

Required fields are shown with yellow backgrounds and asterisks.

Filing by NASDAQ PHLX LLC  
Pursuant to Rule 19b-4 under the Securities Exchange Act of 1934

Initial *	Amendment *	Withdrawal	Section 19(b)(2) *	Section 19(b)(3)(A) *	Section 19(b)(3)(B) *
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pilot			Rule		
<input type="checkbox"/>	Extension of Time Period for Commission Action *	Date Expires *	<input type="checkbox"/> 19b-4(f)(1)	<input type="checkbox"/> 19b-4(f)(4)	
	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/> 19b-4(f)(2)	<input type="checkbox"/> 19b-4(f)(5)	
			<input type="checkbox"/> 19b-4(f)(3)	<input checked="" type="checkbox"/> 19b-4(f)(6)	

Notice of proposed change pursuant to the Payment, Clearing, and Settlement Act of 2010	Security-Based Swap Submission pursuant to the Securities Exchange Act of 1934
Section 806(e)(1) *	Section 806(e)(2) *
<input type="checkbox"/>	<input type="checkbox"/>
	Section 3C(b)(2) *
	<input type="checkbox"/>

Exhibit 2 Sent As Paper Document	Exhibit 3 Sent As Paper Document
<input type="checkbox"/>	<input type="checkbox"/>

**Description**

Provide a brief description of the action (limit 250 characters, required when Initial is checked \*).

A proposal to amend Rule 1092, Nullification and Adjustment of Options Transactions including Obvious Errors.

**Contact Information**

Provide the name, telephone number, and e-mail address of the person on the staff of the self-regulatory organization prepared to respond to questions and comments on the action.

First Name * Brett	Last Name * Kitt
Title * Senior Associate General Counsel	
E-mail * Brett.Kitt@nasdaq.com	
Telephone * (301) 978-8132	Fax

**Signature**

Pursuant to the requirements of the Securities Exchange Act of 1934,

has duly caused this filing to be signed on its behalf by the undersigned thereunto duly authorized.

(Title \*)

Date 07/17/2017	Executive Vice President and General Counsel
By Edward S. Knight	<div style="border: 1px solid black; width: 100%; height: 20px;"></div>
(Name *)	<div style="border: 1px solid black; width: 100%; height: 20px; background-color: #ccc;"></div>

NOTE: Clicking the button at right will digitally sign and lock this form. A digital signature is as legally binding as a physical signature, and once signed, this form cannot be changed.

edward.knight@nasdaq.com

SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

For complete Form 19b-4 instructions please refer to the EFFF website.

**Form 19b-4 Information \***

Add Remove View

The self-regulatory organization must provide all required information, presented in a clear and comprehensible manner, to enable the public to provide meaningful comment on the proposal and for the Commission to determine whether the proposal is consistent with the Act and applicable rules and regulations under the Act.

**Exhibit 1 - Notice of Proposed Rule Change \***

Add Remove View

The Notice section of this Form 19b-4 must comply with the guidelines for publication in the Federal Register as well as any requirements for electronic filing as published by the Commission (if applicable). The Office of the Federal Register (OFR) offers guidance on Federal Register publication requirements in the Federal Register Document Drafting Handbook, October 1998 Revision. For example, all references to the federal securities laws must include the corresponding cite to the United States Code in a footnote. All references to SEC rules must include the corresponding cite to the Code of Federal Regulations in a footnote. All references to Securities Exchange Act Releases must include the release number, release date, Federal Register cite, Federal Register date, and corresponding file number (e.g., SR-[SRO]-xx-xx). A material failure to comply with these guidelines will result in the proposed rule change being deemed not properly filed. See also Rule 0-3 under the Act (17 CFR 240.0-3)

**Exhibit 1A- Notice of Proposed Rule Change, Security-Based Swap Submission, or Advance Notice by Clearing Agencies \***

