described above, the Exchange proposes a more define approach regarding the types of orders market participants may submit following the cut-off time. The Exchange believes providing market participants with a definitive order type they may submit following the cut-off time that cannot be deemed an improper modification of an earlier submitted order will promote additional liquidity in the modified opening auction process.

All provisions of proposed Rule 5.31 will apply to the opening of constituent option series for Regular Trading Hours on exercise settlement value determination days, except as

⁶⁴ See Securities Exchange Act Release No. 84436 (October 16, 2018), 83 FR 53337 (October 22, 2018) (SR-CBOE-2018-062).

provided in proposed Rule 5.31(j).⁶⁵ The opening auction process used on those days as modified by proposed paragraph (j) is referred to as the “modified opening auction process.”⁶⁶

Proposed Rule 5.31(j)(1) defines the following terms for purposes of the modified opening auction process⁶⁷:

- VIX Derivatives: The term “VIX derivatives” means VIX options listed for trading on the Exchange (as determined under Rule 4.11), VIX futures listed for trading on an affiliated designated contract market, or over-the-counter derivatives overlying

⁶⁵ See current Rule 6.2, Interpretation and Policy .01(b).

⁶⁶ The Exchange uses the opening trade prices of series in the settlement strip (or the average of the opening bid and offer prices of a series in the settlement strip if there is no opening trade in that series) established by the modified opening auction process to calculate the exercise or final settlement value, as applicable, of expiring volatility index derivatives. See current Rule 24.9(a)(5)(B) (the proposed rule change moves this language to proposed Rule 5.31(j), so that all provisions in the Rules regarding the modified opening auction process are included in a single place).

⁶⁷ See current Rule 6.2, Interpretation and Policy .01(a). Except for the definition of settlement strip (which corresponds to the definition of constituent option series in current Rule 6.2, Interpretation and Policy .01), as discussed below, the proposed rule change makes no changes to the definitions that are in current Rule 6.2, Interpretation and Policy .01(a) and proposed to be moved to Rule 5.31(j)(1), except: (a) the proposed rule refers to volatility index derivatives as VIX derivatives, because, as noted above, those are currently the only volatility index derivatives for which the Exchange uses the modified opening auction process to determine the exercise settlement value, and to update cross-references as necessary; (b) the Exchange proposes to use the term “constituent option series” to refer to all SPX series with the expiration the Exchange uses to calculate the exercise or final settlement value, as that corresponds to the terminology used in the Exchange’s technical specifications and documentation to which Users often refer; and (c) the Exchange proposes to use the term “settlement strip” instead of “constituent option series” to refer to the series that the Exchange will use to determine the exercise settlement value, as that corresponds to terminology regularly used by market participants.

VIX whose exercise or final settlement values, as applicable, are calculated pursuant to, or by reference to, as applicable, the modified opening auction process.

- Exercise Settlement Value Determination Day: The term “exercise settlement value determination day” means a day on which the Exchange determines the exercise or final settlement value, as applicable, of expiring VIX derivatives.
- Constituent Option Series: The term “constituent option series” means all SPX (including SPXW) option series listed on the Exchange with the expirations the Exchange uses to calculate the exercise or final settlement value of the expiring VIX derivative on exercise settlement value determination days.
- Maximum Composite Width: The term “Maximum Composite Width” has the meaning set forth in proposed Rule 5.31(a) (as described above), except the following Maximum Composite Widths apply to constituent option series on exercise settlement value determination days⁶⁸:

<u>Composite Bid</u>	<u>Market Composite Width</u>
<u>0 – 0.25</u>	<u>0.25</u>
<u>0.25 – 0.50</u>	<u>0.30</u>
<u>0.51 – 1.00</u>	<u>0.35</u>
<u>1.01 – 2.00</u>	<u>0.40</u>
<u>2.01 – 5.00</u>	<u>0.60</u>
<u>5.01 – 10.00</u>	<u>0.70</u>
<u>10.01 – 20.00</u>	<u>1.00</u>
<u>20.01 – 30.00</u>	<u>1.80</u>
<u>30.01 – 40.00</u>	<u>2.40</u>
<u>40.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>6.00</u>

⁶⁸ The proposed Maximum Composite Widths on exercise settlement value determination days are consistent with the Exchange’s current authority to determine the OEPW; the Exchange is adding this detail to the Rules. The proposed widths on these are the same as the Exchange’s current width settings. See Cboe Options Notice, *Operational Setting Changes for Cboe Options Acceptable Price Range (APR) and Opening Exchange Prescribed Width (OEPW)* (May 4, 2018).

<u>100.01 – 200.00</u>	<u>9.00</u>
<u>≥ 200.01</u>	<u>14.00</u>

- Opening Collar: The term “Opening Collar” has the meaning set forth in proposed Rule 5.31(a) (as described above), except the following Opening Collar widths apply to constituent option series on exercise settlement value determination days⁶⁹:

<u>Composite Bid</u>	<u>Opening Collar Width</u>
<u>0 – 0.25</u>	<u>0.25</u>
<u>0.25 – 0.50</u>	<u>0.30</u>
<u>0.51 – 1.00</u>	<u>0.35</u>
<u>1.01 – 2.00</u>	<u>0.40</u>
<u>2.01 – 5.00</u>	<u>0.60</u>
<u>5.01 – 10.00</u>	<u>0.70</u>
<u>10.01 – 20.00</u>	<u>1.00</u>
<u>20.01 – 30.00</u>	<u>1.80</u>
<u>30.01 – 40.00</u>	<u>2.40</u>
<u>40.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>6.00</u>
<u>100.01 – 200.00</u>	<u>9.00</u>
<u>≥ 200.01</u>	<u>14.00</u>

- Settlement Strip⁷⁰: The term “settlement strip” means the constituent option series used to calculate the exercise or final settlement value, as applicable, of expiring VIX derivatives. As further discussed below, the proposed rule change provides that the Exchange will determine the highest call strike and lowest put strike that establish the “strike range” for the settlement strip

⁶⁹ The proposed Opening Collar widths on exercise settlement value determination days are consistent with the Exchange’s current authority to determine the OEPW; the Exchange is adding this detail to the Rules. The proposed widths on these days are the same as the Exchange’s current width settings. See Cboe Options Notice, *Operational Setting Changes for Cboe Options Acceptable Price Range (APR) and Opening Exchange Prescribed Width (OEPW)* (May 4, 2018).

⁷⁰ Amendment No. 1 adds detail to the proposed settlement strip, including what information the Exchange will disseminate and which constituent series will constitute the settlement strip, but does not modify the process to determine the settlement strip as proposed in the Initial Rule Filing.

pursuant to an algorithm. The at-the-money strike price is determined in accordance with the VIX methodology, using opening bid and offer information of each constituent option series.⁷¹ The Exchange will disseminate the highest call strike and the lowest put strike of the strike range to all subscribers to the Exchange's data feeds that deliver opening auction update messages, no later than 8:45 a.m. Eastern Time on exercise settlement value determination days. Each call (put) constituent option series with a strike price not outside the strike range (i.e., a strike price equal to or greater (less) than the at-the-money strike price up (down) to the highest call (lowest put) strike of the strike range) is included in the settlement strip. The Exchange may update the strike range until 9:15 a.m. Eastern Time pursuant to an algorithm due to changes to the value of the VIX Index, prices of related futures, or other algorithmic inputs. The Exchange disseminates any such updates as soon as reasonably possible.

- Settlement Liquidity Opening Order and SLOO: The terms "settlement liquidity opening order" and "SLOO" mean a limit order in a constituent option series designated with an OPG Time-in-Force that Users may submit to the Exchange only on exercise settlement value determination days following the cut-off time described

⁷¹ The VIX methodology is available on the Exchange's website. The Exchange intends to continue to determine the at-the-money strike price as it does today, which strike price may change in response to changing market conditions up to the market open (including after the Exchange determines the final settlement strip, as discussed below). The Exchange does not currently, and does not intend, to disseminate the at-the-money strike price.

below. The System cancels a SLOO (or remaining portion) that does not execute during the modified opening auction process.⁷²

- If the limit price of a buy (sell) SLOO crosses the midpoint of the then-current Opening Collar upon entry, the System adjusts the SLOO's price to equal the midpoint of the Opening Collar (rounded up (down) to the nearest minimum increment), except for a sell SLOO when the midpoint is less than or equal to 0.175. If the midpoint of the Opening Collar changes during the Queuing Period, the System re-adjusts the SLOO's price to equal the new Opening Collar midpoint (rounded as provided above), up to its limit price.
- The prices of SLOOs in the Queuing Book are not disseminated in the Exchange's Multicast PITCH and Multicast TOP data feeds.

As discussed above, the Exchange proposes to eliminate the concept of a strategy order, and thus the proposed rule change deletes the portions of the current rule describing the characteristics of strategy orders and non-strategy orders.

Proposed Rule 5.31(j)(3) states that during the Queuing Period, the System accepts orders and quotes in constituent option series as follows, subject to proposed Rule 5.31(b)(2)⁷³:

- The System accepts all orders and quotes (except SLOOs, which the System rejects), and any changes to or cancellations of those orders and quotes, prior to 9:20 a.m. (Eastern Time).⁷⁴

⁷² Users may not designate bulk messages as SLOOs.

⁷³ In other words, the conditions regarding order and quote entry set forth in proposed Rule 5.31(b)(2) apply to the submission of orders and quotes to the modified opening auction process.

⁷⁴ As noted above, this is the same time as the current strategy order cut-off time.

- After 9:20 a.m. (Eastern Time) (until the opening of trading in a series), the System only accepts (1) SLOOs (including changes to and cancellations of SLOOs); and (2) bulk message bids and offers (including changes to and cancellations of bulk message bids and offers submitted before and after the cut-off time) from Market-Makers with an SPX appointment. The System rejects all other orders and quotes (and changes to and cancellations of orders and quotes submitted prior to the cut-off time).

While the proposed rule change eliminates the concept of strategy orders, the proposed modified opening auction process is similar to the current process. The proposed rule change will have no impact on orders that may be submitted prior to the cut-off time. All market participants may currently submit all orders and quotes, including vega replicating orders (*i.e.*, strategy orders), in constituent option series (subject to restrictions set forth in current Rule 6.2, which are similar to the restrictions in proposed Rule 5.31(b) and, as noted above, will apply to the modified opening auction process). The proposed rule change will permit this same order and quote entry activity prior to the cut-off time, including the submission of orders to replicate the vega exposure of expiring VIX derivatives (*i.e.*, the equivalent of current strategy orders).

The Exchange expects market participants to continue to use the modified opening auction process to replicate the vega exposure of their expiring VIX derivatives. To continue to provide market participants with sufficient time to submit additional interest to offset any imbalances that may be created by the submission of these orders, the Exchange

The proposed rule change eliminates the Exchange's current flexibility regarding the cut-off time. There is currently only one class to which the modified opening auction process applies, so there is no need for class-by-class flexibility. The Exchange will submit a rule filing if it determines to change the cut-off time.

will retain an order entry cut-off time. Currently, only non-strategy orders may be submitted following the strategy order cut-off time. While a non-strategy order is defined as any order that is not, or that does not modify or cancel, a strategy order, the current rule identifies two specific types of interest that are not strategy orders, and they are therefore permissible following the cut-off time:

- a buy (sell) order in a settlement strip series if an EOI disseminated no more than two minutes prior to the time a market participant submitted the order included a sell (buy) imbalance and the size of the order is not larger than the size of the imbalance in the EOI, regardless of whether the market participant previously submitted a strategy order or has positions in expiring volatility index derivatives; or
- a bid or offer in a settlement strip series submitted by a Market-Maker with an appointment in a class with settlement strip series, for bona fide market-making purposes in accordance with current Rule 8.7 and the Exchange Act for its market-maker account prior to the open of trading for participation in the modified opening auction process.

The explicit permission to submit these orders and quotes following the strategy order cut-off time is consistent with the operational purpose of establishing a strategy order cut-off time, which was to provide sufficient time for market participants to submit liquidity to offset the size of any imbalances created by the submission of volatility replicating orders and to contribute to a competitively priced opening process. The orders and quotes that may be submitted after the cut-off time will continue to be limited in a manner consistent with this purpose. The System, however, will automatically enforce these order entry limitations, which will eliminate any responsibility currently placed on market participants to determine

whether the orders and quotes they submit following the strategy order cut-off time would be permissible under current Rules.

By eliminating the concept of a strategy order and only permitting two specific types of market activity following the cut-off time, the Exchange believes the proposed rule change will eliminate any existing uncertainty among market participants with respect to what orders they may submit following the cut-off time. All market participants may submit SLOOs following the cut-off time, which will serve a similar purpose as the non-strategy orders that market participants may currently submit. The proposed SLOO repricing functionality will prevent the entry of a SLOO from creating or adding to an imbalance that would prevent a constituent option series from opening.

The Exchange believes permitting sell SLOOs to cross the midpoint of the Opening Collar in any series with a midpoint of 0.175 or less will provide market participants with opportunities to execute against bids in lower-valued series. If there is a low bid in a series, a market participant may be willing to sell at that price, and the Exchange believes that not adjusting the price of a sell SLOO in that situation will encourage liquidity and price improvement over Market-Maker quotes in these lower-valued series.⁷⁵ For example, assume the Composite Market (and the Opening Collar) for a series is 0 to 0.30, and thus the midpoint of the Opening Collar is \$0.15. An order to buy at \$0.05 rests in the Queuing Book. If a market participant submits a SLOO to sell at \$0.05, it would be able to execute against the resting order during the opening rotation, rather than be slid to a price of \$0.15. The Exchange believes this is reasonable, because it would allow for the potential execution

⁷⁵ For similar reasons, the Exchange will convert a market order to sell in a no-bid series into a limit order to sell at the minimum increment of the series. See Rule 6.13(b)(vi).

of sell orders in series with no Market-Maker bid and Market-Maker offers less than or equal to \$0.35 (which is the maximum possible Opening Collar offer for the midpoint to be \$0.175). The maximum midpoint of \$0.175 is reasonable because, with a higher maximum midpoint, there may be an increased risk of having a sell order execute at a potentially erroneous low price in a series that is not truly no-bid.

Additionally, permitting SLOOs to cross the midpoint of the Opening Collar in these series will also not create or increase an imbalance that would prevent a series from opening. For example, assume the Composite Market is 0 – 0.25, as is the Opening Collar. The midpoint of the Opening Collar is 0.125. If there is a buy order for one contract at \$0.05, and a market participant enters a SLOO to sell 10,000 contracts at \$0.05, the VMIM price (\$0.05) is within the Opening Collar, and therefore series would be eligible to open. Instead, assume the Composite Market is 0.25 – 0.50, as is the Opening Collar. The midpoint of the Composite Market is 0.375. If there is a buy order for one contract at \$0.05, and a market participant enters a SLOO to sell 10,000 contracts at \$0.05, the VMIM price is \$0.05, which is outside of the Opening Collar, and thus the series would not open.

Pursuant to the proposed rule change, market participants will no longer need to manually review opening auction updates to determine if it is permissible to submit orders to offset any imbalances. The proposed rule change reduces the types of orders market participants may submit following the cut-off time; however, the Exchange believes it may attract greater liquidity than the current system, because it will reduce uncertainty for market participants regarding the submission of orders following the cut-off time, which may encourage them to submit SLOOs to offset order imbalances. SLOOs will also provide market participants with a definitive order type they may use to contribute to the competitive

pricing within constituent option series following the cut-off time, without creating an imbalance condition that would prevent a series from opening. The Exchange believes elimination of the perceived risk described above will enhance liquidity in the modified opening auction process, which would contribute to a fair and orderly opening in constituent option series.

Market-Makers with an SPX appointment will continue to be able to submit bulk message bids and offers (including changes to and cancellations of bulk message bids and offers submitted before and after the cut-off time) following the cut-off time, as they may currently do today.⁷⁶ In the options market, it is important for Market-Makers to be able to provide liquidity to execute against interest submitted by other market participants. Pursuant to current Rule 8.7 (which the Exchange expects to move to Rule 5.51 in the shell Rulebook), a Market-Maker has general obligations to, among other things, engage (to a reasonable degree under existing circumstances) in dealings for the Market-Maker's own account when there exists a lack of price continuity, a temporary disparity between the supply of and demand for an option (*i.e.*, an imbalance), to compete with other Market-Makers to improve markets in its appointed classes, and to update market quotations in response to changed market conditions in its appointed classes. As described above, the

⁷⁶ The term "bulk message" in the proposed rule is equivalent to the term "quote" in the current rule. The current rule requires a Trading Permit Holder with which the Market-Maker is affiliated to establish, maintain, and enforce reasonably designed written policies and procedure (including information barriers, as applicable), taking into consideration the nature of the Trading Permit Holder's business and other facts and circumstances, to prevent the misuse of material nonpublic information (including the submission of strategy orders); and that a Market-Maker have no actual knowledge of any previously submitted strategy orders. Because the proposed rule change eliminates the concept of a strategy order and the ability for any orders submitted prior to the cut-off time to be modified after the cut-off time, the proposed rule change eliminates these requirements.

submission of strategy orders (or any orders, including orders intended to replicate vega exposure of expiring VIX derivatives) may lead to order imbalances in constituent option series. As noted above, Market-Maker quotes also play a significant role in the price protection measures the Exchange uses to protect against opening executions occurring at extreme prices. In order for the System to open settlement strip series for trading and to achieve the most competitive prices, the Exchange believes Market-Market participation throughout the entire modified opening auction process may add liquidity to the process and promote a fair and orderly opening and settlement process. Therefore, the Exchange believes it is important to continue to permit Market-Makers to submit quotes (and updates to their quotes) following the cut-off time.

Market-Maker quoting activity on exercise settlement value determination days will continue to be subject to all applicable Rules, including:

- Current Rule 4.1 (which the Exchange intends to move to Rule 8.1 in the shell Rulebook), which prohibits a Trading Permit Holder from engaging in acts or practices inconsistent with just and equitable principles of trade.
- Current Rule 4.6 (which the Exchange intends to move to Rule 8.6 in the shell Rulebook), which prohibits (among other things) a Trading Permit Holder from effecting or inducing the purchase, sale, or exercise of any security for the purpose of creating or inducing a false, misleading, or artificial appearance of activity in such security or in the underlying security, or for the purpose of unduly or improperly influencing the market price of such security or of the underlying security or for the purpose of making a price that does not reflect the true state of the market in such security or in the underlying security.

- Current Rule 4.17 (which the Exchange intends to move to Rule 8.17 in the shell Rulebook), which requires a Trading Permit Holder to establish, maintain, and enforce written policies and procedures reasonably designed, taking into consideration the nature of such Trading Permit Holder's business, to prevent the misuse, in violation of the Exchange Act and the Rules, of material, nonpublic information by the Trading Permit Holder or persons associated with the Trading Permit Holder.
- Current Rule 8.7 (which the Exchange intends to move to Rule 5.51 in the shell Rulebook), which requires Market-Makers to, among other things, enter into transactions in their market-making capacity that constitute a course of dealings reasonably calculated to contribute to the maintenance of a fair and orderly market, and not to make bids or offers or enter into transactions that are inconsistent with such course of dealings.