Add Remove View

The Notice section of this Form 19b-4 must comply with the guidelines for publication in the Federal Register as well as any requirements for electronic filing as published by the Commission (if applicable). The Office of the Federal Register (OFR) offers guidance on Federal Register publication requirements in the Federal Register Document Drafting Handbook, October 1998 Revision. For example, all references to the federal securities laws must include the corresponding cite to the United States Code in a footnote. All references to SEC rules must include the corresponding cite to the Code of Federal Regulations in a footnote. All references to Securities Exchange Act Releases must include the release number, release date, Federal Register cite, Federal Register date, and corresponding file number (e.g., SR-[SRO]-xx-xx). A material failure to comply with these guidelines will result in the proposed rule change, security-based swap submission, or advance notice being deemed not properly filed. See also Rule 0-3 under the Act (17 CFR 240.0-3)

**Exhibit 2 - Notices, Written Comments, Transcripts, Other Communications**

Add Remove View

Exhibit Sent As Paper Document

Copies of notices, written comments, transcripts, other communications. If such documents cannot be filed electronically in accordance with Instruction F, they shall be filed in accordance with Instruction G.

**Exhibit 3 - Form, Report, or Questionnaire**

Add Remove View

Exhibit Sent As Paper Document

Copies of any form, report, or questionnaire that the self-regulatory organization proposes to use to help implement or operate the proposed rule change, or that is referred to by the proposed rule change.

**Exhibit 4 - Marked Copies**

Add Remove View

The full text shall be marked, in any convenient manner, to indicate additions to and deletions from the immediately preceding filing. The purpose of Exhibit 4 is to permit the staff to identify immediately the changes made from the text of the rule with which it has been working.

**Exhibit 5 - Proposed Rule Text**

Add Remove View

The self-regulatory organization may choose to attach as Exhibit 5 proposed changes to rule text in place of providing it in Item I and which may otherwise be more easily readable if provided separately from Form 19b-4. Exhibit 5 shall be considered part of the proposed rule change.

**Partial Amendment**

Add Remove View

If the self-regulatory organization is amending only part of the text of a lengthy proposed rule change, it may, with the Commission's permission, file only those portions of the text of the proposed rule change in which changes are being made if the filing (i.e. partial amendment) is clearly understandable on its face. Such partial amendment shall be clearly identified and marked to show deletions and additions.

1. Text of the Proposed Rule Change

(a) NASDAQ PHLX LLC (“Phlx” or “Exchange”), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Act”)<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> is filing with the Securities and Exchange Commission (“SEC” or “Commission”) a proposal to amend Rule 1092, Nullification and Adjustment of Options Transactions including Obvious Errors.

A notice of the proposed rule change for publication in the Federal Register is attached as Exhibit 1.

The text of the proposed rule change is attached as Exhibit 5.

(b) Not applicable.

(c) Not applicable.

2. Procedures of the Self-Regulatory Organization

The proposed rule change was approved by senior management of the Exchange pursuant to authority delegated by the Board of Directors of the Exchange (the “Board”) on August 15, 2016. Exchange staff will advise the Board of any action taken pursuant to delegated authority.

Questions and comments on the proposed rule change may be directed to:

Brett M. Kitt  
Senior Associate General Counsel  
Nasdaq, Inc.  
(301) 978-8132

---

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

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

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

a. Purpose

The Exchange and other options exchanges recently adopted a new, harmonized rule related to the adjustment and nullification of erroneous options transactions, including a specific provision related to coordination in connection with large-scale events involving erroneous options transactions.<sup>3</sup> The Exchange believes that the changes the options exchanges implemented with the new, harmonized rule have led to increased transparency and finality with respect to the adjustment and nullification of erroneous options transactions. However, as part of the initial initiative, the Exchange and other options exchanges deferred a few specific matters for further discussion. Specifically, as described in the Initial Filing, the Exchange and all other options exchanges have been working to further improve the review of potentially erroneous transactions as well as their subsequent adjustment by creating an objective and universal way to determine Theoretical Price in the event a reliable NBBO is not available. Because this initiative required additional exchange and industry discussion as well as additional time for development and implementation, the Exchange and the other options exchanges determined to proceed with the Initial Filing and to undergo a secondary initiative to complete any additional improvements to the applicable rule. In this filing, the Exchange proposes to adopt procedures that will lead to a more objective and uniform way to determine Theoretical Price in the event a reliable NBBO is not available. In addition to this change, the Exchange has proposed two additional minor changes to its rules. The

---

<sup>3</sup> See Securities Exchange Act Release No. 34-74919 (May 8, 2015); 80 FR 27766 (May 8, 2015) (SR-PHLX-2015-43) (the "Initial Filing").