The Exchange believes the proposed rule changes regarding permissible market activity following the cut-off time will encourage all market participants to participate and quote competitively in the modified opening auction process, including to offset imbalances and contribute to price transparency and liquidity in constituent option series at the open, which will promote a fair and orderly opening on exercise settlement value determination days. All Trading Permit Holder activity following the cut-off time will continue to be subject to all applicable Rules, including 8.1, 8.6, and 8.17 (each as described above). The Exchange will continue to review all Trading Permit Holder activity in constituent series on exercise settlement value determination days for compliance with these and all other applicable Rules.

As noted above, the proposed rule change adds to the definition of settlement strip (currently referred to as “constituent option series” in the current rules) that the Exchange will determine the strike range of the settlement strip and will disseminate it to all subscribers to the Exchange’s data feeds that deliver opening auction update messages, no later than 8:45 a.m. Eastern Time on exercise settlement value determination days. The Exchange may update this strike range until 9:15 a.m. Eastern Time, and will disseminate any updates during that time period as soon as reasonably possible. Therefore, the final strike range of the settlement strip that the Exchange disseminates at 9:15 a.m. Eastern Time to market participants will be identical to that which the Exchange will use to calculate the VIX settlement value itself.

Currently, to select the settlement strip, the VIX methodology excludes from the universe of out-of-the-money SPX put and call options in any SPX series that have a zero bid price. The methodology then truncates the SPX series used to calculate the VIX settlement value after encountering two consecutive series having “zero-bid” prices, even if further out-of-the-money series have an opening trade price and are “non-zero” bid. The current VIX settlement methodology selects these series based on the opening trade prices, and then posts the actual series used to calculate the SOQ after the settlement. In other words, the settlement strip is set after the opening rotation in those series is complete, because only those series that have a bid remaining immediately after the open are eligible for inclusion in the settlement calculation.

As proposed, the Exchange will determine the strike range of the settlement strip prior to the settlement pursuant to an algorithm designed to approximate the same settlement strip as would be used pursuant to the current methodology based on various market inputs

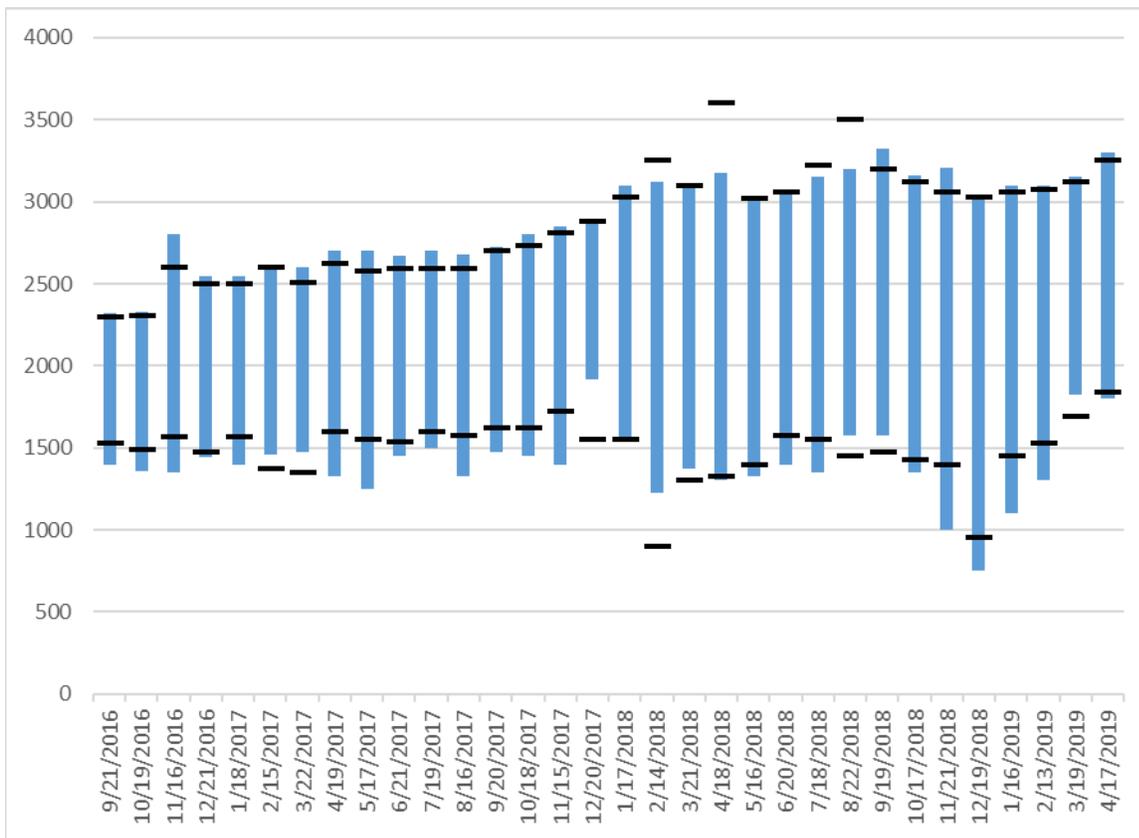
available on expiration settlement value determination days. As discussed above, one of the reasons the Exchange uses a tradable settlement is to provide market participants with the opportunity to convert the exposure of an expiring VIX derivative into a portfolio of series that comprise the settlement strip to maintain their vega risk exposure of expiring VIX derivatives. Market participants currently submit these vega replicating orders in the series they believe (but do not know when submitting them) will ultimately comprise the settlement strip. However, if their estimation is incorrect, their resulting vega risk exposure may not be perfectly replicated (*i.e.*, is subject to slippage). By setting the strike range of the final settlement strip no later than 9:15 a.m. Eastern Time, market participants will have sufficient time prior to the cut-off time to enter or modify their vega replicating orders to match the actual settlement strip. The Exchange believes determination of the strike range of the settlement strip prior to the cut-off time, and disseminating to market participants the high call strike and low call put of this strike range, is consistent with the purpose of the tradable settlement, as it will provide market participants with an opportunity to achieve accurate replication of the vega risk exposure of their expiring VIX derivatives.

The following charts contrast the strikes ranges actually employed in previous exercise settlement value determination days versus the strike ranges the proposed approach would have employed. The vertical lines identify the actual strikes used in the settlement strips on the exercise settlement value determination days during the timeframes in the charts, and the horizontal lines identify the highest call strike and lowest put strike that Exchange's algorithm would have used on those exercise settlement value determination days.⁷⁷

⁷⁷ Note the Exchange did not apply the algorithm it intends to use to make any

The Exchange applied the approach it intends to use to determine the strike range of the settlement strip to 32 previous exercise settlement value determination days for VIX derivatives with standard expirations between September 21, 2016 and April 19, 2019 to compare which settlement strip the formula would have selected to the actual settlement strip on those days. The Exchange also determined how use of the settlement strip determined by the formula as proposed would have changed the actual VIX settlement value on those days. There was no directional bias in the differences observed and the average absolute difference was 0.09 in those cases.

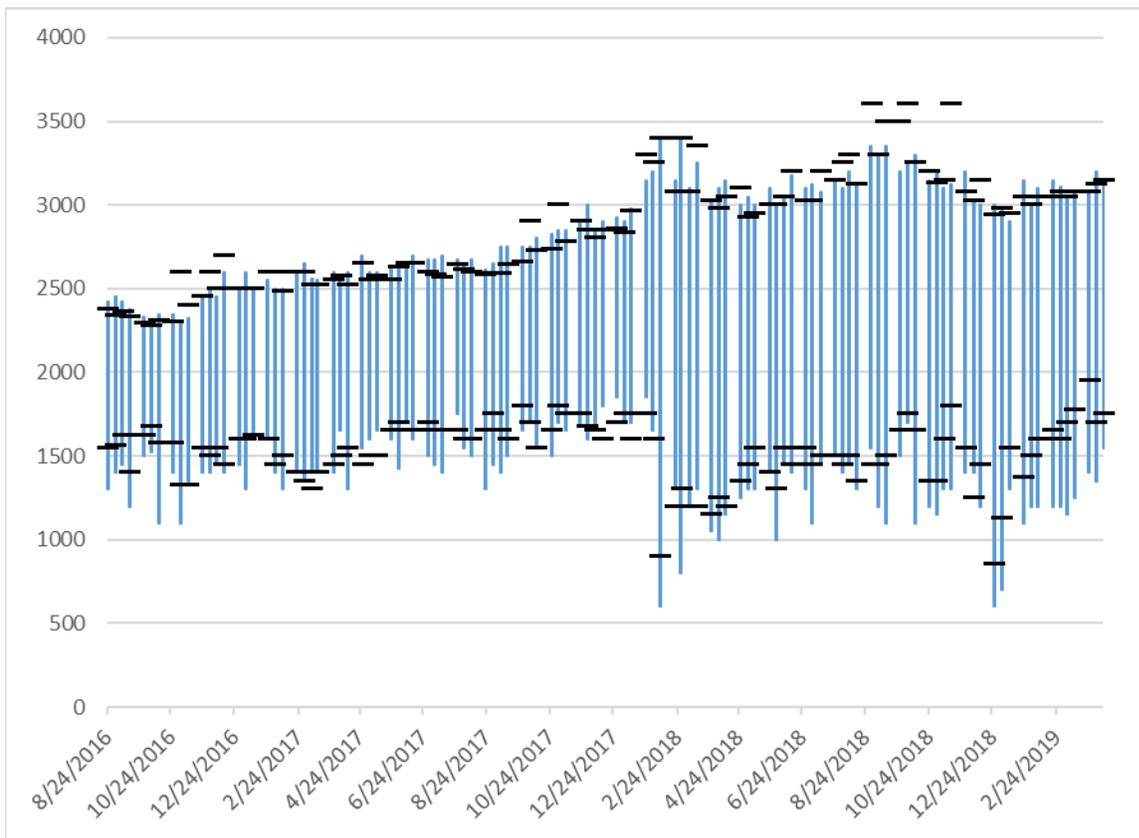
Comparison of Settlement Strip (VIX Derivatives with Standard Expirations)



updates to the strike range after 8:45 a.m. Eastern Time.

Similarly, the Exchange applied the approach it intends to use to determine the strike range of the settlement strip to 107 previous exercise settlement value determination days for VIX derivatives with weekly expirations between August 24, 2016 and April 10, 2019 to compare which settlement strip the formula would have selected to the actual settlement strip on those days. The Exchange also determined how use of the settlement strip determined by the formula as proposed would have changed the actual VIX settlement value on those days. There was no directional bias in the differences observed and the average absolute difference was 0.07 in those cases.

Comparison of Settlement Strip (VIX Derivatives with Weekly Expirations)



The Exchange intends to begin determining the strike range for the settlement strip prior to the opening rotation on the first exercise settlement value determination date following the technology migration (which would be October 9, 2019), and thus, this

selection process would apply to the settlement of VIX derivative positions that were created prior to this change. The Exchange believes the Exchange is providing the marketplace and investors with sufficient notice that the Exchange will determine the strike range for the settlement strip used to determine the exercise settlement value for all VIX derivative contracts listed for trading prior to and after the System migration. Additionally, because the approach the Exchange intends to use is designed to approximate the same settlement strip as would be used pursuant to the current methodology, and in light of the Exchange's analysis described above, the Exchange believes the proposed rule change will have a de minimis impact, if any, on the settlement strip (and thus the VIX settlement value) that would have been selected (and thus the VIX settlement value) if the current procedure had been applied to existing VIX derivatives.

Additionally, while the Exchange believes the current settlement process is not readily susceptible to manipulation, the proposed rule change may provide additional protection against manipulation since the Exchange will be solely responsible for determining the strike range used of the settlement strip. This is because the non-zero bid provision and two consecutive zero-bid provisions in the current VIX settlement methodology will no longer be used for determining the settlement strip used to calculate the exercise settlement value for VIX derivatives. The Exchange's algorithm that will determine the strike range of the settlement strip will employ numerous market inputs, including prices (both on the exercise settlement value determination day (including during the GTH trading day) and the previous trading day) of SPX options, SPY options, e-mini S&P 500 options. Therefore it is unlikely for one of these inputs of the Exchange's algorithm to have a material impact on the determination of the strike range. The Exchange

believes this feature will therefore will further enhance the modified opening auction process in a manner that contributes to a fair and orderly opening and settlement process and that protects investors.

Proposed Rule 5.31(j)(4) states the Exchange disseminates opening auction updates for constituent series as set forth in proposed paragraph (c) above, except the Exchange disseminates updates every five seconds, regardless of whether there are updates to the opening information since the previously disseminated update. As discussed above, on days other than exercise settlement value determination days, and for non-constituent series on those days, the Exchange will disseminate updates every minute if there are no updates to the previously dissemination update. The Exchange believes providing frequent, regular updates in constituent series will further enhance transparency in the modified opening auction process. Because the opening trading prices that will be used to determine the settlement values of expiring VIX derivatives will be determined by prices of the constituent option series, the Exchange believes regular auction updates, and thus additional transparency, will contribute (as it does today) to a fair and orderly auction and settlement process.⁷⁸

⁷⁸ Amendment No. 1 adds proposed Rule 5.31(j)(4) to the Initial Rule Filing to clarify a difference between the timing of opening auction update dissemination on non-exercise settlement value determination days (and for non-constituent series on those days) and for constituent series on those days. Amendment No. 1 updates subparagraph numbering in proposed paragraph (j) as appropriate.

Proposed Rule 5.31(j)(5) states the opening rotation on exercise settlement value determination days will be the same as the opening rotation that occurs on all other days, with one exception. Specifically, the opening rotation on exercise settlement value determination days will occur as follows:

- First, the System will conduct the Maximum Composite Width check.⁷⁹ As noted above, the Exchange will have different Maximum Composite Widths applicable to constituent series on exercise settlement value determination days. If the Composite Market of the series is not crossed and the Composite Width of the series is less than or equal to the Maximum Composite Width, the series is eligible to open (and the System will determine the Opening Trade Price pursuant to proposed subparagraph (A)(2), as described below). If the Composite Market of the series is crossed, or the Composite Width of the series is greater than the Maximum Composite Width, the series is ineligible to open. The Queuing Period for the series will continue (including the dissemination of opening auction updates) until the condition in the preceding sentence is satisfied (or the Exchange opens the series pursuant to proposed paragraph (h), as described above). For example, assume the Maximum Composite Width for a class is 0.50, and the Composite Market is 1.00 x 2.00, comprised of an appointed Market-Maker bulk message bid of 1.00 and an appointed Market-Maker bulk message offer of 2.00. There is no other interest in the Queuing Book. The series is not eligible to open, because the width of the

⁷⁹ Amendment No. 1 proposes to modify the application of the Maximum Composite Width Check on exercise settlement value determination days to provide additional price protection to the opening prices of constituent series. To add this price protection, Amendment No. 1 modifies the rule text in proposed subparagraph (j)(5) and the bulleted section accompanying this footnote.

Composite Market is greater than the Maximum Composite Width. As discussed above, on a non-exercise settlement value determination day, this series would be eligible to open, because there are no locked orders or quotes in the series or non-M Capacity orders.

On exercise settlement value determination days for constituent series, this part of the opening rotation process will be different than on other days. Pursuant to proposed Rule 5.31(j)(5)(A), if the Composite Width of the series is greater than the Maximum Composite Width, the series does not open, without exception.⁸⁰ In this case, the Queuing Period for the series continues (including the dissemination of opening auction updates) until the Composite Width is less than or equal to the Maximum Composite Width or until the Composite Market is not crossed (as applicable), or the Exchange opens the series pursuant to proposed paragraph (h).

While this approach is different than the proposed opening auction process on other days, it is similar to the current opening auction process in classes in which HAL is not activated at the open.⁸¹ The Exchange does not activate HAL at the open for SPX, and therefore the proposed approach is consistent with an opening condition that applies to the current modified opening auction process. The

⁸⁰ As is the case on all other days, no series is eligible to open if the Composite Market is crossed. However, as is the case on all other days, a series with a Composite Width that is greater than the Maximum Composite Width may still be eligible to open if other conditions are met.

⁸¹ See current Rule 6.2(d)(i)(C) and (D), which provides that a series will not open if the Exchange's best quote bid and best quote offer (which is equivalent to the Composite Market as proposed) is wider than a specified range (the intraday exchange prescribed width range). While the current Rules permit for a separate opening width (and the Exchange will open a series if the Exchange's best quote bid and best quote offer are outside of the range but other conditions are met), the practical effect is the same if, for example, the Exchange determine to make the intraday range the same as the opening range.

Exchange proposes to keep a similar opening requirement in place for the modified opening auction process, because the opening trading prices that will be used to determine the settlement values of expiring VIX derivatives will be determined by prices of interest in the market (subject to, but not capped by, an Exchange-determined price range to protect against potentially erroneous executions). The Exchange believes imposing a similar opening condition related to the Composite Width of constituent series for the modified opening auction process as it imposes today will contribute to a continued fair and orderly auction and settlement process.

- Second, after a series satisfies the Maximum Composite Width Check described in proposed subparagraph (j)(5)(A), if there are orders and quotes marketable against each other at a price not outside the Opening Collar, the System determines the Opening Trade Price for the series. As noted above, the Exchange will have different Opening Collar widths applicable to constituent series on exercise settlement value determination days. If there are no such orders or quotes, there is no Opening Trade Price. The System will determine the VMIM price pursuant to proposed subparagraphs (e)(2)(A) through (C), as described above (in the same manner as it determines the VMIM price on all other days). During the opening rotation on non-exercise settlement value determination days, the Opening Trade Price is the VMIM price that is not outside the Opening Collar. In other words, if the System determines that the VMIM price is outside of the Opening Collar, rather than not open, the System will use the collar limit as the opening price. For example, assume the Composite Market is 1.00 – 1.20, with size 100 x 100, and the Opening Collar range is 1.00 – 1.20. There is also an order to sell 100 at 1.25 and an

order to buy 101 for 1.25 in the Queuing Book. The VMIM is 1.25, which is outside the Opening Collar. The System instead will use 1.20 as the Opening Trade Price, and trade 100 contracts of the buy order with 100 contracts of the Market-Maker offer at 1.20, which is the VMIM price not outside the Opening Collar.

On exercise settlement value determination days for constituent series, this part of the opening rotation process will be different than on other days. Pursuant to proposed Rule 5.31(j)(5)(B)(iii), if (1) the VMIM price is outside the Opening Collar or (2) there would be unexecuted market orders (or remaining portions), the series would not open.⁸² In either case, the Queuing Period for the series continues (including the dissemination of opening auction updates) until the VMIM price is not outside the Opening Collar, or the Exchange opens the series pursuant to proposed paragraph (h). Using the same example as above, assume the Composite Market is 1.00 – 1.20, with size 100 x 100, and the Opening Collar is 1.00 – 1.20. There is also an order to sell 100 at 1.25 and an order to buy 101 for 1.25 in the Queuing Book. The VMIM is 1.25, which is outside the Opening Collar range, so the series is not eligible to open. As another example, using the same Composite Market and Opening Collar, but the only liquidity in the Queuing Book is a market order to buy 101. The VMIM is 1.20, but the series is not eligible to open because there would be an unexecuted portion of a market order remaining.

While this approach is different than the proposed opening auction process on other days, it is consistent with the current opening auction process in classes in

⁸² As is the case on all other days, on an exercise settlement value determination day, if the VMIM price is not outside the Opening Collar, it is the Opening Trade Price, and the System opens the series pursuant to proposed subparagraph (e)(3). See proposed subparagraph (j)(5)(B)(ii).

which HAL is not activated at the open.⁸³ The Exchange does not activate HAL at the open for SPX, and therefore the proposed approach is consistent with an opening condition that applies to the current modified opening auction process. The Exchange proposes to keep this same opening requirement in place for the modified opening auction process, because the opening trading prices that will be used to determine the settlement values of expiring VIX derivatives will be determined by prices of interest in the market (subject to, but not capped by, an Exchange-determined price range to protect against potentially erroneous executions). The Exchange believes maintaining this same opening condition for the modified opening auction process will contribute (as it does today) to a fair and orderly auction and settlement process.

- Third, if the System establishes an Opening Trade Price, the System executes orders and quotes in the Queuing Book at the Opening Trade Price, and if there is no Opening Trade Price, the System opens a series without a trade, as set forth in proposed Rule 5.31(e)(3).

Proposed Rule 5.31(j)(2)(A) states that, to the extent the Exchange makes a determination for the opening auction process pursuant to proposed Rule 5.31, it may make a separate determination for the modified opening auction process pursuant to proposed paragraph (j), including but not limited to (1) the Opening Collar width, (2) the Maximum Composite Width, and (3) the time intervals at which the Exchange disseminates opening auction updates. This is consistent with current Exchange authority pursuant to current Rule 6.2, Interpretation and Policy .05; the proposed rule change merely states this explicitly in

⁸³ See current Rule 6.2(d)(i)(C) and (D).

the Rules. Given the unique purpose of the modified opening auction process, the Exchange believes this flexibility is appropriate to permit the Exchange to facilitate a fair and orderly opening and settlement process.

Proposed Rule 5.31(j)(2)(B) states the Exchange may determine it is necessary in the interests of a fair and orderly market (for example, due to the existence of unusual market conditions or circumstances) to delay the time at which the System begins attempting to observe an opening rotation trigger pursuant to proposed subparagraph (d)(1) above for the modified opening auction process. If that delay occurs, the Exchange will determine a revised time and announce it to market participants as soon as reasonably possible. Additionally, to correspond to that revised time, the Exchange will adjust (1) the times at which it determines the strike range of the settlement strip, and (2) the order entry cut-off time.⁸⁴ Proposed Rule 5.31(j)(2)(C) states the Exchange may determine it is necessary in the interests of a fair and orderly market (for example, due to the existence of unusual market conditions or circumstances) to not use the modified opening auction process described in proposed paragraph (j). If that occurs, the Exchange will announce that to market participants as soon as reasonably possible. These proposed provisions are consistent with current Exchange authority pursuant to current Rule 6.2(e) and proposed Rule 5.31(h)⁸⁵; the proposed rule change merely states this explicitly in the Rules, and

⁸⁴ For example, if the Exchange determines to delay the time at which the System begins attempting to observe an opening rotation trigger from 9:30 a.m. to 12:00 p.m., the times between which the Exchange would determine the strike range of the settlement strip would move from 8:45 a.m. through 9:15 a.m. to 11:15 a.m. through 11:45 a.m.; and the cut-off time would move from 9:20 a.m. to 11:50 a.m.

⁸⁵ Amendment No. 1 clarifies in proposed Rule 5.31(j)(2)(D) that the Exchange will maintain and review records of any determinations it makes pursuant to proposed subparagraph (j)(2) in accordance with proposed paragraph (h), but makes no substantive changes to the proposed determinations the Exchange may make on

references the specific times in the proposed modified opening auction process that may be adjusted given such unusual conditions or circumstances.

Proposed Rule 5.31(j)(6) states a User may submit multiple orders and quotes in accordance with proposed subparagraph (j)(3). If, during the opening rotation, the System executes an order or quote of that User against another order or quote of that User, the Exchange does not deem that fact alone to cause these executions to be considered violations of Section 9(a)(1) of the Exchange Act, and instead will evaluate other facts and circumstances.⁸⁶ The Exchange reviews all activity, including these executions, during the modified opening auction process for compliance with the Rules and the Exchange Act, including current Rule 4.7 (which the Exchange intends to propose to move to Rule 10.6 in the shell Rulebook).⁸⁷

exercise settlement value determination days as set forth in the Initial Rule Filing.

⁸⁶ Section 9(a)(1) of the Exchange Act states it is unlawful for any person, directly or indirectly, by the use of the mails or any means or instrumentality of interstate commerce, or of any facility of any national securities exchange, or for any member of a national securities exchange, for the purpose of creating a false or misleading appearance of active trading in any security other than a government security, or a false or misleading appearance with respect to the market for any such security, (a) to effect any transaction in such security which involves no change in the beneficial ownership thereof, (b) to enter an order or orders for the purpose of such security with the knowledge that an order or orders of substantially the same size, at substantially the same time, and at substantially the same price, for the sale of any such security, has been or will be entered by or for the same or different parties, or (c) to enter any order or orders for the sale of any such security with the knowledge that an order or orders of substantially the same size, at substantially the same time, and at substantially the same price, for the purchase of such security, has been or will be entered by or for the same or different parties.

⁸⁷ Current Rule 4.17 (which the Exchange intends to move to Rule 8.17 in the shell Rulebook) states no TPH may effect or induce the purchase, sale, or exercise of any security for the purpose of creating or inducing a false, misleading, or artificial appearance of activity in such security or in the underlying security, or for the purpose of unduly or improperly influencing the market price of such security or of the underlying security or for the purpose of making a price that

Market participants may currently submit multiple orders and quotes to the modified opening auction process.⁸⁸ It is possible that a User's order or quote may execute against another order or quote of that User. For example, if a User today submits a strategy order prior to the cut-off time, and then submits a non-strategy order in response to an imbalance EOI following the cut-off time, it is possible for those orders to execute against each other during the opening rotation. Similarly, as proposed, a market participant may submit orders that replicate the vega exposure of its expiring VIX derivatives prior to the cut-off time, and then submit a SLOO after the cut-off time to contribute liquidity to the opening process (including to offset any imbalances). In both cases, the purpose of submitting the second order (assuming there were no other factors demonstrating a different purpose) was not to execute against the strategy order (and thus effect a transaction that involves no change in beneficial ownership to create a false or misleading appearance of active trading in SPX options), but rather to contribute liquidity to the modified opening auction process to offset an existing imbalance and to contribute to a fair and orderly opening process for that series.

The Exchange proposes to expressly state in the Rules that, subject to other facts and circumstances (such as that may demonstrate a different purpose for the submission of the orders), the Exchange will not consider self-trades resulting from the execution of a User's orders against each other during the opening rotation of the modified opening auction process to be violations of Section 9(a)(1) of the Exchange Act. If the Exchange observes

does not reflect the true state of the market in such security or in the underlying security. No TPH or any other person or organization subject to the jurisdiction of the Exchange may directly or indirectly participate in or have any interest in the profit of a manipulative operation or knowingly manage or finance a manipulative operation.

⁸⁸ While current Rule 6.2, Interpretation and Policy .01 does not explicitly state this principle, there is no restriction on market participants submitting multiple orders and quotes to the modified opening auction process.

other facts and circumstances surrounding these executions that demonstrate these orders may have been submitted for improper purposes (*i.e.*, not for bona fide reasons to submit orders to the modified opening auction process), the Exchange may review that activity for compliance with Section 9(a)(1) of the Exchange Act, and all other sections of the Securities Exchange Act of 1934 (the “Act”) and the Rules. The following are examples of occurrences of self-trades that, based on the facts and circumstances (assuming there were no other circumstances that may indicate manipulative intent), appear not to have been conducted for an improper purpose, and thus to be self-trades the Exchange would not deem to be violations of Section 9(a)(1) of the Exchange Act:

Example #1

Strike range of settlement strip determined at 9:15 a.m. Eastern Time: 2800 through 3200 calls, and 2800 through 1500 puts

Best SPX Market-Maker Quote Range in the 2000 put series at 9:20 a.m. Eastern Time: 0 – 0.20 (0 x 500 contracts)

Firm A submits vega replicating market order to buy 1,000,000 vega at 9:17 a.m. Eastern Time

Firm B submits vega replicating market order to buy 500,000 vega at 9:18 a.m. Eastern Time

This example focuses on the 2000 put series, in which Firm A has a market order to buy 1,000 contracts of the 2000 put and Firm B has a market order to buy 500 contracts of the 2000 put. At the 9:20 cut-off time, the book depth shows a GTC order to sell 10,000 of the 2000 put for 0.50 was previously submitted. The Opening Collar range is 0 to 0.25.⁸⁹ At 9:20 a.m., the then-current expected opening price based on orders and quotes in the Queuing Book is 0.50, at which price there are 1,500 contracts to buy (from the vega

⁸⁹ Assume for a Composite Bid of 0, the Exchange has determined the width of the Opening Collar is 0.30, and the range is determined by adding and subtracting half of that width to the Market-Maker quote midpoint of 0.10.

replicating orders of Firms A and B) and 1,500 contracts to sell (from the resting GTC order), which price is outside of the Opening Collar. As a result, the opening auction updates indicate more sellers are needed at a price of no more than 0.25 in order for the series to open. At 9:22 a.m., Firm A sees one of those messages and submits a SLOO to sell 500 of the 2000 put at 0.20. The same imbalance continues to exist (because more contracts will execute at a price of 0.50 than 0.20), so the opening auction updates continue, except the amount of the imbalance has been reduced (there are now 1,500 contracts to buy and 1,000 contracts to sell at that price). At 9:28 a.m., Firm C sees one of those messages and submits a SLOO to sell 500 at 0.15. As a result, there are 1500 contracts on each side of the market to open with an Opening Trade Price of 0.20. Assuming no other sellers enter the market prior to the opening of trading, during the opening rotation:

- Firm A buys 1,000 contracts of the 2000 put at 0.20
- Firm B buys 500 contracts of the 2000 put at 0.20
- Firm A sells 500 contracts of the 2000 put at 0.20
- Firm C sells 500 contracts of the 2000 put at 0.20
- Market-Makers sell 500 contracts of the 2000 put at 0.20

If the System executed some or all of the contracts comprising Firm A's SLOO against 500 contracts comprising part of Firm A's vega replicating market order to buy, based on this information (and in the absence of other facts and circumstances demonstrating a different intent), it appears Firm A submitted the SLOO because it deemed that submission to be in Firm A's interest to try to execute against contra-side interest causing the imbalance and ensure the series opens at a reasonable price, rather than to influence the settlement price.

Therefore, the Exchange would not view execution of Firm A's SLOO against its vega replicating order would not be deemed a violation of Section 9(a)(1) of the Exchange Act.

Example #2

Strike range of settlement strip determined at 9:15 a.m. Eastern Time: 2800 through 3200 calls, and 2800 through 1500 puts

Best SPX Market-Maker Quote Range in the 2800 call series at 9:20 a.m. Eastern Time: 10.00 – 11.00 (500 x 500 contracts)

Firm A submits vega replicating market order to buy 1,000,000 vega at 9:17 a.m. Eastern Time

Firm B submits vega replicating market order to sell 500,000 vega at 9:18 a.m. Eastern Time

This example focuses on the 2800 call series, in which Firm A has a market order to buy 200 contracts of the 2800 call and Firm B has a market order to sell 100 contracts of the 2800 call. The Opening Collar range is 10.10 – 10.90.⁹⁰ At 9:20 a.m., the then-current expected opening price based on orders and quotes in the Queuing Book is 11.00, at which price there are 200 contracts to buy (from the vega replicating order of Firm A) and 200 contracts to sell (from Market-Makers), which price is outside of the Opening Collar. As a result, the opening auction updates indicate more sellers are needed at a price of no more than 10.90 in order for the series to open. At 9:22 a.m., Firm A sees one of those messages and submits a SLOO to sell 100 of the 2800 call at 10.80. As a result, there are 200 contracts on each side of the market to open with an Opening Trade Price of 10.90. Assuming no other sellers enter the market prior to the opening of trading, during the opening rotation:

⁹⁰ Assume for a Composite Bid of 10.00, the Exchange has determined the width of the Opening Collar is 0.80, and the range is determined by adding and subtracting half of that width to the Market-Maker quote midpoint of 10.50.

- Firm A buys 200 contracts of the 2800 call at 10.90
- Firm A sells 100 contracts of the 2800 call at 10.90
- Firm B sells 100 contracts of the 2800 call at 10.90

In this case, the 100 contracts from Firm A's SLOO executed against 100 contracts of Firm A's vega replicating market order to buy. Based on this information (and in the absence of other facts and circumstances demonstrating a different intent), it appears Firm A submitted the SLOO because it deemed that submission to be in Firm A's interest to try to execute against contra-side interest causing the imbalance and ensure the series opens at a reasonable price, rather than to influence the settlement price. Therefore, the Exchange would not view execution of Firm A's SLOO against its vega replicating order would not be deemed a violation of Section 9(a)(1) of the Exchange Act.

Example #3

Strike range of settlement strip determined at 9:15 a.m.: 2800 through 3200 calls, and 2800 through 1500 puts

Firm A submits vega replicating market order to buy 3,000,000 vega at 9:17 a.m. Eastern Time
Eastern Time Firm B submits vega replicating market order to buy 1,500,000 vega at 9:18 a.m. Eastern Time

As a result, the opening auction updates indicate more sellers are needed in most of the strikes in the settlement strip series. At 9:25 a.m., Firm A determines from the auction update messages that the indicative VIX value may be above 17.5 with a total amount of 4,500,000 vega. Separately, the auction update messages indicate at least 1,000,000 vega to sell is necessary to open. Firm A responds to these auction update messages by submitting a SLOO in each series in the settlement strip that need sellers based on 1,000,000 vega with an indicative VIX value of 16.5. Other market participants also submit SLOOs to offset the

imbalances. The indicative VIX settlement value is 16.75. Assuming no other sellers enter the market prior to the opening of trading, during the opening rotation:

- Firm A buys 3,000,000 vega at 16.75
- Firm B buys 1,500,000 vega at 16.75
- Firm A sells 1,000,000 vega at 16.75
- MMs sell 3,500,000 vega at 16.75

If the System executed some or all of the contracts comprising Firm A's SLOO to sell against contracts comprising part of Firm A's vega replicating market order to buy, based on this information (and in the absence of other facts and circumstances demonstrating a different intent), it appears Firm A submitted the SLOO because it deemed that submission to be in Firm A's interest to try to execute against contra-side interest causing the imbalance and ensure the series opens at a reasonable price, rather than to influence the settlement price. Therefore, the Exchange would not view execution of Firm A's SLOO against its vega replicating order would not be deemed a violation of Section 9(a)(1) of the Exchange Act.

The Exchange has an adequate surveillance program in place to review options activity during the modified opening auction process that occurs on each exercise settlement value determination day. The Exchange is updating its surveillance program to reflect the proposed amendments to the process, and will continue to review its surveillance program to determine whether additional enhancements are necessary or appropriate.

The Exchange will continue to evaluate the modified opening auction process to identify potential enhancements, and intends to modify the procedure as it deems appropriate to contribute to a fair and orderly opening process. A fair and orderly opening

in these series benefits all market participants who trade in the volatility index derivatives and series that comprise the settlement strip.

The proposed rule change deletes current Rule 6.2, Interpretation and Policy .02(a) regarding the Exchange's ability to determine minimum size requirements for Market-Maker opening quotes. The Exchange currently does not impose a minimum size requirement for opening quotes, and does not intend to. The proposed rule change also deletes current Rule 6.2, Interpretation and Policy .02(b) regarding the Exchange's ability to set bid/ask differential requirements for Market-Makers' opening quotes, as the Exchange no longer intends to impose these requirements on Market-Maker opening quotes.⁹¹ As noted above, pursuant to current Rule 8.7 (which the Exchange expects to move to Rule 5.51 in the shell Rulebook), a Market-Maker has general obligations to, among other things, engage (to a reasonable degree under existing circumstances) in dealings for the Market-Maker's own account when there exists a lack of price continuity, a temporary disparity between the supply of and demand for an option (*i.e.*, an imbalance), to compete with other Market-Makers to improve markets in its appointed classes, and to update market quotations in response to changed market conditions in its appointed classes. Therefore, the Exchange believes at this time it is unnecessary to impose other obligations on Market-Makers. Additionally, the Exchange believes the proposed Maximum Composite Width and Opening Collars that generally must be satisfied for a series to open will further incentive Market-Makers to submit competitive quotes.

The proposed rule change deletes current Rule 6.2, Interpretation and Policy .05 regarding Exchange determinations, as it is duplicative of Rule 1.5 in the shell Rulebook.

⁹¹ The Exchange notes other options exchanges do not impose these requirements on Market-Makers at the opening of trading. See, e.g., C2 Rule 6.11.

The Exchange intends to add a rule regarding the use of aftermarket valuation processes for SPX options, as currently described in Rule 6.2, Interpretation and Policy .06, to the shell Rulebook in a separate rule filing. Because proposed Rule 5.31 relates solely to the opening of option series, the Exchange believes it is appropriate to move the provision regarding non-trading closing rotations to a different rule.

The proposed rule change moves the provision regarding how the existence of a limit up-limit down state in a class will impact the opening auction process from current Rule 6.2, Interpretation and Policy .07 to proposed Rule 5.31(i). The proposed rule change makes no substantive changes to that provision.

2. Statutory Basis

The Exchange believes the proposed rule change is consistent with the Securities Exchange Act of 1934 (the “Act”) and the rules and regulations thereunder applicable to the Exchange and, in particular, the requirements of Section 6(b) of the Act.⁹² Specifically, the Exchange believes the proposed rule change is consistent with the Section 6(b)(5)⁹³ requirements that the rules of an exchange be 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. Additionally, the Exchange believes the proposed rule change is consistent with

⁹² 15 U.S.C. 78f(b).

⁹³ 15 U.S.C. 78f(b)(5).

the Section 6(b)(5)⁹⁴ requirement that the rules of an exchange not be designed to permit unfair discrimination between customers, issuers, brokers, or dealers.