Exchange's proposal mirrors that of Bats BZX, which the Exchange approved on July 6, 2017,<sup>4</sup> and those that the other options exchanges intend to file, except that it omits the section of the proposal that pertains to handling the adjustment and nullification of erroneous complex order transactions due to the fact that Commentary .03 to Exchange Rule 1092 already includes the applicable language.

***Calculation of Theoretical Price Using a Third Party Provider***

Under the harmonized rule, when reviewing a transaction as potentially erroneous, the Exchange needs to first determine the "Theoretical Price" of the option, *i.e.*, the Exchange's estimate of the correct market price for the option. Pursuant to Rule 1092, if the applicable option series is traded on at least one other options exchange, then the Theoretical Price of an option series is the last national best bid ("NBB") just prior to the trade in question with respect to an erroneous sell transaction or the last national best offer ("NBO") just prior to the trade in question with respect to an erroneous buy transaction unless one of the exceptions described below exists. Thus, whenever the Exchange has a reliable NBB or NBO, as applicable, just prior to the transaction, then the Exchange uses this NBB or NBO as the Theoretical Price.

The Rule also contains various provisions governing specific situations where the NBB or NBO is not available or may not be reliable. Specifically, the Rule specifies situations in which there are no quotes or no valid quotes for comparison purposes, when the national best bid or offer ("NBBO") is determined to be too wide to be reliable, and at the open of trading on each trading day. In each of these circumstances, in turn, because

---

<sup>4</sup> See Securities Exchange Act Release No. 34-81084 (July 6, 2017) (granting approval of Bats BZX proposal), 82 FR 32214 (July 12, 2017); 82 FR 23684 (May 23, 2017) (SR-BatsBZX-2017-035) (notice of filing of Bats BZX proposal).

the NBB or NBO is not available or is deemed to be unreliable, the Exchange determines Theoretical Price. Under the current Rule, when determining Theoretical Price, Exchange personnel generally consult and refer to data such as the prices of related series, especially the closest strikes in the option in question. Exchange personnel may also take into account the price of the underlying security and the volatility characteristics of the option as well as historical pricing of the option and/or similar options. Although the Rule is administered by experienced personnel and the Exchange believes the process is currently appropriate, the Exchange recognizes that it is also subjective and could lead to disparate results for a transaction that spans multiple options exchanges.

The Exchange proposes to adopt Commentary .05 to specify how the Exchange will determine Theoretical Price when required by sub-paragraphs (b)(1)-(3) of the Rule (*i.e.*, at the open, when there are no valid quotes or when there is a wide quote). In particular, the Exchange has been working with other options exchanges to identify and select a reliable third party vendor (“TP Provider”) that would provide Theoretical Price to the Exchange whenever one or more transactions is under review pursuant to Rule 1092 and the NBBO is unavailable or deemed unreliable pursuant to Rule 1092(b). The Exchange and other options exchanges have selected CBOE Livevol, LLC (“Livevol”) as the TP Provider, as described below. As further described below, proposed Commentary .05 would codify the use of the TP Provider as well as limited exceptions where the Exchange would be able to deviate from the Theoretical Price given by the TP Provider.

Pursuant to proposed Commentary .05, when the Exchange must determine Theoretical Price pursuant to the sub-paragraphs (b)(1)-(3) of the Rule, the Exchange will request Theoretical Price from the third party vendor to which the Exchange and all other

options exchanges have subscribed. Thus, as set forth in this proposed language, Theoretical Price would be provided to the Exchange by the TP Provider on request and not through a streaming data feed.<sup>5</sup> This language also makes clear that the Exchange and all other options exchanges will use the same TP Provider.

As noted above, the proposed TP Provider selected by the Exchange and other options exchanges is Livevol. The Exchange proposes to codify this selection in proposed paragraph (d) to Commentary .05. As such, the Exchange would file a rule proposal and would provide notice to the options industry of any proposed change to the TP Provider.

The Exchange and other options exchanges have selected Livevol as the proposed TP Provider after diligence into various alternatives. Livevol has, since 2009, been the options industry leader in providing equity and index options market data and analytics services.<sup>6</sup> The Exchange believes that Livevol has established itself within the options industry as a trusted provider of such services and notes that it and all other options exchanges already subscribe to various Livevol services. In connection with this proposal, Livevol will develop a new tool based on its existing technology and services that will supply Theoretical Price to the Exchange and other options exchanges upon request. The Theoretical Price tool will leverage current market data and surrounding strikes to assist in a relative value pricing approach to generating a Theoretical Price. When relative value methods are incapable of generating a valid Theoretical Price, the

---

<sup>5</sup> Though the Exchange and other options exchanges considered a streaming feed, it was determined that it would be more feasible to develop and implement an on demand service and that such a service would satisfy the goals of the initiative.

<sup>6</sup> The Exchange notes that in 2015, Livevol was acquired by CBOE Holdings, Inc., the ultimate parent company of the Chicago Board Options Exchange (“CBOE”) and C2 Options Exchange (“C2”).

Theoretical Price tool will utilize historical trade and quote data to calculate Theoretical Price.

Because the purpose of the proposal is to move away from a subjective determination by Exchange personnel when the NBBO is unavailable or unreliable, the Exchange intends to use the Theoretical Price provided by the TP Provider in all such circumstances. However, the Exchange believes it is necessary to retain the ability to contact the TP Provider if it believes that the Theoretical Price provided is fundamentally incorrect and to determine the Theoretical Price in the limited circumstance of a systems issue experienced by the TP Provider, as described below.

As proposed, to the extent an Official<sup>7</sup> of the Exchange believes that the Theoretical Price provided by the TP Provider is fundamentally incorrect and cannot be used consistent with the maintenance of a fair and orderly market, the Official shall contact the TP Provider to notify the TP Provider of the reason the Official believes such Theoretical Price is inaccurate and to request a review and correction of the calculated Theoretical Price. For example, if an Official received from the TP Provider a Theoretical Price of \$80 in a series that the Official might expect to be instead in the range of \$8 to \$10 because of a recent corporate action in the underlying, the Official would request that the TP Provider review and confirm its calculation and determine whether it had appropriately accounted for the corporate action. In order to ensure that other options exchanges that may potentially be relying on the same Theoretical Price that, in turn, the Official believes to be fundamentally incorrect, the Exchange also proposes to promptly

---

<sup>7</sup> For purposes of the Rule, an Official is an Exchange staff member or contract employee designated as such by the Chief Regulatory Officer. See Rule 1092(a)(3).

provide notice to other options exchanges that the TP Provider has been contacted to review and correct the calculated Theoretical Price at issue and to include a brief explanation of the reason for the request.<sup>8</sup> Although not directly addressed by the proposed Rule, the Exchange expects that all other options exchanges once in receipt of this notification would await the determination of the TP Provider and would use the corrected price as soon as it is available. The Exchange further notes that it expects the TP Provider to cooperate with, but to be independent of, the Exchange and other options exchanges.<sup>9</sup>

The Exchange believes that the proposed provision to allow an Official to contact the TP Provider if he or she believes the provided Theoretical Price is fundamentally incorrect is necessary, particularly because the Exchange and other options exchanges will be using the new process for the first time. Although the exchanges have conducted thorough diligence with respect to Livevol as the selected TP Provider and would do so with any potential replacement TP Provider, the Exchange is concerned that certain scenarios could arise where the Theoretical Price generated by the TP Provider does not take into account relevant factors and would result in an unfair result for market participants involved in a transaction. The Exchange notes that if such situations do indeed arise, to the extent practicable the Exchange will also work with the TP Provider

---

<sup>8</sup> See proposed paragraph (b) to Commentary .05.

<sup>9</sup> The Exchange expects any TP Provider selected by the Exchange and other options exchanges to act independently in its determination and calculation of Theoretical Price. With respect to Livevol specifically, the Exchange again notes that Livevol is a subsidiary of CBOE Holdings, Inc., which is also the ultimate parent company of multiple options exchanges. The Exchange expects Livevol to calculate Theoretical Price independent of its affiliated exchanges in the same way it will calculate Theoretical Price independent of non-affiliated exchanges.