In particular, the proposed opening auction process is substantially similar to the Exchange's current opening auction process. The Exchange believes the proposed opening auction process will continue to create opportunities for price discovery based on then-current market conditions when the Exchange opens series for trading. The Exchange believes the proposed opening auction process will promote competitive liquidity and open series at prices consistent with then-current market conditions, and thus will promote a fair and orderly opening process.

While the proposed Queuing Period for the GTH trading session begins later than the current order entry period, the Exchange believes market participants will continue to have sufficient time prior to the GTH trading session to submit orders and quotes for participation in the opening auction process for that trading session. This proposed rule change promotes just and equitable principles of trade, as it provides market participants with the same amount of time to submit orders and quotes for participation in the opening auction process for the RTH trading session (approximately one hour).

The proposed rule change will remove impediments to and perfect the mechanism of a free and open market, and protect investors by ensuring market participants will continue to have access to robust information regarding the opening of a series. While the information the Exchange will disseminate in opening auction updates will differ slightly from the information the Exchange currently disseminates in EOIs, the information to be disseminated is equivalent to the currently disseminated information,

⁹⁴

Id.

and will continue to provide market participants with transparency that will permit them to participate in the opening auction process and contribute to, and benefit from, the price discovery the auction may provide. The Exchange believes the proposed opening auction updates are not designed to permit unfair discrimination between customers, issuers, brokers, or dealers, because all market participants may subscribe to the Exchange's data feeds that deliver these messages, and thus all market participants will have access to this information.

The proposed opening rotation triggers are substantially similar to the current events that will trigger series openings on the Exchange. The proposed trigger events will remove impediments to and perfect the mechanism of a free and open market and a national market system, as they ensure that during Regular Trading Hours, the underlying securities will have begun trading, or the underlying index values will have begun being disseminated, before the System opens a series for trading. As this information will not be available during Global Trading Hours, the Exchange believes it is appropriate to continue to begin the opening rotation for Global Trading Hours at a specified time. Additionally, the Exchange believes its current flexibility to open certain equity option classes and certain index option classes based on different triggers is no longer necessary. The Exchange believes opening all equity option classes based on the same trigger will protect investors by simplifying the process.

The proposed Maximum Composite Width Check and Opening Collar will protect investors by providing price protection measures to prevent orders from executing at extreme prices at the open. The Exchange believes it is appropriate to open a series under the proposed circumstances and provide marketable orders with an opportunity to

execute at a reasonable opening price (as discussed below), because there is minimal risk of execution at an extreme price. These proposed price protection mechanisms are substantially similar to the current price protection mechanisms the Exchange applies during the opening auction process, as they are based on all available pricing information, including Market-Maker bulk messages (which are generally used to price markets for series) and any quotes disseminated from away markets. The proposed price protection mechanisms, like the current price protection mechanisms, will also consider whether there are crossing orders or quotes when determining whether the opening width and trade price are reasonable. As a result, the Exchange believes the proposed process to determine an Opening Trade Price will incorporate then-current market conditions. While the Exchange proposes to calculate the maximum width and opening price range in a slightly different manner, the Exchange believes this proposed manner is reasonable and will promote a fair and orderly opening.

The Exchange believes the proposed modified opening auction process will protect investors, as it will continue to provide investors with the opportunity to submit vega replicating orders and other liquidity into the auction. The proposed modified opening auction process will function in a substantially similar manner as the current modified opening auction process. The proposed elimination of the concept of strategy orders and the adoption of a systematically enforced (and thus definitive) approach regarding the types of orders market participants may submit following the cut-off time is the primary difference between the current and proposed auction process. The Exchange believes this change will provide clarity and certainty to market participants regarding the orders and quotes they may submit following the cut-off time, which may encourage them to provide additional liquidity

to the modified opening auction process. All market participants will have the opportunity following the cut-off time to address order imbalances and provide price transparency to the auction process without the perceived risk of potentially modifying a previously submitted strategy order.

The Exchange believes the proposed rule change removes an impediment that may have discouraged market participants from submitting orders to offset imbalances and from providing price discovery in response to changing market conditions prior to the open. As a result, the Exchange believes the proposed rule change to permit all Users to submit SLOOs, which functionally cannot create or increase an imbalance, and to continue to let appointed SPX Market-Makers update quotes following the cut-off time, should result in increased liquidity in the modified opening auction process. This increased liquidity may increase execution opportunities, reduce imbalances in series in the settlement strip, promote price transparency, and increase the presence of quotes within the Opening Collar range. This will ultimately benefit all market participants who trade VIX derivatives and the SPX option series that comprise the settlement strip.

The proposed rule change that the Exchange will determine the strike range of the settlement strip prior to the opening of trading is consistent with one of the primary purposes of the modified opening auction process, which is to provide investors with an opportunity to replicate the vega risk exposure of their expiring VIX derivatives. The proposed rule change will benefit investors, as it will provide market participants with the opportunity to perfectly replicate this exposure, as they will have a minimum of five minutes to enter or modify their vega replicating orders prior to the cut-off time to conform them to the actual settlement strip.

The Exchange also believes the modified opening auction process, including the change pursuant to which the Exchange will determine the strike range of the settlement strip prior to the cut-off time, will continue to be designed to prevent fraudulent and manipulative acts and practices. The proposed rule change may provide additional protection against manipulation since the Exchange will be solely responsible for determining the strike range of the settlement strip, meaning it would become impossible for anyone to attempt to manipulate the VIX settlement process by attempting to artificially affect which SPX series will have zero bids at the opening. The Exchange believes this will therefore will further enhance the modified opening auction process in a manner that contributes to a fair and orderly opening and settlement process and that protects investors.

All market participants (include those that may submit orders and quotes following the cut-off time) will continue to be required to abide by current Rules 4.1 (Just and Equitable Principles of Trade), 4.7 (Manipulation), and 4.18 (Prevention of the Misuse of Material, Nonpublic Information). The Exchange will continue to conduct surveillance to monitor all trading activity in constituent option series on exercise settlement value determination days, including but not limited to monitoring the entry of orders and quotes following the cut-off time, as well as compliance with other Rules.

The proposed rule change is generally intended to align system functionality currently offered by the Exchange with other Cboe Affiliated Exchange functionality in order to provide a consistent technology offering for the Cboe Affiliated Exchanges. The proposed opening auction process (other than the modified opening auction process, which only occurs on the Exchange) is virtually identical to the opening auction process

on two other Cboe Affiliated Exchanges.⁹⁵ A consistent technology offering, in turn, will simplify the technology implementation, changes, and maintenance by Users of the Exchange that are also participants on Cboe Affiliated Exchanges. The Exchange believes this consistency will promote a fair and orderly national options market system. When Cboe Options migrates to the same technology as that of the Cboe Affiliated Exchanges, Users of the Exchange and other Cboe Affiliated Exchanges will have access to similar functionality on all Cboe Affiliated Exchanges. As such, the proposed rule change would foster cooperation and coordination with persons engaged in facilitating transactions in securities and would remove impediments to and perfect the mechanism of a free and open market and a national market system.

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 that is not necessary or appropriate in furtherance of the purposes of the Act. The Exchange does not believe that the proposed rule change to amend the standard opening auction process will impose any burden on intramarket competition that is not necessary or appropriate in furtherance of the purposes of the Act, because it will apply to orders and quotes of all market participants in the same manner. The order types that may not be accepted prior to the opening of trading, or that may not participate in the opening of trading, are substantially similar to the restrictions currently in place. The Exchange does not believe that the proposed rule change to amend the standard opening auction process will impose any burden on intermarket competition that is not necessary or appropriate in furtherance of the purposes of the Act, because it is designed to open

⁹⁵ See C2 Rule 6.11 and EDGX Options Rule 21.7.

series on the Exchange in a fair and orderly manner. The Exchange believes the proposed opening auction process will continue to provide market participants with an opportunity for price discovery based on then-current market conditions when the Exchange opens series for trading. This will facilitate the presence of sufficient liquidity in a series when it opens, and increase the ability of series to open at prices consistent with then-current market conditions (at the Exchange and other exchanges) rather than at extreme prices that could result in unfavorable executions to market participants. Additionally, as discussed above, the proposed opening auction process is substantially similar to the opening auction process in the rules of certain Cboe Affiliated Exchanges.⁹⁶

The Exchange does not believe that the proposed rule change to amend the modified opening auction process will impose any burden on intramarket competition that is not necessary or appropriate in furtherance of the purposes of the Act, because it will apply to orders and quotes of all market participants in the same manner. The proposed rule change will continue to permit all market participants to submit orders and quotes, including vega replicating orders, prior to a cut-off time that will provide market participants with sufficient time to respond to imbalances (which is consistent with the initial purpose of the cut-off time). All market participants may submit SLOOs following the cut-off time, which will be handled by the System in the same manner. Market-Makers will continue to have the ability to submit quotes following the cut-off time to offset imbalances and update the prices of their quotes in response to changing market conditions prior to the open.

⁹⁶ See C2 Rule 6.11 and EDGX Options Rule 21.7.

The Exchange does not believe the proposed rule change to amend the modified opening auction process will impose any burden on intermarket competition that is not necessary or appropriate in furtherance of the purposes of the Act, because it is designed to promote a fair and orderly opening and settlement process for series that trade on the Exchange and are used to determine the exercise settlement value for VIX derivatives. The Exchange believes the proposed rule change will contribute to price transparency and liquidity in the series that comprise the settlement strip, and thus to a fair, competitive, and orderly opening and settlement process on exercise settlement value determination days.

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

The Exchange neither solicited nor received comments on the proposed rule change.

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 Exchange consents, the Commission will:

- A. by order approve or disapprove such 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. 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 e-mail to rule-comments@sec.gov. Please include File Number SR-CBOE-2019-034 on the subject line.

Paper comments:

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

All submissions should refer to File Number SR-CBOE-2019-034. This file number should be included on the subject line if e-mail 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, D.C. 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; the Commission does not edit personal identifying information from submissions. You

should submit only information that you wish to make available publicly. All submissions should refer to File Number SR-CBOE-2019-034 and should be submitted on or before [insert date 21 days from publication in the Federal Register].

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.⁹⁷

Secretary

⁹⁷ 17 CFR 200.30-3(a)(12).

EXHIBIT 4A

Additions set forth in the proposed rule text of original SR-CBOE-2019-034 are underlined; deletions are [bracketed]. Additional changes being made pursuant to Amendment No. 1 to SR-CBOE-2019-034 are double-underlined; deletions being made pursuant to Amendment No. 1 to SR-CBOE-2019-034 are struck-through.

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Rules of Cboe Exchange, Inc.

(currently effective)

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[Rule 6.2. Hybrid Opening (and Sometimes Closing) System (“HOSS”)]

(a) Pre-Opening Period. For each trading session, the System begins accepting orders and quotes (subject to subparagraph (i) below) in all classes no earlier than 2:00 a.m. (all times are Central time) for Regular Trading Hours or 4:00 p.m. on the previous day for Global Trading Hours, but no later than 15 minutes prior to the expected initiation of an opening rotation at the times set forth in paragraph (b) below (the Exchange determines the specific time at which the pre-opening period begins for all classes).

(i) During the pre-opening period, the System accepts all quotes and all order types except immediate-or-cancel, fill-or-kill, intermarket sweep orders, and Market-Maker trade prevention orders. If an order entered during the pre-opening period for Regular Trading Hours is not eligible for book entry (including minimum volume, not held and market-if-touched orders), the System routes the order via the order handling system pursuant to Rule 6.12.

(ii) Beginning at a time (determined by the Exchange) no earlier than three hours prior to the expected initiation of an opening rotation for a series, the System disseminates expected opening information messages (“EOIs”) to all market participants that have elected to receive them at regular intervals of time (the length of which is determined by the Exchange) or less frequently if there are no updates to the opening information since the previously disseminated EOI. EOIs contain information based on resting orders and quotes in the Book, which may include the expected opening price (“EOP”), the expected opening size (“EOS”), any reason why a series may not open pursuant to paragraph (d) below, and any imbalance information, including the size and side of the imbalance. The EOP is the price at which any opening trade is expected to execute, and the EOS is the size of any expected opening trade. Notwithstanding the foregoing, the System only disseminates EOP and EOS messages: (A) if the width between the highest quote bid and lowest quote offer on the Exchange is no wider than the OEPW range (as defined below), in classes in which HAL is not activated for openings; or (B) if the width between the highest quote bid and lowest quote offer on the Exchange or disseminated by other exchanges is no wider than the OEPW range, in classes in which HAL is activated for openings (“HALO”).

(b) Opening Rotation Initiation and Notice.

(i) Unless unusual circumstances exist, the System initiates the opening rotation procedure on a class-by-class basis:

(A) for Regular Trading Hours:

(1) with respect to equity and ETP options, after the opening trade or the opening quote is disseminated in the market for the underlying security, or at 8:30 for classes determined by the Exchange (including over-the-counter equity classes); or

(2) with respect to index options, at 8:30 a.m., or at the later of 8:30 a.m. and the time the Exchange receives a disseminated index value for classes determined by the Exchange; and

(B) for Global Trading Hours, at 2:00 a.m.

For purposes of this subparagraph (i), the “market for the underlying security” is either the primary listing exchange or the first exchange to open the underlying security (as determined by the Exchange on a class-by-class basis).

(ii) Upon initiating the opening rotation procedure, the System notifies market participants of such opening rotation initiation (“Rotation Notice”).

(c) Opening Rotation Period. After the System initiates the opening rotation procedure and sends the Rotation Notice, the System begins the opening rotation period. During the opening rotation period for a series:

(i) The System matches and executes resting orders and quotes against each other in order to establish an opening BBO and trade price, if any, for the series.

(A) The opening trade price of a series is the “market-clearing” price, which is the single price at which the largest number of contracts in the Book can execute, leaving bids and offers that cannot trade with each other. If there are multiple prices at which the same number of contracts would clear, the System uses: (1) the price at or nearest to the midpoint of the opening BBO, or the widest offer (bid) point of the OEPW range if the midpoint is higher (lower) than that price point, in classes in which the Exchange has not activated HALO; or (2) the price at or nearest to the midpoint of the range consisting of the higher of the opening NBB and widest bid point of the OEPW range, and the lower of the opening NBO and widest offer point of the OEPW range, in classes in which the Exchange has activated HALO.

(B) All orders (except complex orders and, in classes in which the Exchange has not activated HALO, all-or-none orders and orders with a stop contingency) and quotes in a series in the Book prior to the opening rotation period participate in the opening rotation for that series. Contingency orders that participate in the opening rotation

may execute during the opening rotation period only if their contingencies are triggered.

(C) The System prioritizes orders and quotes in the following order: (I) market orders, (II) limit orders and quotes whose prices are better than the opening price, and (III) resting orders and quotes at the opening price. Contingency orders are prioritized as set forth in Rules 6.45.

(ii) The System continues to disseminate EOIs (the Exchange may determine a shorter interval length for the dissemination of EOIs during the Rotation Period than during the pre-opening period).

(iii) After a period of time determined by the Exchange for all classes (which period of time may be no longer than five seconds), the System opens series of a class in the following order:

(A) ATM and OTM Series with Expirations of 29 to 31 Days. During the initial interval (the Exchange determines the length of this interval for all classes, the length of which may be no longer than three seconds), the System opens:

(I) at-the-money (“ATM”) puts and a group of out-of-the-money (“OTM”) puts with strike prices closest to the ATM strike price, in a random order;

(II) ATM calls and a group of OTM calls with strike prices closest to the ATM strike price, in a random order; and

(III) alternating groups of further OTM puts and further OTM calls, each in a random order.

During this interval, the System attempts to open any ATM or OTM series that could not open on its first attempt.

(B) All Other Series. After the initial interval, the System opens all other series, and any series that did not open pursuant to subparagraph (A), in a random order, staggered over regular intervals of time (the Exchange determines the length and number of these intervals for all classes, the length of which intervals may be no longer than two seconds).

(C) Definition of ATM. For purposes of subparagraph (A), a put (call) is ATM if its strike price equals or is the first strike above (below) the last disseminated transaction price in the underlying security or index value on the same trading day. If the System begins an opening rotation for a class prior to receiving a disseminated transaction price in the underlying security or index value, the System will open all series in the class pursuant to subparagraph (B).

Subject to paragraph (d) below, the opening rotation period (including these intervals) may not exceed 30 seconds.

(d) Opening Conditions. Notwithstanding paragraph (c) above:

(i) In classes in which the Exchange has not activated HALO:

(A) if there are no quotes in the series on the Exchange, the System does not open the series;

(B) if the width between the Exchange's best quote bid and best quote offer (for purposes of this subparagraph (d)(i), the "opening quote") is wider than an acceptable opening price range (as determined by the Exchange on a class-by-class and premium basis) (the "Opening Exchange Prescribed Width range" or "OEPW range") and there are orders or quotes marketable against each other, the System does not open the series. However, if the opening quote width is no wider than the intraday acceptable price range as set forth in Rule 6.13(b)(v) (the "Intraday Exchange Prescribed Width range" or "IEPW range") and there are no orders or quotes marketable against each other, the System opens the series. If the opening quote width is wider than the IEPW range, the System does not open the series;

(C) if the opening trade price would be outside of the OEPW range, the System does not open the series; or

(D) if the opening trade would leave a market order imbalance (i.e., there are more market orders to buy or to sell for the particular series than can be satisfied by the orders and quotes on the opposite side), the System does not open the series. However, if a sell market order imbalance exists, there is no bid in the series and the best offer is \$0.50 or less, the System opens the series (see Rule 6.13(b)(vi)). If a sell market order imbalance exists, there is no bid in the series and the best offer is greater than \$0.50, the System does not open the series.

(ii) In classes in which the Exchange has activated HALO

(A) if there are no quotes on the Exchange or disseminated from at least one away exchange present in the series, the System does not open the series;

(B) if the width between the best quote bid and best quote offer, which quotes may consist of Market-Maker quotes or bids and offers disseminated from an away exchange(s) (for purposes of this subparagraph (d)(ii), the "opening quote") is wider than the OEPW range and there are orders or quotes marketable against each other or that lock or cross the OEPW range, the System does not open the series. However, if the opening quote width is no wider than the IEPW range and there are no orders or quotes marketable against each other or that lock or cross the OEPW range, the System opens the series. If the opening quote width is wider than the IEPW range, the System does not open the series. If the opening quote for a series consists solely of bids and offers disseminated from an away exchange(s), the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at the opening trade price. The System then exposes any remaining marketable buy (sell) orders at the widest offer (bid) point of the OEPW range or NBO (NBB), whichever is lower (higher);

(C) if the opening trade price would be outside of the OEPW range or NBBO, the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at an opening trade price not outside either the OEPW range or NBBO. The System then exposes any remaining marketable buy (sell) orders at the widest offer (bid) point of the OEPW range or NBO (NBB), whichever is lower (higher);

(D) if the opening trade would leave a market order imbalance (i.e., there are more market orders to buy or to sell for the particular series than can be satisfied by the orders and quotes on the opposite side), the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at the opening trade price. The System then exposes any remaining marketable buy (sell) orders at the widest offer (bid) point of the OEPW range or NBO (NBB), whichever is lower (higher); or

(E) if the opening quote bid (offer) or NBB (NBO) crosses the opening quote offer (bid) or NBO (NBB) by more than a specified amount determined by the Exchange on a class- by-class and premium basis, the System does not open the series. If the opening quote bid (offer) or NBB (NBO) crosses the opening quote offer (bid) or NBO (NBB) by no more than the specified amount, the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at the opening trade price, then exposes any remaining marketable buy (sell) orders at the widest offer (bid) point of the OEPW range or NBO (NBB), whichever is lower (higher). If the best away market bid and offer are inverted by no more than the specified amount, there is a marketable order on each side of the series, and the System opens the series, the System exposes the order on the side with the larger size and routes for execution the order on the side with the smaller size to an away exchange that is at the NBBO.