and other options exchanges to improve the TP Provider's calculation of Theoretical Price in future situations. For instance, if the Exchange determines that a particular type of corporate action is not being appropriately captured by the TP Provider when such provider is generating Theoretical Price, while the Exchange believes that it needs the ability to request a review and correction of the Theoretical Price in connection with a specific review in order to provide a timely decision to market participants, the Exchange would share information regarding the specific situation with the TP Provider and other options exchanges in an effort to improve the Theoretical Price service for future use. The Exchange notes that it does not anticipate needing to rely on this provision frequently, if at all, but believes the provision is necessary nonetheless to best prepare for all potential circumstances. Further, the Theoretical Price used by the Exchange in connection with its rulings will always be that received from the TP Provider and the Exchange has not proposed the ability to deviate from such price.<sup>10</sup>

Pursuant to proposed paragraph (c) to Commentary .05, an Official of the Exchange may determine the Theoretical Price if the TP Provider has experienced a systems issue that has rendered its services unavailable to accurately calculate Theoretical Price and such issue cannot be corrected in a timely manner. The Exchange notes that it does not anticipate needing to rely on this provision frequently, if at all, but believes the provision is necessary nonetheless to best prepare for all potential circumstances. Further, consistent with existing text in Rule 1092(e)(4), the Exchange has not proposed a specific time by which the service must be available in order to be

---

<sup>10</sup> To the extent the TP Provider has been contacted by an Official of the Exchange, reviews the Theoretical Price provided but disagrees that there has been any error, then the Exchange would be bound to use the Theoretical Price provided by the TP Provider.

considered timely.<sup>11</sup> The Exchange expects that it would await the TP Provider's services becoming available again so long as the Exchange was able to obtain information regarding the issue and the TP Provider had a reasonable expectation of being able to resume normal operations within the next several hours based on communications with the TP Provider. More specifically with respect to Livevol, Livevol has business continuity and disaster recovery procedures that will help to ensure that the Theoretical Price tool remains available or, in the event of an outage, that service is restored in a timely manner.

The Exchange also notes that if a wide-scale event occurred, even if such event did not qualify as a "Significant Market Event" pursuant to Rule 1092(e), and the TP Provider was unavailable or otherwise experiencing difficulty, the Exchange believes that it and other options exchanges would seek to coordinate to the extent possible. In particular, the Exchange and other options exchanges now have a process, administered by the Options Clearing Corporation, to invoke a discussion amongst all options exchanges in the event of any widespread or significant market events. The Exchange believes that this process could be used in the event necessary if there were an issue with the TP Provider.

The Exchange also proposes to adopt language in paragraph (d) of Commentary .05 to Rule 1092 to disclaim the liability of the Exchange and the TP Provider in connection with the proposed Rule, the TP Provider's calculation of Theoretical Price, and the Exchange's use of such Theoretical Price. Specifically, the proposed rule would

---

<sup>11</sup> In the context of a Significant Market Event, the Exchange may determine, "in consultation with other options exchanges... that timely adjustment is not feasible due to the extraordinary nature of the situation." See Rule 1092(e)(4).

state that neither the Exchange, the TP Provider, nor any affiliate of the TP Provider (the TP Provider and its affiliates are referred to collectively as the “TP Provider”), makes any warranty, express or implied, as to the results to be obtained by any person or entity from the use of the TP Provider pursuant to Commentary .05. The proposed rule would further state that the TP Provider does not guarantee the accuracy or completeness of the calculated Theoretical Price and that the TP Provider disclaims all warranties of merchantability or fitness for a particular purpose or use with respect to such Theoretical Price. Finally, the proposed Rule would state that neither the Exchange nor the TP Provider shall have any liability for any damages, claims, losses (including any indirect or consequential losses), expenses, or delays, whether direct or indirect, foreseen or unforeseen, suffered by any person arising out of any circumstance or occurrence relating to the use of such Theoretical Price or arising out of any errors or delays in calculating such Theoretical Price. This proposed language is modeled after existing language in Exchange Rules regarding “reporting authorities” that calculate indices.<sup>12</sup>

In connection with the proposed change described above, the Exchange proposes to modify Rule 1092 to state that the Exchange will rely on paragraph (b) and Commentary .05 when determining Theoretical Price.

***No Valid Quotes – Market Participant Quoting on Multiple Exchanges***

As described above, one of the times where the NBB or NBO is deemed to be unreliable for purposes of Theoretical Price is when there are no quotes or no valid quotes for the affected series. In addition to when there are no quotes, the Exchange does

---

<sup>12</sup> See, e.g., Rule 1102A, which relates to index options potentially listed and traded on the Exchange and disclaims liability for a reporting authority and their affiliates.

not consider the following to be valid quotes: (i) all quotes in the applicable option series published at a time where the last NBB is higher than the last NBO in such series (a “crossed market”); (ii) quotes published by the Exchange that were submitted by either party to the transaction in question; and (iii) quotes published by another options exchange against which the Exchange has declared self-help. In recognition of today’s market structure where certain participants actively provide liquidity on multiple exchanges simultaneously, the Exchange proposes to add an additional category of invalid quotes. Specifically, in order to avoid a situation where a market participant has established the market at an erroneous price on multiple exchanges, the Exchange proposes to consider as invalid the quotes in a series published by another options exchange if either party to the transaction in question submitted the quotes in the series representing such options exchange’s best bid or offer. Thus, similar to being able to ignore for purposes of the Rule the quotes published by the Exchange if submitted by either party to the transaction in question, the Exchange would be able to ignore for purposes of the rule quotations on other options exchanges by that same market participant.

In order to continue to apply the Rule in a timely and organized fashion, however, the Exchange proposes to initially limit the scope of this proposed provision in two ways. First, because the process will take considerable coordination with other options exchanges to confirm that the quotations in question on an away options exchange were indeed submitted by a party to a transaction on the Exchange, the Exchange proposes to limit this provision to apply to up to twenty-five (25) total options series (i.e., whether such series all relate to the same underlying security or multiple underlying securities).

Second, the Exchange proposes to require the party that believes it established the best bid or offer on one or more other options exchanges to identify to the Exchange the quotes which were submitted by such party and published by other options exchanges. In other words, as proposed, the burden will be on the party seeking that the Exchange disregard their quotations on other options exchanges to identify such quotations. In turn, the Exchange will verify with such other options exchanges that such quotations were indeed submitted by such party.

Below are examples of both the current rule and the rule as proposed to be amended.

*Example 1 - Current Rule, Member Erroneously Quotes on One Exchange*

Assumptions

For purposes of this example, assume the following:

- A Member acting as a Market Maker on the Exchange (“Market Maker A”) is quoting in twenty series of options underlying security ABCD on the Exchange (and only the Exchange).
- Market Maker A makes an error in calculating the market for options on ABCD, and publishes quotes in all twenty series to buy options at \$1.00 and to sell options at \$1.05.
- In fact, options on ABCD in these series are nearly worthless and no other market participant is quoting in such series.
- Therefore, the NBBO in the twenty series at issue is \$1.00 x \$1.05 (with the Exchange representing the NBBO based on Market Maker A’s quotes).

- Assume Member A immediately enters sell orders and executes against Market Maker A's quotes at \$1.00.
- Assume Market Maker A submits to the Exchange a timely request for review of the trades with Member A as potentially erroneous transactions to buy.

#### Result

- Based on the Exchange's current rules, the Exchange would identify Market Maker A as a participant to the trades at issue and would consider Market Maker A's quotations invalid pursuant to Rule 1092(b)(2).
- As there were no other valid quotes to use as a reference price, the Exchange would then determine Theoretical Price.
- Assume the Exchange determines a Theoretical Price of \$0.05.
  - The execution price of \$1.00 exceeds the \$0.25 minimum amount set forth in the Exchange's table to determine whether an obvious error has occurred (i.e.,  $\$0.05 + \$0.25 = \$0.30$ ) so any execution at or above this price is an obvious error.
  - Accordingly, the executions in all series would be adjusted by the Exchange to executions at \$0.20 per contract (Theoretical Price of \$0.05 plus \$0.15) to the extent the incoming orders submitted by Member A were non-Customer orders.
  - The executions in all series would be nullified to the extent the incoming orders submitted by Member A were Customer orders.