The exposure of any orders pursuant to this subparagraph (ii) will be conducted via HAL pursuant to Rule 6.14A for an exposure period designated by the Exchange for a class (which period of time will not exceed 1.5 seconds). Any remaining balances of orders not executed after the exposure period enter the book at their limit prices (to the extent consistent with Rule 6.53) or route via the order handling system pursuant to Rule 6.12 in accordance with their routing instructions.

Any orders exposed under this subparagraph (d)(ii) that are priced or would be executed at a price not within an acceptable tick distance from the initial HAL price will route via the order handling system pursuant to Rule 6.12 (except any remaining balances of opening contingency orders will be cancelled). The Exchange determines an “acceptable tick distance” on a class-by-class and premium basis, which may be no less than two minimum increment ticks and, in classes in which HAL is also activated intraday, will be the same as the acceptable tick distance established under Rule 6.13(b)(v).

(iii) If the System does not open a series pursuant to subparagraphs (i) or (ii), notwithstanding paragraph (c) above, the opening rotation period continues (including

dissemination of EOIs) until the condition causing the delay is satisfied or if the Exchange otherwise determines it is necessary to open a series in accordance with paragraph (e).

(e) Help Desk. Senior Help Desk personnel may deviate from the standard manner of the opening procedure in this Rule 6.2, including delay or compel the opening of any series in any option class, modify timers or settings described in this rule, and not use the modified opening procedure set forth in Interpretation and Policy .01 below, when necessary in the interests of commencing or maintaining a fair and orderly market, in the event of unusual market conditions or in the public interest. The Exchange will make and maintain records to document all determinations to deviate from the standard manner of the opening procedure, and periodically review these determinations for consistency with the interests of a fair and orderly market.

(f) Trading Halts. The procedure described in this Rule may be used to reopen a class or series after a trading halt; however, based on then-existing facts and circumstances, there may be no pre-opening period or a shorter pre-opening period than the regular pre-opening period. The Exchange will announce the reopening of a class or series after a trading halt as soon as practicable via verbal message to the trading floor and electronic message to Trading Permit Holders that request to receive such messages. The Exchange may also reopen a class after a trading halt as otherwise set forth in the Rules, including Rules 6.3, 6.3B, and 6.3C.

(g) Closing Rotation Procedure. For any series that opens pursuant to the procedure described in this Rule, senior Help Desk personnel and senior management may decide to conduct a closing rotation pursuant to the procedure described in this Rule after the end of the normal close of any trading session whenever the Exchange concludes that such action is appropriate in the interests of a fair and orderly market. The factors that may be considered in holding a closing rotation procedure include, but are not limited to, whether there has been a recent opening or reopening of trading in the underlying security, a declaration of a fast market, or a need for a closing procedure in connection with expiring individual security options, an end of the year procedure, or the restart of a procedure which is already in progress. The Exchange will notify Trading Permit Holders of the decision to conduct a closing rotation procedure as soon as practicable via verbal message to the trading floor and electronic message to Trading Permit Holders that request to receive such messages.

. . . Interpretations and Policies:

.01 Modified Opening Procedure for Series Used to Calculate the Exercise or Final Settlement Value of Expiring Volatility Index Derivatives.

(a) Definitions. For purposes of this Interpretation and Policy .01, the following terms have the meanings below:

Volatility Index Derivatives

The term “volatility index derivatives” means volatility index options listed for trading on the Exchange (as determined under Rule 24.9(a)(5) and (6)), (security) futures listed for trading on an affiliated designated contract market, or over-the-counter derivatives overlying a volatility index whose exercise or final settlement values, as applicable, are calculated pursuant to, or by reference to, as applicable, the modified opening procedure described in this Interpretation and Policy .01.

Exercise Settlement Value Determination Day

The term “exercise settlement value determination day” means a day on which the Exchange determines the exercise or final settlement value, as applicable, of expiring volatility index derivatives.

Constituent Option Series

The term “constituent option series” means all option series listed on the Exchange that are used to calculate the exercise or final settlement value, as applicable, of expiring volatility index derivatives.

Strategy Order

The Exchange deems individual orders (considered collectively) a market participant submits for participation in the modified opening procedure to be a “strategy order,” based on related facts and circumstances considered by the Exchange, only if the orders:

- (1) relate to the market participant’s positions in expiring volatility index derivatives;
- (2) are for option series with the expiration that the Exchange will use to calculate the exercise or final settlement value, as applicable, of the applicable volatility index derivative;
- (3) are for option series with strike prices approximating the range of series that are later determined to constitute the constituent option series for the applicable expiration;
- (4) are for put (call) options with strike prices equal to or less (greater) than the “at-the-money” strike price; and
- (5) have quantities approximating the weighting formula used to determine the exercise or final settlement value, as applicable, in accordance with the applicable volatility index methodology.

Non-Strategy Order

The term “non-strategy order” means any order (including an order in a constituent option series) a market participant submits for participation in the modified opening procedure that is not a strategy order (or a change to or cancellation of a strategy order). Examples of non-strategy orders include, but are not limited to:

- (1) a buy (sell) order in a constituent options series if an EOI disseminated no more than two minutes prior to the time a market participant submitted the order included a sell (buy) imbalance and the size of the order is no larger than the size of the imbalance in the EOI, regardless of whether the market participant previously submitted a strategy order or has positions in expiring volatility index derivatives; or
- (2) a Market-Maker bid or offer in a constituent option series, as set forth in paragraph (e) below.

(b) Use of Modified Opening Procedure. On exercise settlement value determination days, the Exchange uses the opening procedure described in Rule 6.2, as modified by this Interpretation and Policy .01, for constituent option series.

(c) Strategy Order Cut-Off Time. Market participants must submit strategy orders (which orders must be entered into the Exchange by a Trading Permit Holder), and change to or cancellations of strategy orders, prior to the strategy order cut-off time. Market participants may not change or cancel strategy orders after the strategy order cut-off time, unless the market participant submits the change or cancellation:

(1) after the series is open for trading; or

(2) prior to the non-strategy order cut-off time in order to correct a legitimate error, in which case the market participant submitting the change or cancellation must prepare and maintain a memorandum setting forth the circumstances that resulted in the change or cancellation and submit a copy of the memorandum to the Exchange no later than the next business day in a form and manner prescribed by the Exchange.

The Exchange determines the strategy order cut-off time on a class-by-class basis, which may be no earlier than 8:00 a.m. Chicago time and no later than the opening of trading in a series. The Exchange will announce any changes to the strategy order cut-off time at least one day prior to implementation.

(d) Non-Strategy Order Cut-Off Time. Market participants must submit non-strategy orders (which orders must be entered into the Exchange by a Trading Permit Holder) prior to the non-strategy order cut-off time. The Exchange determines the non-strategy order cut-off time on a class-by-class basis, which may be no earlier than 8:25 a.m. and no later than the opening of trading in a series. The Exchange will announce any changes to the non-strategy order cut-off time at least one day prior to implementation.

(e) Market-Makers. A Market-Maker with an appointment in a class with constituent option series may submit bids and offers in those series for bona fide market-making purposes in accordance with Rule 8.7 and the Exchange Act for its market-maker account prior to the open of trading for participation in the modified opening procedure. The Exchange will deem these bids and offers to be non-strategy orders, and will not deem them to be changes to or cancellations of previously submitted strategy orders, if:

(i) the Trading Permit Holder with which the Market-Maker is affiliated has established, maintains, and enforces reasonably designed written policies and procedures (including information barriers, as applicable), taking into consideration the nature of the Trading Permit Holder's business and other facts and circumstances, to prevent the misuse of material nonpublic information (including the submission of strategy orders); and

(ii) when submitting these bids and offers, the Market-Maker has no actual knowledge of any previously submitted strategy orders.

.02 Market-Maker Quotes. The Exchange determines on a class-by-class basis

(a) Minimum Size. The Exchange determines on a class-by-class basis the minimum number of contracts for the initial size of a Market-Maker's opening quote, which minimum must be at least one contract. For SPX, the Exchange may also determine minimum initial quote size on a premium basis and an expiration basis for series with expirations (1) no more than one week, (2) between one week and three months, (3) between three months and six months, (4) between six months and 15 months, and (5) 15 months or more.

(b) Bid/Ask Differentials. The Exchange determines on a class-by-class and premium basis the bid/ask differential requirements with which Market-Makers' opening quotes must comply, which minimum and differential requirements may be different for the opening than those applicable intraday. For SPX, the Exchange may determine bid/ask differential requirements for series with expirations of (1) less than 15 months and (2) 15 months or more, and for all other classes, the Exchange may determine bid/ask differential requirements for series with expiration of (1) less than nine months and (2) nine months or more.

.03 Reserved.

.04 Allocation Algorithm. The electronic allocation algorithm from Rule 6.45 that applies to a class intraday also applies to the class during rotations, unless the Exchange determines to apply a different algorithm from Rule 6.45 to a class during rotations if the Exchange deems necessary or appropriate. The Exchange may determine to apply a separate electronic allocation algorithm for series that open at a minimum price increment due to a sell market order imbalance.

.05 Exchange Determinations. The Exchange will announce to Trading Permit Holders all determinations it makes pursuant to Rule 6.2 and its Interpretations and Policies via Regulatory Circular with appropriate advanced notice or as otherwise provided. To the extent the Exchange authorizes a class to trade on a group basis pursuant to Rule 8.14, Interpretation and Policy .01, the Exchange may make determinations pursuant to this Rule 6.2 and its Interpretations and Policies on a group-by-group basis that would otherwise be made on a class-by-class basis.

.06 Aftermarket Valuation Processes:

(a) End-of-Month Theoretical Fair Value: Following the close of trading on the last business day of each calendar month, the Exchange will conduct special non-trading closing rotations for each series of S&P 500 Index ("SPX") options in order to determine the theoretical "fair value" of such series as of time of the close of trading in the underlying cash market. During such special non-trading closing rotations, LMMs or Select Market Makers ("SMMs") in the SPX options in each series of SPX options, may provide bid and offer quotations, the midpoint of which will reflect the theoretical fair value of the series of SPX options, as determined by the LMM(s) or SMM(s) pursuant to the LMMs' or SMMs' algorithmic analysis of relevant and available data.

Notwithstanding that trading in SPX options on the Exchange continues until fifteen minutes after the close of trading in the underlying cash market, on the last business day of each month, after the close of trading, the Exchange shall disseminate the fair value quotations as of the close of trading in the underlying cash market provided by the LMM(s) or SMM(s) as the quotations used to calculate the theoretical fair value for each series of SPX options, provided, however, that the Exchange may determine, in the interest of fair and orderly markets, not to disseminate such quotations.

(b) End-of-Day Indicative Value: Following the close of trading of Regular Trading Hours on any trading day that is not the last business day of a calendar month, in addition to the Exchange's regular end-of-day quotations, the Exchange may determine, on a series-by-series basis, to disseminate two-sided indicative values in non-expiring series of SPX options in the interests of fair and orderly markets. The Exchange will derive end-of-day indicative values for series of SPX options using an algorithm based on quotations and orders displayed in series of SPX options prior to the close of trading or, in the absence of sufficient quote and order data in a series, using generally accepted volatility and options pricing models as determined by the Exchange. End-of-day indicative values shall be clearly identified and disseminated via the Options Price Reporting Authority in an appropriate manner as determined by the Exchange and announced via Regulatory Circular.

.07 Limit Up-Limit Down States. If the underlying security for an option class is in a limit up- limit down state as defined in Rule 6.3A when the class moves to opening rotation, then all market orders in the system will be cancelled except market orders that are considered limit orders pursuant to Rule 6.13(b)(vi) and entered the previous trading day. In addition, if the opening rotation has already begun for an options class when a limit up-limit down state initiates for the underlying security of that class, market and limit orders will continue through the end of the opening rotation.]

EXHIBIT 4B

Additions set forth in the proposed rule text of original SR-CBOE-2019-034 are underlined; deletions are [bracketed]. Additional changes being made pursuant to Amendment No. 1 to SR-CBOE-2019-034 are double-underlined; deletions being made pursuant to Amendment No. 1 to SR-CBOE-2019-034 are struck-through.

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Rules of Cboe Exchange, Inc.

(effective as of October 7, 2019)

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CHAPTER 5. OPTIONS TRADING

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Section C. Electronic Trading

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Rule 5.31. Opening Auction Process

(a) *Definitions.* For purposes of the opening auction process in this Rule 5.31, the following terms have the meaning below. A term defined elsewhere in the Rules has the same meaning with respect to this Rule 5.31, unless otherwise defined below.

Composite Market

The term “Composite Market” means the market for a series comprised of (1) the higher of the then-current best appointed Market-Maker bulk message bid on the Exchange and the ABB (if there is an ABB) and (2) the lower of the then-current best appointed Market-Maker bulk message offer on the Exchange and the ABO (if there is an ABO). The term “Composite Bid (Offer)” means the bid (offer) used to determine the Composite Market.

Composite Width

The term “Composite Width” means the width of the Composite Market (*i.e.*, the width between the Composite Bid and the Composite Offer) of a series.

Maximum Composite Width

The term “Maximum Composite Width” means the amount that the Composite Width of a series may generally not be greater than for the series to open (subject to certain exceptions set forth in subparagraph (e)(1)). The Market Composite Widths for all classes are as follows (based on the Composite Bid for a series):

<u>Composite Bid</u>	<u>Market Composite Width</u>
<u>0 – 1.99</u>	<u>0.50</u>
<u>2.00 – 5.00</u>	<u>0.80</u>
<u>5.01 – 10.00</u>	<u>1.00</u>
<u>10.01 – 20.00</u>	<u>2.00</u>
<u>20.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>5.00</u>
<u>100.01 – 200.00</u>	<u>8.00</u>
<u>≥ 200.01</u>	<u>12.00</u>

The Exchange may modify these amounts during the opening auction process when it deems necessary to maintain a fair and orderly opening process (which modifications the Exchange disseminates to all subscribers to the Exchange’s data feeds that deliver opening auction updates).

Opening Auction Updates

The term “opening auction updates” means Exchange-disseminated messages that contain information regarding the expected opening of a series based on orders and quotes in the Queuing Book for the applicable trading session and, if applicable, the GTH Book, including the expected opening price, the then-current cumulative size on each side at or more aggressive than the expected opening price, and whether the series would open (and any reason it would not open pursuant to paragraphs (e) and (j)(5) below).

Opening Collar

The term “Opening Collar” means the price range that establishes limits at or inside of which the System determines the Opening Trade Price for a series. The Opening Collar is determined by determining the midpoint of the Composite Market, and adding and subtracting half of the applicable width amount above and below, respectively, that midpoint. The Opening Collar widths for all classes are as follows (based on the Composite Bid for a series):

<u>Composite Bid</u>	<u>Opening Collar Width</u>
<u>0 – 1.99</u>	<u>0.50</u>
<u>2.00 – 5.00</u>	<u>0.80</u>
<u>5.01 – 10.00</u>	<u>1.00</u>
<u>10.01 – 20.00</u>	<u>2.00</u>
<u>20.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>5.00</u>
<u>100.01 – 200.00</u>	<u>8.00</u>
<u>≥ 200.01</u>	<u>12.00</u>

The Exchange may modify these amounts during the opening auction process when it deems necessary to maintain a fair and orderly opening process (which modifications the Exchange disseminates to all subscribers to the Exchange’s data feeds that deliver opening auction updates).

Opening Trade Price

The term “Opening Trade Price” means the price at which the System executes opening trades in a series during the opening rotation.

Queuing Book

The term “Queuing Book” means the book into which Users may submit orders and quotes (and onto which GTC and GTD orders remaining on the Book from the previous trading session or trading day, as applicable, are entered) during the Queuing Period for participation in the applicable opening rotation. Orders and quotes on the Queuing Book may not execute until the opening rotation. The Queuing Book for the GTH opening auction process may be referred to as the “GTH Queuing Book,” and the Queuing Book for the RTH opening auction process may be referred to as the “RTH Queuing Book.”

Queuing Period

The term “Queuing Period” means the time period prior to the initiation of an opening rotation during which the System accepts orders and quotes in the Queuing Book for participation in the opening rotation for the applicable trading session.

(b) Queuing Period.

(1) Time. The Queuing Period begins at 2:00 a.m. for All Sessions Classes and at 7:30 a.m. for RTH Only Classes.

(2) Orders and Quotes. Orders and quotes on the Queuing Book are not eligible for execution until the opening rotation pursuant to paragraph (e) below. During the Queuing Period, the System accepts all orders and quotes that are available for a class and trading session pursuant to Rule 5.30, and they are all eligible for execution during the opening rotation, except as follows:

(A) the System rejects IOC and FOK orders during the Queuing Period;

(B) the System accepts orders and quotes with MTP Modifiers during the Queuing Period, but does not enforce them during the opening rotation;

(C) the System accepts all-or-none, stop, and stop-limit orders during the Queuing Period, but they do not participate in the opening rotation. The System enters any of these orders it receives during the Queuing Period into the Book following completion of the opening rotation (in time priority);

(D) the System converts all ISOs received prior to the completion of the opening rotation into non-ISOs; and

(E) complex orders do not participate in the opening auction process described in this Rule 5.31 and instead may participate in the COB Opening Process pursuant to Rule 5.33(c).

(c) Opening Auction Updates. Beginning at a time 2:00 a.m. for the GTH trading session and at 8:30 a.m. for the RTH trading session, and until the conclusion of the opening rotation for a series, the Exchange disseminates opening auction updates for the series. The Exchange disseminates opening auction updates every five seconds, unless there are no updates to the opening information since the previously disseminated update, in which case the Exchange disseminates updates every minute, to all subscribers to the Exchange's data feeds that deliver these messages until a series opens.

(d) Opening Rotation Triggers. Upon the occurrence of one of the following triggers for a class, the System initiates the opening rotation for the series in that class, and the Exchange disseminates a message to market participants indicating the initiation of the opening rotation.

(1) Regular Trading Hours. After a time period (which the Exchange determines for all classes) following the System's observation after 9:30 a.m. of the first disseminated (A) transaction on the primary market in the security underlying an equity option ~~on the primary market~~ or (B) index value for the index underlying an index option, the System initiates the opening rotation.

(2) Global Trading Hours. At 3:00 a.m., the System initiates the opening rotation.

(e) Opening Rotation. After the System initiates the opening rotation for a series pursuant to paragraph (d) above, the System conducts the opening rotation as follows.

(1) Maximum Composite Width Check.

(A) If the Composite Market of a series is not crossed, and the Composite Width of the series is less than or equal to the Maximum Composite Width, the series is eligible to open (and the System determines the Opening Trade Price pursuant to subparagraph (2) below).

(B) If the Composite Market of a series is not crossed, and the Composite Width of the series is greater than the Maximum Composite Width, but there are (i) no non-M Capacity (a) market orders or (b) buy (sell) limit orders with prices higher (lower) than the Composite Bid (Offer) and (ii) no orders or quotes marketable against each other, the series is eligible to open (and the System determines the Opening Trade Price pursuant to subparagraph (2) below).

(C) If the conditions in neither subparagraph (A) nor (B) are satisfied for a series, or if the Composite Market of a series is crossed, the series is ineligible to open. The Queuing Period for the series continues (including the dissemination of opening auction updates) until one of the conditions in subparagraph (A) or (B) for the series is satisfied, or the Exchange opens the series pursuant to paragraph (h).

(2) Opening Trade Price Determination. After a series satisfies the Maximum Composite Width Check in subparagraph (1), if there are orders and quotes marketable against each other at a price not outside the Opening Collar, the System determines the Opening Trade Price for the series. If there are no such orders or quotes, there is no Opening Trade Price. The Opening Trade Price is the volume-maximizing, imbalance minimizing price ("VMIM price") that is not outside the Opening Collar. The VMIM price is:

(A) the price at which the largest number of contracts can execute (i.e., the volume-maximizing price);

(B) if there are multiple volume-maximizing prices, the price at which the fewest number of contracts remain unexecuted (i.e., the imbalance-minimizing price); or

(C) if there are multiple volume-maximizing, imbalance-minimizing prices, (i) the highest (lowest) price, if there is a buy (sell) imbalance, or (ii) the price at or nearest to the midpoint of the Opening Collar, if there is no imbalance.

(3) Opening of a Series.

(A) Opening Trade. If the System establishes an Opening Trade Price, the System executes orders and quotes in the Queuing Book at the Opening Trade Price.

(i) The System prioritizes orders and quotes in the following order: market orders, limit orders and quotes with prices better than the Opening Trade Price, and orders and quotes at the Opening Trade Price.

(ii) The System allocates orders and quotes at the same price on a pro-rata basis pursuant to Rule 5.32. The System applies a Priority Customer overlay to all classes, except for SPX (including SPXW) and VIX (excluding VIXW).

(B) No Opening Trade. If there is no Opening Trade Price, the System opens a series without a trade.

(f) Unexecuted Orders and Quotes. Following the conclusion of the opening rotation, the System enters any unexecuted orders and quotes (or remaining portions) from the Queuing Book into the Book in time sequence (subject to a User's instructions), where they may be processed in accordance with Rule 5.32. The System cancels any unexecuted OPG orders (or remaining portions) following the conclusion of the opening rotation

(g) Opening Auction Process Following Trading Halts. The Exchange opens series using the same opening auction process described in this Rule following a trading halt in the class declared by the Exchange pursuant to Rule 5.20, except:

(1) Queuing Period. The Queuing Period begins immediately when the Exchange halts trading in the class.

(2) Open Orders. If a User has orders or quotes resting on the Book at the time of a trading halt, the System queues those orders and quotes in the Queuing Book for participation in the opening rotation following the trading halt, unless the User entered instructions to cancel its resting orders and quotes.

(3) Opening Time. The System initiates the opening rotation for a class upon the Exchange's determination to resume trading pursuant to Rule 5.20.

(h) Deviation from Standard Opening Auction Process. The Exchange may deviate from the standard manner of the opening auction process described in this Rule 5.31, including adjusting the timing of the opening rotation in any option class, modifying any time periods described in this Rule 5.31, and delaying or compelling the opening of a series if the opening width is wider than the Maximum Composite Width, when it believes it is necessary in the interests of a fair and orderly market. The Exchange makes and maintains records to document all determinations to deviate from the standard manner of the opening auction process, and periodically reviews these determinations for consistency with the interests of a fair and orderly market.

(i) Limit Up-Limit Down States. If the underlying security for a class is in a limit up-limit down state when the opening rotation begins for that class, then the System cancels or rejects all market orders. In addition, if the opening rotation has already begun for a class when a limit up-limit down state initiates for the underlying security of that class, market and limit orders will continue through the end of the opening rotation.

(j) Modified Opening Auction Process. All provisions set forth above in this Rule 5.31 apply to the opening of SPX constituent option series for Regular Trading Hours on exercise settlement value determination days, except as otherwise provided in this paragraph (j) (“modified opening auction process”). The Exchange uses the opening trade prices of SPX series that comprise the settlement strip (or the average of a series’ opening bid and ask if there is no opening trade in that series) established by the modified opening auction process to calculate the exercise or final settlement value, as applicable, of expiring VIX derivatives.

(1) Definitions. For purposes of the modified opening auction process, the following terms have the meanings below:

VIX Derivatives

The term “VIX derivatives” means VIX options listed for trading on the Exchange (as determined under Rule 4.11), VIX futures listed for trading on an affiliated designated contract market, or over-the-counter derivatives overlying VIX whose exercise or final settlement values, as applicable, are calculated pursuant to, or by reference to, as applicable, the modified opening auction process.

Exercise Settlement Value Determination Day

The term “exercise settlement value determination day” means a day on which the Exchange determines the exercise or final settlement value, as applicable, of expiring VIX derivatives.

Constituent Option Series

The term “constituent option series” means all SPX (including SPXW) option series listed on the Exchange with the expirations the Exchange uses to calculate the exercise or final settlement value of the expiring VIX derivative on exercise settlement value determination days.

Maximum Composite Width

The term “Maximum Composite Width” has the meaning set forth in paragraph (a) above, except the following Maximum Composite Widths apply to constituent option series on exercise settlement value determination days:

<u>Composite Bid</u>	<u>Market Composite Width</u>
<u>0 – 0.25</u>	<u>0.25</u>
<u>0.25 – 0.50</u>	<u>0.30</u>
<u>0.51 – 1.00</u>	<u>0.35</u>
<u>1.01 – 2.00</u>	<u>0.40</u>
<u>2.01 – 5.00</u>	<u>0.60</u>
<u>5.01 – 10.00</u>	<u>0.70</u>
<u>10.01 – 20.00</u>	<u>1.00</u>
<u>20.01 – 30.00</u>	<u>1.80</u>
<u>30.01 – 40.00</u>	<u>2.40</u>
<u>40.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>6.00</u>
<u>100.01 – 200.00</u>	<u>9.00</u>
<u>≥ 200.01</u>	<u>14.00</u>

Opening Collar

The term “Opening Collar” has the meaning set forth in paragraph (a) above, except the following Opening Collar widths apply to constituent option series on exercise settlement value determination days:

<u>Composite Bid</u>	<u>Opening Collar Width</u>
<u>0 – 0.25</u>	<u>0.25</u>
<u>0.25 – 0.50</u>	<u>0.30</u>
<u>0.51 – 1.00</u>	<u>0.35</u>
<u>1.01 – 2.00</u>	<u>0.40</u>
<u>2.01 – 5.00</u>	<u>0.60</u>
<u>5.01 – 10.00</u>	<u>0.70</u>
<u>10.01 – 20.00</u>	<u>1.00</u>
<u>20.01 – 30.00</u>	<u>1.80</u>
<u>30.01 – 40.00</u>	<u>2.40</u>
<u>40.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>6.00</u>
<u>100.01 – 200.00</u>	<u>9.00</u>
<u>≥ 200.01</u>	<u>14.00</u>

Settlement Strip

The term “settlement strip” means the constituent option series with strike prices within a specified strike range used to calculate the exercise or final settlement value, as applicable, of expiring VIX derivatives.

(A) The Exchange determines the highest call strike and lowest put strike that establish the this-strike range for the settlement strip pursuant to an algorithm.

(B) The at-the-money strike price is determined in accordance with the VIX methodology, using opening bid and offer information of each constituent option series.

(C) The Exchange disseminates the highest call strike and lowest put strike of the strike range to all subscribers through the Exchange’s data feeds that deliver opening auction update messages, no later than 8:45 a.m. on exercise settlement value determination days.

(DB) Each call (put) constituent option series with a strike price not outside the strike range (i.e., a strike price equal to or greater (less) than the at-the-money strike price up (down) to the highest call (lowest put) strike of the strike range) is included in the settlement strip.

(E) The Exchange may update the this-strike range until 9:15 a.m. pursuant to an algorithm due to changes to the value of VIX, prices of related futures, or other algorithmic inputs. The Exchange disseminates any updates as soon as reasonably possible.

Settlement Liquidity Opening Order and SLOO

The terms “settlement liquidity opening order” and “SLOO” mean a limit order in a constituent option series designated with an OPG Time-in-Force that Users may only submit to the Exchange on exercise settlement value determination days following the cut-off time described in subparagraph (3) below. The System cancels a SLOO (or remaining portion) that does not execute during the modified opening auction process. Users may not designate bulk messages as SLOOs.

(A) If the limit price of a buy (sell) SLOO crosses the midpoint of the then-current Opening Collar upon entry, the System adjusts its price to equal the midpoint of the Opening Collar (rounded up (down) to the nearest minimum increment), except for a sell SLOO when the midpoint is less than or equal to 0.175. If the midpoint of the Opening Collar changes during the Queuing Period, the System re-adjusts the SLOO’s price to equal to the new Opening Collar midpoint (rounded as provided above), up to its limit price.

(B) The prices of SLOOs in the Queuing Book are not disseminated in the Exchange’s Multicast PITCH and Multicast TOP data feeds.

(2) Exchange Determinations.

(A) To the extent the Exchange makes a determination for the opening auction process pursuant to this Rule 5.31, it may make a separate determination for the modified opening auction process pursuant to this paragraph (j), including but not limited to (i) the Opening Collar width, (ii) the Maximum Composite Width, and (iii) the time intervals at which the Exchange disseminates opening auction updates.

(B) The Exchange may determine it is necessary in the interests of a fair and orderly market (for example, due to the existence of unusual market conditions or circumstances) to delay the time at which the System begins attempting to observe an opening rotation trigger pursuant to subparagraph (d)(1) above for the modified opening auction process. If that occurs, the Exchange determines a revised time and announces it to market participants as soon as reasonably possible. Additionally, to correspond to that revised time, the Exchange adjusts (i) the times at which it determines the strike range of the settlement strip as described in subparagraph (1) above, and (ii) the cut-off time described in subparagraph (3) below.

(C) The Exchange may determine it is necessary in the interests of a fair and orderly market (for example, due to the existence of unusual market conditions or circumstances) to not use the modified opening auction process described in this paragraph (j). If that occurs, the Exchange will announce that to market participants as soon as reasonably possible.

(D) The Exchange maintains and reviews records of any determinations it makes pursuant to this subparagraph (j)(2) in accordance with paragraph (h) above.

(3) Order Entry Cut-Off Time. During the Queuing Period, the System accepts orders and quotes in constituent option series as follows, subject to paragraph (b)(2) above.

(A) The System accepts all orders and quotes (except SLOOs, which the System rejects), and any changes to or cancellations of those orders and quotes, prior to 9:20 a.m.

(B) After 9:20 a.m. (until the opening of trading in a series), the System only accepts (A) SLOOs (including changes to and cancellations of SLOOs); and (B) bulk message bids and offers (including changes to and cancellations of bulk message bids and offers submitted before and after the cut-off time) from Market-Makers with an SPX appointment. The System rejects all other orders and quotes (and all other changes to and cancellations of orders and quotes submitted prior to the cut-off time).

(4) Opening Auction Updates. The Exchange dissemination opening auction updates for constituent series as set forth in paragraph (c) above, except the Exchange disseminates updates every five seconds, regardless of whether there are updates to the opening information since the previously disseminated update.

(45) Opening Rotation. On exercise settlement value determination days, the opening rotation process occurs as set forth in paragraph (e) above, except the System performs the Maximum Composite Width Check and determines the Opening Trade Price pursuant to this subparagraph (45), in lieu of subparagraphs (e)(1) and (2), respectively (except as otherwise provided).

(A) Maximum Composite Width Check.

(i) If the Composite Market of the series is not crossed and the Composite Width of the series is less than or equal to the Maximum Composite Width, the series is eligible to open (and the System determines the Opening Trade Price pursuant to subparagraph (B) below).

(ii) If the Composite Width of the series is greater than the Maximum Composite Width or the Composite Market of the series is crossed, the series is ineligible to open. The Queuing Period for the series continues (including the dissemination of opening auction updates) until the condition in subparagraph (i) is satisfied, or the Exchange opens the series pursuant to paragraph (h).

(B) Opening Trade Price Determination. After a series satisfies the Maximum Composite Width Check in subparagraph (A)(~~e~~)(1), if there are orders and quotes marketable against each other at a price not outside the Opening Collar, the System determines the Opening Trade Price for the series. If there are no such orders or quotes, there is no Opening Trade Price.

(~~i~~A) The System determines the VMIM price pursuant to subparagraphs (e)(2)(A) through (C) above.

(~~ii~~B) If the VMIM price is not outside the Opening Collar, it is the Opening Trade Price, and the System opens the series pursuant to subparagraph (e)(3) above.

(~~iii~~C) If (~~a~~) the VMIM price is outside the Opening Collar or (~~b~~) there would be unexecuted market orders (or remaining portions), the series does not open. The Queuing Period for the series continues (including the dissemination of opening auction updates) until the VMIM price is not outside the Opening Collar, or the Exchange opens the series pursuant to paragraph (h).

(56) Opening Rotation Self-Trades. A User may submit multiple orders and quotes in accordance with subparagraph (3) above. If, during the opening rotation, the System executes an order or quote of that User against another order or quote of that User, the

Exchange does not deem that fact alone to cause these executions to be considered violations of Section 9(a)(1) of the Exchange Act, and instead will evaluate other facts and circumstances. The Exchange reviews all activity, including these executions, during the modified opening auction process for compliance with the Rules and the Exchange Act, including Rule 10.6 (which prohibits manipulation).

* * * * *

EXHIBIT 5A

(additions are underlined; deletions are [bracketed])

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Rules of Cboe Exchange, Inc.

(currently effective)

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[Rule 6.2. Hybrid Opening (and Sometimes Closing) System (“HOSS”)]

(a) Pre-Opening Period. For each trading session, the System begins accepting orders and quotes (subject to subparagraph (i) below) in all classes no earlier than 2:00 a.m. (all times are Central time) for Regular Trading Hours or 4:00 p.m. on the previous day for Global Trading Hours, but no later than 15 minutes prior to the expected initiation of an opening rotation at the times set forth in paragraph (b) below (the Exchange determines the specific time at which the pre-opening period begins for all classes).

(i) During the pre-opening period, the System accepts all quotes and all order types except immediate-or-cancel, fill-or-kill, intermarket sweep orders, and Market-Maker trade prevention orders. If an order entered during the pre-opening period for Regular Trading Hours is not eligible for book entry (including minimum volume, not held and market-if-touched orders), the System routes the order via the order handling system pursuant to Rule 6.12.

(ii) Beginning at a time (determined by the Exchange) no earlier than three hours prior to the expected initiation of an opening rotation for a series, the System disseminates expected opening information messages (“EOIs”) to all market participants that have elected to receive them at regular intervals of time (the length of which is determined by the Exchange) or less frequently if there are no updates to the opening information since the previously disseminated EOI. EOIs contain information based on resting orders and quotes in the Book, which may include the expected opening price (“EOP”), the expected opening size (“EOS”), any reason why a series may not open pursuant to paragraph (d) below, and any imbalance information, including the size and side of the imbalance. The EOP is the price at which any opening trade is expected to execute, and the EOS is the size of any expected opening trade. Notwithstanding the foregoing, the System only disseminates EOP and EOS messages: (A) if the width between the highest quote bid and lowest quote offer on the Exchange is no wider than the OEPW range (as defined below), in classes in which HAL is not activated for openings; or (B) if the width between the highest quote bid and lowest quote offer on the Exchange or disseminated by other exchanges is no wider than the OEPW range, in classes in which HAL is activated for openings (“HALO”).

(b) Opening Rotation Initiation and Notice.

(i) Unless unusual circumstances exist, the System initiates the opening rotation procedure on a class-by-class basis:

(A) for Regular Trading Hours:

(1) with respect to equity and ETP options, after the opening trade or the opening quote is disseminated in the market for the underlying security, or at 8:30 for classes determined by the Exchange (including over-the-counter equity classes); or

(2) with respect to index options, at 8:30 a.m., or at the later of 8:30 a.m. and the time the Exchange receives a disseminated index value for classes determined by the Exchange; and

(B) for Global Trading Hours, at 2:00 a.m.

For purposes of this subparagraph (i), the “market for the underlying security” is either the primary listing exchange or the first exchange to open the underlying security (as determined by the Exchange on a class-by-class basis).

(ii) Upon initiating the opening rotation procedure, the System notifies market participants of such opening rotation initiation (“Rotation Notice”).

(c) Opening Rotation Period. After the System initiates the opening rotation procedure and sends the Rotation Notice, the System begins the opening rotation period. During the opening rotation period for a series:

(i) The System matches and executes resting orders and quotes against each other in order to establish an opening BBO and trade price, if any, for the series.

(A) The opening trade price of a series is the “market-clearing” price, which is the single price at which the largest number of contracts in the Book can execute, leaving bids and offers that cannot trade with each other. If there are multiple prices at which the same number of contracts would clear, the System uses: (1) the price at or nearest to the midpoint of the opening BBO, or the widest offer (bid) point of the OEPW range if the midpoint is higher (lower) than that price point, in classes in which the Exchange has not activated HALO; or (2) the price at or nearest to the midpoint of the range consisting of the higher of the opening NBB and widest bid point of the OEPW range, and the lower of the opening NBO and widest offer point of the OEPW range, in classes in which the Exchange has activated HALO.

(B) All orders (except complex orders and, in classes in which the Exchange has not activated HALO, all-or-none orders and orders with a stop contingency) and quotes in a series in the Book prior to the opening rotation period participate in the opening rotation for that series. Contingency orders that participate in the opening rotation

may execute during the opening rotation period only if their contingencies are triggered.

(C) The System prioritizes orders and quotes in the following order: (I) market orders, (II) limit orders and quotes whose prices are better than the opening price, and (III) resting orders and quotes at the opening price. Contingency orders are prioritized as set forth in Rules 6.45.

(ii) The System continues to disseminate EOIs (the Exchange may determine a shorter interval length for the dissemination of EOIs during the Rotation Period than during the pre-opening period).

(iii) After a period of time determined by the Exchange for all classes (which period of time may be no longer than five seconds), the System opens series of a class in the following order:

(A) ATM and OTM Series with Expirations of 29 to 31 Days. During the initial interval (the Exchange determines the length of this interval for all classes, the length of which may be no longer than three seconds), the System opens:

(I) at-the-money (“ATM”) puts and a group of out-of-the-money (“OTM”) puts with strike prices closest to the ATM strike price, in a random order;

(II) ATM calls and a group of OTM calls with strike prices closest to the ATM strike price, in a random order; and

(III) alternating groups of further OTM puts and further OTM calls, each in a random order.

During this interval, the System attempts to open any ATM or OTM series that could not open on its first attempt.

(B) All Other Series. After the initial interval, the System opens all other series, and any series that did not open pursuant to subparagraph (A), in a random order, staggered over regular intervals of time (the Exchange determines the length and number of these intervals for all classes, the length of which intervals may be no longer than two seconds).

(C) Definition of ATM. For purposes of subparagraph (A), a put (call) is ATM if its strike price equals or is the first strike above (below) the last disseminated transaction price in the underlying security or index value on the same trading day. If the System begins an opening rotation for a class prior to receiving a disseminated transaction price in the underlying security or index value, the System will open all series in the class pursuant to subparagraph (B).

Subject to paragraph (d) below, the opening rotation period (including these intervals) may not exceed 30 seconds.

(d) Opening Conditions. Notwithstanding paragraph (c) above:

(i) In classes in which the Exchange has not activated HALO:

(A) if there are no quotes in the series on the Exchange, the System does not open the series;

(B) if the width between the Exchange's best quote bid and best quote offer (for purposes of this subparagraph (d)(i), the "opening quote") is wider than an acceptable opening price range (as determined by the Exchange on a class-by-class and premium basis) (the "Opening Exchange Prescribed Width range" or "OEPW range") and there are orders or quotes marketable against each other, the System does not open the series. However, if the opening quote width is no wider than the intraday acceptable price range as set forth in Rule 6.13(b)(v) (the "Intraday Exchange Prescribed Width range" or "IEPW range") and there are no orders or quotes marketable against each other, the System opens the series. If the opening quote width is wider than the IEPW range, the System does not open the series;

(C) if the opening trade price would be outside of the OEPW range, the System does not open the series; or

(D) if the opening trade would leave a market order imbalance (i.e., there are more market orders to buy or to sell for the particular series than can be satisfied by the orders and quotes on the opposite side), the System does not open the series. However, if a sell market order imbalance exists, there is no bid in the series and the best offer is \$0.50 or less, the System opens the series (see Rule 6.13(b)(vi)). If a sell market order imbalance exists, there is no bid in the series and the best offer is greater than \$0.50, the System does not open the series.

(ii) In classes in which the Exchange has activated HALO

(A) if there are no quotes on the Exchange or disseminated from at least one away exchange present in the series, the System does not open the series;

(B) if the width between the best quote bid and best quote offer, which quotes may consist of Market-Maker quotes or bids and offers disseminated from an away exchange(s) (for purposes of this subparagraph (d)(ii), the "opening quote") is wider than the OEPW range and there are orders or quotes marketable against each other or that lock or cross the OEPW range, the System does not open the series. However, if the opening quote width is no wider than the IEPW range and there are no orders or quotes marketable against each other or that lock or cross the OEPW range, the System opens the series. If the opening quote width is wider than the IEPW range, the System does not open the series. If the opening quote for a series consists solely of bids and offers disseminated from an away exchange(s), the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at the opening trade price. The System then exposes any remaining marketable buy (sell) orders at the widest offer (bid) point of the OEPW range or NBO (NBB), whichever is lower (higher);

(C) if the opening trade price would be outside of the OEPW range or NBBO, the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at an opening trade price not outside either the OEPW range or NBBO. The System then exposes any remaining marketable buy (sell) orders at the widest offer (bid) point of the OEPW range or NBO (NBB), whichever is lower (higher);

(D) if the opening trade would leave a market order imbalance (i.e., there are more market orders to buy or to sell for the particular series than can be satisfied by the orders and quotes on the opposite side), the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at the opening trade price. The System then exposes any remaining marketable buy (sell) orders at the widest offer (bid) point of the OEPW range or NBO (NBB), whichever is lower (higher); or

(E) if the opening quote bid (offer) or NBB (NBO) crosses the opening quote offer (bid) or NBO (NBB) by more than a specified amount determined by the Exchange on a class- by-class and premium basis, the System does not open the series. If the opening quote bid (offer) or NBB (NBO) crosses the opening quote offer (bid) or NBO (NBB) by no more than the specified amount, the System opens the series by matching orders and quotes to the extent they can trade and reports the opening trade, if any, at the opening trade price, then exposes any remaining marketable buy (sell) orders at the widest offer (bid) point of the OEPW range or NBO (NBB), whichever is lower (higher). If the best away market bid and offer are inverted by no more than the specified amount, there is a marketable order on each side of the series, and the System opens the series, the System exposes the order on the side with the larger size and routes for execution the order on the side with the smaller size to an away exchange that is at the NBBO.

The exposure of any orders pursuant to this subparagraph (ii) will be conducted via HAL pursuant to Rule 6.14A for an exposure period designated by the Exchange for a class (which period of time will not exceed 1.5 seconds). Any remaining balances of orders not executed after the exposure period enter the book at their limit prices (to the extent consistent with Rule 6.53) or route via the order handling system pursuant to Rule 6.12 in accordance with their routing instructions.

Any orders exposed under this subparagraph (d)(ii) that are priced or would be executed at a price not within an acceptable tick distance from the initial HAL price will route via the order handling system pursuant to Rule 6.12 (except any remaining balances of opening contingency orders will be cancelled). The Exchange determines an “acceptable tick distance” on a class-by-class and premium basis, which may be no less than two minimum increment ticks and, in classes in which HAL is also activated intraday, will be the same as the acceptable tick distance established under Rule 6.13(b)(v).

(iii) If the System does not open a series pursuant to subparagraphs (i) or (ii), notwithstanding paragraph (c) above, the opening rotation period continues (including

dissemination of EOIs) until the condition causing the delay is satisfied or if the Exchange otherwise determines it is necessary to open a series in accordance with paragraph (e).

(e) Help Desk. Senior Help Desk personnel may deviate from the standard manner of the opening procedure in this Rule 6.2, including delay or compel the opening of any series in any option class, modify timers or settings described in this rule, and not use the modified opening procedure set forth in Interpretation and Policy .01 below, when necessary in the interests of commencing or maintaining a fair and orderly market, in the event of unusual market conditions or in the public interest. The Exchange will make and maintain records to document all determinations to deviate from the standard manner of the opening procedure, and periodically review these determinations for consistency with the interests of a fair and orderly market.

(f) Trading Halts. The procedure described in this Rule may be used to reopen a class or series after a trading halt; however, based on then-existing facts and circumstances, there may be no pre-opening period or a shorter pre-opening period than the regular pre-opening period. The Exchange will announce the reopening of a class or series after a trading halt as soon as practicable via verbal message to the trading floor and electronic message to Trading Permit Holders that request to receive such messages. The Exchange may also reopen a class after a trading halt as otherwise set forth in the Rules, including Rules 6.3, 6.3B, and 6.3C.

(g) Closing Rotation Procedure. For any series that opens pursuant to the procedure described in this Rule, senior Help Desk personnel and senior management may decide to conduct a closing rotation pursuant to the procedure described in this Rule after the end of the normal close of any trading session whenever the Exchange concludes that such action is appropriate in the interests of a fair and orderly market. The factors that may be considered in holding a closing rotation procedure include, but are not limited to, whether there has been a recent opening or reopening of trading in the underlying security, a declaration of a fast market, or a need for a closing procedure in connection with expiring individual security options, an end of the year procedure, or the restart of a procedure which is already in progress. The Exchange will notify Trading Permit Holders of the decision to conduct a closing rotation procedure as soon as practicable via verbal message to the trading floor and electronic message to Trading Permit Holders that request to receive such messages.

. . . Interpretations and Policies:

.01 Modified Opening Procedure for Series Used to Calculate the Exercise or Final Settlement Value of Expiring Volatility Index Derivatives.

(a) Definitions. For purposes of this Interpretation and Policy .01, the following terms have the meanings below:

Volatility Index Derivatives

The term “volatility index derivatives” means volatility index options listed for trading on the Exchange (as determined under Rule 24.9(a)(5) and (6)), (security) futures listed for trading on an affiliated designated contract market, or over-the-counter derivatives overlying a volatility index whose exercise or final settlement values, as applicable, are calculated pursuant to, or by reference to, as applicable, the modified opening procedure described in this Interpretation and Policy .01.

Exercise Settlement Value Determination Day

The term “exercise settlement value determination day” means a day on which the Exchange determines the exercise or final settlement value, as applicable, of expiring volatility index derivatives.

Constituent Option Series

The term “constituent option series” means all option series listed on the Exchange that are used to calculate the exercise or final settlement value, as applicable, of expiring volatility index derivatives.

Strategy Order

The Exchange deems individual orders (considered collectively) a market participant submits for participation in the modified opening procedure to be a “strategy order,” based on related facts and circumstances considered by the Exchange, only if the orders:

- (1) relate to the market participant’s positions in expiring volatility index derivatives;
- (2) are for option series with the expiration that the Exchange will use to calculate the exercise or final settlement value, as applicable, of the applicable volatility index derivative;
- (3) are for option series with strike prices approximating the range of series that are later determined to constitute the constituent option series for the applicable expiration;
- (4) are for put (call) options with strike prices equal to or less (greater) than the “at-the-money” strike price; and
- (5) have quantities approximating the weighting formula used to determine the exercise or final settlement value, as applicable, in accordance with the applicable volatility index methodology.

Non-Strategy Order

The term “non-strategy order” means any order (including an order in a constituent option series) a market participant submits for participation in the modified opening procedure that is not a strategy order (or a change to or cancellation of a strategy order). Examples of non-strategy orders include, but are not limited to:

- (1) a buy (sell) order in a constituent options series if an EOI disseminated no more than two minutes prior to the time a market participant submitted the order included a sell (buy) imbalance and the size of the order is no larger than the size of the imbalance in the EOI, regardless of whether the market participant previously submitted a strategy order or has positions in expiring volatility index derivatives; or
- (2) a Market-Maker bid or offer in a constituent option series, as set forth in paragraph (e) below.

(b) Use of Modified Opening Procedure. On exercise settlement value determination days, the Exchange uses the opening procedure described in Rule 6.2, as modified by this Interpretation and Policy .01, for constituent option series.

(c) Strategy Order Cut-Off Time. Market participants must submit strategy orders (which orders must be entered into the Exchange by a Trading Permit Holder), and change to or cancellations of strategy orders, prior to the strategy order cut-off time. Market participants may not change or cancel strategy orders after the strategy order cut-off time, unless the market participant submits the change or cancellation:

(1) after the series is open for trading; or

(2) prior to the non-strategy order cut-off time in order to correct a legitimate error, in which case the market participant submitting the change or cancellation must prepare and maintain a memorandum setting forth the circumstances that resulted in the change or cancellation and submit a copy of the memorandum to the Exchange no later than the next business day in a form and manner prescribed by the Exchange.

The Exchange determines the strategy order cut-off time on a class-by-class basis, which may be no earlier than 8:00 a.m. Chicago time and no later than the opening of trading in a series. The Exchange will announce any changes to the strategy order cut-off time at least one day prior to implementation.

(d) Non-Strategy Order Cut-Off Time. Market participants must submit non-strategy orders (which orders must be entered into the Exchange by a Trading Permit Holder) prior to the non-strategy order cut-off time. The Exchange determines the non-strategy order cut-off time on a class-by-class basis, which may be no earlier than 8:25 a.m. and no later than the opening of trading in a series. The Exchange will announce any changes to the non-strategy order cut-off time at least one day prior to implementation.

(e) Market-Makers. A Market-Maker with an appointment in a class with constituent option series may submit bids and offers in those series for bona fide market-making purposes in accordance with Rule 8.7 and the Exchange Act for its market-maker account prior to the open of trading for participation in the modified opening procedure. The Exchange will deem these bids and offers to be non-strategy orders, and will not deem them to be changes to or cancellations of previously submitted strategy orders, if:

(i) the Trading Permit Holder with which the Market-Maker is affiliated has established, maintains, and enforces reasonably designed written policies and procedures (including information barriers, as applicable), taking into consideration the nature of the Trading Permit Holder's business and other facts and circumstances, to prevent the misuse of material nonpublic information (including the submission of strategy orders); and

(ii) when submitting these bids and offers, the Market-Maker has no actual knowledge of any previously submitted strategy orders.

.02 Market-Maker Quotes. The Exchange determines on a class-by-class basis

(a) Minimum Size. The Exchange determines on a class-by-class basis the minimum number of contracts for the initial size of a Market-Maker's opening quote, which minimum must be at least one contract. For SPX, the Exchange may also determine minimum initial quote size on a premium basis and an expiration basis for series with expirations (1) no more than one week, (2) between one week and three months, (3) between three months and six months, (4) between six months and 15 months, and (5) 15 months or more.

(b) Bid/Ask Differentials. The Exchange determines on a class-by-class and premium basis the bid/ask differential requirements with which Market-Makers' opening quotes must comply, which minimum and differential requirements may be different for the opening than those applicable intraday. For SPX, the Exchange may determine bid/ask differential requirements for series with expirations of (1) less than 15 months and (2) 15 months or more, and for all other classes, the Exchange may determine bid/ask differential requirements for series with expiration of (1) less than nine months and (2) nine months or more.

.03 Reserved.

.04 Allocation Algorithm. The electronic allocation algorithm from Rule 6.45 that applies to a class intraday also applies to the class during rotations, unless the Exchange determines to apply a different algorithm from Rule 6.45 to a class during rotations if the Exchange deems necessary or appropriate. The Exchange may determine to apply a separate electronic allocation algorithm for series that open at a minimum price increment due to a sell market order imbalance.

.05 Exchange Determinations. The Exchange will announce to Trading Permit Holders all determinations it makes pursuant to Rule 6.2 and its Interpretations and Policies via Regulatory Circular with appropriate advanced notice or as otherwise provided. To the extent the Exchange authorizes a class to trade on a group basis pursuant to Rule 8.14, Interpretation and Policy .01, the Exchange may make determinations pursuant to this Rule 6.2 and its Interpretations and Policies on a group-by-group basis that would otherwise be made on a class-by-class basis.

.06 Aftermarket Valuation Processes:

(a) End-of-Month Theoretical Fair Value: Following the close of trading on the last business day of each calendar month, the Exchange will conduct special non-trading closing rotations for each series of S&P 500 Index ("SPX") options in order to determine the theoretical "fair value" of such series as of time of the close of trading in the underlying cash market. During such special non-trading closing rotations, LMMs or Select Market Makers ("SMMs") in the SPX options in each series of SPX options, may provide bid and offer quotations, the midpoint of which will reflect the theoretical fair value of the series of SPX options, as determined by the LMM(s) or SMM(s) pursuant to the LMMs' or SMMs' algorithmic analysis of relevant and available data.

Notwithstanding that trading in SPX options on the Exchange continues until fifteen minutes after the close of trading in the underlying cash market, on the last business day of each month, after the close of trading, the Exchange shall disseminate the fair value quotations as of the close of trading in the underlying cash market provided by the LMM(s) or SMM(s) as the quotations used to calculate the theoretical fair value for each series of SPX options, provided, however, that the Exchange may determine, in the interest of fair and orderly markets, not to disseminate such quotations.

(b) End-of-Day Indicative Value: Following the close of trading of Regular Trading Hours on any trading day that is not the last business day of a calendar month, in addition to the Exchange's regular end-of-day quotations, the Exchange may determine, on a series-by-series basis, to disseminate two-sided indicative values in non-expiring series of SPX options in the interests of fair and orderly markets. The Exchange will derive end-of-day indicative values for series of SPX options using an algorithm based on quotations and orders displayed in series of SPX options prior to the close of trading or, in the absence of sufficient quote and order data in a series, using generally accepted volatility and options pricing models as determined by the Exchange. End-of-day indicative values shall be clearly identified and disseminated via the Options Price Reporting Authority in an appropriate manner as determined by the Exchange and announced via Regulatory Circular.

.07 Limit Up-Limit Down States. If the underlying security for an option class is in a limit up- limit down state as defined in Rule 6.3A when the class moves to opening rotation, then all market orders in the system will be cancelled except market orders that are considered limit orders pursuant to Rule 6.13(b)(vi) and entered the previous trading day. In addition, if the opening rotation has already begun for an options class when a limit up-limit down state initiates for the underlying security of that class, market and limit orders will continue through the end of the opening rotation.]

EXHIBIT 5B

(additions are underlined; deletions are [bracketed])

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Rules of Cboe Exchange, Inc.

(effective as of October 7, 2019)

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CHAPTER 5. OPTIONS TRADING

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Section C. Electronic Trading

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Rule 5.31. Opening Auction Process

(a) Definitions. For purposes of the opening auction process in this Rule 5.31, the following terms have the meaning below. A term defined elsewhere in the Rules has the same meaning with respect to this Rule 5.31, unless otherwise defined below.

Composite Market

The term “Composite Market” means the market for a series comprised of (1) the higher of the then-current best appointed Market-Maker bulk message bid on the Exchange and the ABB (if there is an ABB) and (2) the lower of the then-current best appointed Market-Maker bulk message offer on the Exchange and the ABO (if there is an ABO). The term “Composite Bid (Offer)” means the bid (offer) used to determine the Composite Market.

Composite Width

The term “Composite Width” means the width of the Composite Market (i.e., the width between the Composite Bid and the Composite Offer) of a series.

Maximum Composite Width

The term “Maximum Composite Width” means the amount that the Composite Width of a series may generally not be greater than for the series to open (subject to certain exceptions set forth in subparagraph (e)(1)). The Market Composite Widths for all classes are as follows (based on the Composite Bid for a series):

<u>Composite Bid</u>	<u>Market Composite Width</u>
<u>0 – 1.99</u>	<u>0.50</u>
<u>2.00 – 5.00</u>	<u>0.80</u>
<u>5.01 – 10.00</u>	<u>1.00</u>
<u>10.01 – 20.00</u>	<u>2.00</u>
<u>20.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>5.00</u>
<u>100.01 – 200.00</u>	<u>8.00</u>
<u>≥ 200.01</u>	<u>12.00</u>

The Exchange may modify these amounts during the opening auction process when it deems necessary to maintain a fair and orderly opening process (which modifications the Exchange disseminates to all subscribers to the Exchange’s data feeds that deliver opening auction updates).

Opening Auction Updates

The term “opening auction updates” means Exchange-disseminated messages that contain information regarding the expected opening of a series based on orders and quotes in the Queuing Book for the applicable trading session and, if applicable, the GTH Book, including the expected opening price, the then-current cumulative size on each side at or more aggressive than the expected opening price, and whether the series would open (and any reason it would not open pursuant to paragraphs (e) and (j)(5) below).

Opening Collar

The term “Opening Collar” means the price range that establishes limits at or inside of which the System determines the Opening Trade Price for a series. The Opening Collar is determined by determining the midpoint of the Composite Market, and adding and subtracting half of the applicable width amount above and below, respectively, that midpoint. The Opening Collar widths for all classes are as follows (based on the Composite Bid for a series):

<u>Composite Bid</u>	<u>Opening Collar Width</u>
<u>0 – 1.99</u>	<u>0.50</u>
<u>2.00 – 5.00</u>	<u>0.80</u>
<u>5.01 – 10.00</u>	<u>1.00</u>
<u>10.01 – 20.00</u>	<u>2.00</u>
<u>20.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>5.00</u>
<u>100.01 – 200.00</u>	<u>8.00</u>
<u>≥ 200.01</u>	<u>12.00</u>

The Exchange may modify these amounts during the opening auction process when it deems necessary to maintain a fair and orderly opening process (which modifications the Exchange disseminates to all subscribers to the Exchange's data feeds that deliver opening auction updates).

Opening Trade Price

The term "Opening Trade Price" means the price at which the System executes opening trades in a series during the opening rotation.

Queuing Book

The term "Queuing Book" means the book into which Users may submit orders and quotes (and onto which GTC and GTD orders remaining on the Book from the previous trading session or trading day, as applicable, are entered) during the Queuing Period for participation in the applicable opening rotation. Orders and quotes on the Queuing Book may not execute until the opening rotation. The Queuing Book for the GTH opening auction process may be referred to as the "GTH Queuing Book," and the Queuing Book for the RTH opening auction process may be referred to as the "RTH Queuing Book."

Queuing Period

The term "Queuing Period" means the time period prior to the initiation of an opening rotation during which the System accepts orders and quotes in the Queuing Book for participation in the opening rotation for the applicable trading session.

(b) Queuing Period.

(1) Time. The Queuing Period begins at 2:00 a.m. for All Sessions Classes and at 7:30 a.m. for RTH Only Classes.

(2) Orders and Quotes. Orders and quotes on the Queuing Book are not eligible for execution until the opening rotation pursuant to paragraph (e) below. During the Queuing Period, the System accepts all orders and quotes that are available for a class and trading session pursuant to Rule 5.30, and they are all eligible for execution during the opening rotation, except as follows:

(A) the System rejects IOC and FOK orders during the Queuing Period;

(B) the System accepts orders and quotes with MTP Modifiers during the Queuing Period, but does not enforce them during the opening rotation;

(C) the System accepts all-or-none, stop, and stop-limit orders during the Queuing Period, but they do not participate in the opening rotation. The System enters any of these orders it receives during the Queuing Period into the Book following completion of the opening rotation (in time priority);

(D) the System converts all ISOs received prior to the completion of the opening rotation into non-ISOs; and

(E) complex orders do not participate in the opening auction process described in this Rule 5.31 and instead may participate in the COB Opening Process pursuant to Rule 5.33(c).

(c) Opening Auction Updates. Beginning at 2:00 a.m. for the GTH trading session and at 8:30 a.m. for the RTH trading session, and until the conclusion of the opening rotation for a series, the Exchange disseminates opening auction updates for the series. The Exchange disseminates opening auction updates every five seconds, unless there are no updates to the opening information since the previously disseminated update, in which case the Exchange disseminates updates every minute, to all subscribers to the Exchange's data feeds that deliver these messages until a series opens.

(d) Opening Rotation Triggers. Upon the occurrence of one of the following triggers for a class, the System initiates the opening rotation for the series in that class, and the Exchange disseminates a message to market participants indicating the initiation of the opening rotation.

(1) Regular Trading Hours. After a time period (which the Exchange determines for all classes) following the System's observation after 9:30 a.m. of the first disseminated (A) transaction on the primary market in the security underlying an equity option or (B) index value for the index underlying an index option, the System initiates the opening rotation.

(2) Global Trading Hours. At 3:00 a.m., the System initiates the opening rotation.

(e) Opening Rotation. After the System initiates the opening rotation for a series pursuant to paragraph (d) above, the System conducts the opening rotation as follows.

(1) Maximum Composite Width Check.

(A) If the Composite Market of a series is not crossed, and the Composite Width of the series is less than or equal to the Maximum Composite Width, the series is eligible to open (and the System determines the Opening Trade Price pursuant to subparagraph (2) below).

(B) If the Composite Market of a series is not crossed, and the Composite Width of the series is greater than the Maximum Composite Width, but there are (i) no non-M Capacity (a) market orders or (b) buy (sell) limit orders with prices higher (lower) than the Composite Bid (Offer) and (ii) no orders or quotes marketable against each other, the series is eligible to open (and the System determines the Opening Trade Price pursuant to subparagraph (2) below).

(C) If the conditions in neither subparagraph (A) nor (B) are satisfied for a series, or if the Composite Market of a series is crossed, the series is ineligible to open. The Queuing Period for the series continues (including the dissemination of opening auction updates) until one of the conditions in subparagraph (A) or (B) for the series is satisfied, or the Exchange opens the series pursuant to paragraph (h).

(2) Opening Trade Price Determination. After a series satisfies the Maximum Composite Width Check in subparagraph (1), if there are orders and quotes marketable against each other at a price not outside the Opening Collar, the System determines the Opening Trade Price for the series. If there are no such orders or quotes, there is no Opening Trade Price. The Opening Trade Price is the volume-maximizing, imbalance minimizing price (“VMIM price”) that is not outside the Opening Collar. The VMIM price is:

(A) the price at which the largest number of contracts can execute (i.e., the volume-maximizing price);

(B) if there are multiple volume-maximizing prices, the price at which the fewest number of contracts remain unexecuted (i.e., the imbalance-minimizing price); or

(C) if there are multiple volume-maximizing, imbalance-minimizing prices, (i) the highest (lowest) price, if there is a buy (sell) imbalance, or (ii) the price at or nearest to the midpoint of the Opening Collar, if there is no imbalance.

(3) Opening of a Series.

(A) Opening Trade. If the System establishes an Opening Trade Price, the System executes orders and quotes in the Queuing Book at the Opening Trade Price.

(i) The System prioritizes orders and quotes in the following order: market orders, limit orders and quotes with prices better than the Opening Trade Price, and orders and quotes at the Opening Trade Price.

(ii) The System allocates orders and quotes at the same price on a pro-rata basis pursuant to Rule 5.32. The System applies a Priority Customer overlay to all classes, except for SPX (including SPXW) and VIX (excluding VIXW).

(B) No Opening Trade. If there is no Opening Trade Price, the System opens a series without a trade.

(f) Unexecuted Orders and Quotes. Following the conclusion of the opening rotation, the System enters any unexecuted orders and quotes (or remaining portions) from the Queuing Book into the Book in time sequence (subject to a User’s instructions), where they may be processed in accordance with Rule 5.32. The System cancels any unexecuted OPG orders (or remaining portions) following the conclusion of the opening rotation

(g) Opening Auction Process Following Trading Halts. The Exchange opens series using the same opening auction process described in this Rule following a trading halt in the class declared by the Exchange pursuant to Rule 5.20, except:

(1) Queuing Period. The Queuing Period begins immediately when the Exchange halts trading in the class.

(2) Open Orders. If a User has orders or quotes resting on the Book at the time of a trading halt, the System queues those orders and quotes in the Queuing Book for participation in the opening rotation following the trading halt, unless the User entered instructions to cancel its resting orders and quotes.

(3) Opening Time. The System initiates the opening rotation for a class upon the Exchange's determination to resume trading pursuant to Rule 5.20.

(h) Deviation from Standard Opening Auction Process. The Exchange may deviate from the standard manner of the opening auction process described in this Rule 5.31, including adjusting the timing of the opening rotation in any option class, modifying any time periods described in this Rule 5.31, and delaying or compelling the opening of a series if the opening width is wider than the Maximum Composite Width, when it believes it is necessary in the interests of a fair and orderly market. The Exchange makes and maintains records to document all determinations to deviate from the standard manner of the opening auction process, and periodically reviews these determinations for consistency with the interests of a fair and orderly market.

(i) Limit Up-Limit Down States. If the underlying security for a class is in a limit up-limit down state when the opening rotation begins for that class, then the System cancels or rejects all market orders. In addition, if the opening rotation has already begun for a class when a limit up-limit down state initiates for the underlying security of that class, market and limit orders will continue through the end of the opening rotation.

(j) Modified Opening Auction Process. All provisions set forth above in this Rule 5.31 apply to the opening of SPX constituent option series for Regular Trading Hours on exercise settlement value determination days, except as otherwise provided in this paragraph (j) ("modified opening auction process"). The Exchange uses the opening trade prices of SPX series that comprise the settlement strip (or the average of a series' opening bid and ask if there is no opening trade in that series) established by the modified opening auction process to calculate the exercise or final settlement value, as applicable, of expiring VIX derivatives.

(1) Definitions. For purposes of the modified opening auction process, the following terms have the meanings below:

VIX Derivatives

The term "VIX derivatives" means VIX options listed for trading on the Exchange (as determined under Rule 4.11), VIX futures listed for trading on an affiliated designated contract market, or over-the-counter derivatives overlying VIX whose exercise or final settlement values, as applicable, are calculated pursuant to, or by reference to, as applicable, the modified opening auction process.

Exercise Settlement Value Determination Day

The term "exercise settlement value determination day" means a day on which the Exchange determines the exercise or final settlement value, as applicable, of expiring VIX derivatives.

Constituent Option Series

The term “constituent option series” means all SPX (including SPXW) option series listed on the Exchange with the expirations the Exchange uses to calculate the exercise or final settlement value of the expiring VIX derivative on exercise settlement value determination days.

Maximum Composite Width

The term “Maximum Composite Width” has the meaning set forth in paragraph (a) above, except the following Maximum Composite Widths apply to constituent option series on exercise settlement value determination days:

<u>Composite Bid</u>	<u>Market Composite Width</u>
<u>0 – 0.25</u>	<u>0.25</u>
<u>0.25 – 0.50</u>	<u>0.30</u>
<u>0.51 – 1.00</u>	<u>0.35</u>
<u>1.01 – 2.00</u>	<u>0.40</u>
<u>2.01 – 5.00</u>	<u>0.60</u>
<u>5.01 – 10.00</u>	<u>0.70</u>
<u>10.01 – 20.00</u>	<u>1.00</u>
<u>20.01 – 30.00</u>	<u>1.80</u>
<u>30.01 – 40.00</u>	<u>2.40</u>
<u>40.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>6.00</u>
<u>100.01 – 200.00</u>	<u>9.00</u>
<u>≥ 200.01</u>	<u>14.00</u>

Opening Collar

The term “Opening Collar” has the meaning set forth in paragraph (a) above, except the following Opening Collar widths apply to constituent option series on exercise settlement value determination days:

<u>Composite Bid</u>	<u>Opening Collar Width</u>
<u>0 – 0.25</u>	<u>0.25</u>
<u>0.25 – 0.50</u>	<u>0.30</u>
<u>0.51 – 1.00</u>	<u>0.35</u>
<u>1.01 – 2.00</u>	<u>0.40</u>
<u>2.01 – 5.00</u>	<u>0.60</u>
<u>5.01 – 10.00</u>	<u>0.70</u>
<u>10.01 – 20.00</u>	<u>1.00</u>
<u>20.01 – 30.00</u>	<u>1.80</u>
<u>30.01 – 40.00</u>	<u>2.40</u>
<u>40.01 – 50.00</u>	<u>3.00</u>
<u>50.01 – 100.00</u>	<u>6.00</u>
<u>100.01 – 200.00</u>	<u>9.00</u>

≥ 200.01

14.00

Settlement Strip

The term “settlement strip” means the constituent option series used to calculate the exercise or final settlement value, as applicable, of expiring VIX derivatives.

(A) The Exchange determines the highest call strike and lowest put strike that establish the “strike range” for the settlement strip pursuant to an algorithm.

(B) The at-the-money strike price is determined in accordance with the VIX methodology, using opening bid and offer information of each constituent option series.

(C) The Exchange disseminates the highest call strike and lowest put strike of the strike range to all subscribers through the Exchange’s data feeds that deliver opening auction update messages, no later than 8:45 a.m. on exercise settlement value determination days.

(D) Each call (put) constituent option series with a strike price not outside the strike range (i.e., a strike price equal to or greater (less) than the at-the-money strike price up (down) to the highest call (lowest put) strike of the strike range) is included in the settlement strip.

(E) The Exchange may update the strike range until 9:15 a.m. pursuant to an algorithm due to changes to the value of VIX, prices of related futures, or other algorithmic inputs. The Exchange disseminates any updates as soon as reasonably possible.

Settlement Liquidity Opening Order and SLOO

The terms “settlement liquidity opening order” and “SLOO” mean a limit order in a constituent option series designated with an OPG Time-in-Force that Users may only submit to the Exchange on exercise settlement value determination days following the cut-off time described in subparagraph (3) below. The System cancels a SLOO (or remaining portion) that does not execute during the modified opening auction process. Users may not designate bulk messages as SLOOs.

(A) If the limit price of a buy (sell) SLOO crosses the midpoint of the then-current Opening Collar upon entry, the System adjusts its price to equal the midpoint of the Opening Collar (rounded up (down) to the nearest minimum increment), except for a sell SLOO when the midpoint is less than or equal to 0.175. If the midpoint of the Opening Collar changes during the Queuing Period, the System re-adjusts the SLOO’s price to equal to the new Opening Collar midpoint (rounded as provided above), up to its limit price.

(B) The prices of SLOOs in the Queuing Book are not disseminated in the Exchange’s Multicast PITCH and Multicast TOP data feeds.

(2) Exchange Determinations.

(A) To the extent the Exchange makes a determination for the opening auction process pursuant to this Rule 5.31, it may make a separate determination for the modified opening auction process pursuant to this paragraph (j), including but not limited to (i) the Opening Collar width, (ii) the Maximum Composite Width, and (iii) the time intervals at which the Exchange disseminates opening auction updates.

(B) The Exchange may determine it is necessary in the interests of a fair and orderly market (for example, due to the existence of unusual market conditions or circumstances) to delay the time at which the System begins attempting to observe an opening rotation trigger pursuant to subparagraph (d)(1) above for the modified opening auction process. If that occurs, the Exchange determines a revised time and announces it to market participants as soon as reasonably possible. Additionally, to correspond to that revised time, the Exchange adjusts (i) the times at which it determines the strike range of the settlement strip as described in subparagraph (1) above, and (ii) the cut-off time described in subparagraph (3) below.

(C) The Exchange may determine it is necessary in the interests of a fair and orderly market (for example, due to the existence of unusual market conditions or circumstances) to not use the modified opening auction process described in this paragraph (j). If that occurs, the Exchange will announce that to market participants as soon as reasonably possible.

(D) The Exchange maintains and reviews records of any determinations it makes pursuant to this subparagraph (j)(2) in accordance with paragraph (h) above.

(3) Order Entry Cut-Off Time. During the Queuing Period, the System accepts orders and quotes in constituent option series as follows, subject to paragraph (b)(2) above.

(A) The System accepts all orders and quotes (except SLOOs, which the System rejects), and any changes to or cancellations of those orders and quotes, prior to 9:20 a.m.

(B) After 9:20 a.m. (until the opening of trading in a series), the System only accepts (A) SLOOs (including changes to and cancellations of SLOOs); and (B) bulk message bids and offers (including changes to and cancellations of bulk message bids and offers submitted before and after the cut-off time) from Market-Makers with an SPX appointment. The System rejects all other orders and quotes (and all other changes to and cancellations of orders and quotes submitted prior to the cut-off time).

(4) Opening Auction Updates. The Exchange disseminates opening auction updates for constituent series as set forth in paragraph (c) above, except the Exchange disseminates updates every five seconds, regardless of whether there are updates to the opening information since the previously disseminated update.

(5) Opening Rotation. On exercise settlement value determination days, the opening rotation process occurs as set forth in paragraph (e) above, except the System performs the Maximum Composite Width Check and determines the Opening Trade Price pursuant to this subparagraph (5), in lieu of subparagraphs (e)(1) and (2), respectively (except as otherwise provided). After a series satisfies the Maximum Composite Width Check in subparagraph (e)(1), if there are orders and quotes marketable against each other at a price not outside the Opening Collar, the System determines the Opening Trade Price for the series. If there are no such orders or quotes, there is no Opening Trade Price.

(A) Maximum Composite Width Check.

(i) If the Composite Market of the series is not crossed and the Composite Width of the series is less than or equal to the Maximum Composite Width, the series is eligible to open (and the System determines the Opening Trade Price pursuant to subparagraph (B) below).

(ii) If the Composite Width of the series is greater than the Maximum Composite Width or the Composite Market of the series is crossed, the series is ineligible to open. The Queuing Period for the series continues (including the dissemination of opening auction updates) until the condition in subparagraph (i) is satisfied, or the Exchange opens the series pursuant to paragraph (h).

(B) Opening Trade Price Determination. After a series satisfies the Maximum Composite Width Check in subparagraph (A), if there are orders and quotes marketable against each other at a price not outside the Opening Collar, the System determines the Opening Trade Price for the series. If there are no such orders or quotes, there is no Opening Trade Price.

(i) The System determines the VMIM price pursuant to subparagraphs (e)(2)(A) through (C) above.

(ii) If the VMIM price is not outside the Opening Collar, it is the Opening Trade Price, and the System opens the series pursuant to subparagraph (e)(3) above.

(iii) If (a) the VMIM price is outside the Opening Collar or (b) there would be unexecuted market orders (or remaining portions), the series does not open. The Queuing Period for the series continues (including the dissemination of opening auction updates) until the VMIM price is not outside the Opening Collar, or the Exchange opens the series pursuant to paragraph (h).

(6) Opening Rotation Self-Trades. A User may submit multiple orders and quotes in accordance with subparagraph (3) above. If, during the opening rotation, the System executes an order or quote of that User against another order or quote of that User, the Exchange does not deem that fact alone to cause these executions to be considered violations of Section 9(a)(1) of the Exchange Act, and instead will evaluate other facts and

circumstances. The Exchange reviews all activity, including these executions, during the modified opening auction process for compliance with the Rules and the Exchange Act, including Rule 10.6 (which prohibits manipulation).

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