#### *Example 2 - Current Rule, Member Erroneously Quotes on Multiple Exchanges*

#### Assumptions

For purposes of this example, assume the following:

- A Member acting as a Market Maker on the Exchange (“Market Maker A”) is quoting in twenty series of options underlying security ABCD on the Exchange and on a second exchange (“Away Exchange”).
- Market Maker A makes an error in calculating the market for options on ABCD, and publishes quotes on both the Exchange and the Away Exchange in all twenty series to buy options at \$1.00 and to sell options at \$1.05.
- In fact, options on ABCD in these series are nearly worthless and no other market participant is quoting in such series.
- Therefore, the NBBO in the twenty series at issue is \$1.00 x \$1.05 (with the Exchange and the Away Exchange representing the NBBO based on Market Maker A’s quotes).
- Assume Member A immediately enters sell orders and executes against Market Maker A’s quotes at \$1.00.
- Assume Market Maker A submits to the Exchange and to the Away Exchange timely requests for review of the trades with Member A as potentially erroneous transactions to buy.

#### Result

- Based on the Exchange’s current rules, the Exchange would identify Market Maker A as a participant to the trades at issue and would consider Market Maker A’s quotations on the Exchange invalid pursuant to Rule 1092(b)(2). The Exchange, however, would view the Away Exchange’s quotations as

valid, and would thus determine Theoretical Price to be \$1.05 (i.e., the NBO in the case of a potentially erroneous buy transaction).

- The execution price of \$1.00 does not exceed the \$0.25 minimum amount set forth in the Exchange's table to determine whether an obvious error has occurred (i.e.,  $\$1.05 + \$0.25 = \$1.30$ ) so any execution at or above this price is an obvious error.
- The transactions on the Exchange would not be nullified or adjusted.
- As the Exchange and all other options exchanges have identical rules with respect to the process described above, the transactions on the Away Exchange would not be nullified or adjusted.

*Example 3 - Proposed Rule, Member Erroneously Quotes on Multiple Exchanges*<sup>13</sup>

Assumptions

For purposes of this example, assume the following:

- A Member acting as a Market Maker on the Exchange ("Market Maker A") is quoting in twenty series of options underlying security ABCD on the Exchange and on a second exchange ("Away Exchange").<sup>14</sup>
- Market Maker A makes an error in calculating the market for options on ABCD, and publishes quotes on both the Exchange and the Away Exchange in all twenty series to buy options at \$1.00 and to sell options at \$1.05.

<sup>13</sup> The Exchange notes that its proposed rule will not impact the proposed handling of a request for review where a market participant is quoting only on the Exchange, thus, the Exchange has not included a separate example for such a fact pattern.

<sup>14</sup> The Exchange notes that the proposed rule would operate the same if Market Maker A was quoting on more than two exchanges. The Exchange has limited the example to two exchanges for simplicity.

- In fact, options on ABCD in these series are nearly worthless and no other market participant is quoting in such series.
- Therefore, the NBBO in the twenty series at issue is \$1.00 x \$1.05 (with the Exchange and the Away Exchange representing the NBBO based on Market Maker A's quotes).
- Assume Member A immediately enters sell orders and executes against Market Maker A's quotes at \$1.00.
- Assume Market Maker A submits to the Exchange and to the Away Exchange timely requests for review of the trades with Member A as potentially erroneous transactions to buy. At the time of submitting the requests for review to the Exchange and the Away Exchange, Market Maker A identifies to the Exchange the quotes on the Away Exchange as quotes also represented by Market Maker A (and to the Away Exchange, the quotes on the Exchange as quotes also represented by Market Maker A).

#### Result

- Based on the proposed rules, the Exchange would identify Market Maker A as a participant to the trades at issue and would consider Market Maker A's quotations on the Exchange invalid pursuant to Rule 1092(b)(2).
- The Exchange and the Away Exchange would also coordinate to confirm that the quotations identified by Market Maker A on the other exchange were indeed Market Maker A's quotations. Once confirmed, each of the Exchange and the Away Exchange would also consider invalid the quotations published on the other exchange.

- As there were no other valid quotes to use as a reference price, the Exchange would then determine Theoretical Price.
- Assume the Exchange determines a Theoretical Price of \$0.05.
  - The execution price of \$1.00 exceeds the \$0.25 minimum amount set forth in the Exchange's table to determine whether an obvious error has occurred (i.e.,  $\$0.05 + \$0.25 = \$0.30$ ) so any execution at or above this price is an obvious error.
  - Accordingly, the executions in all series would be adjusted by the Exchange to executions at \$0.20 per contract (Theoretical Price of \$0.05 plus \$0.15) to the extent the incoming orders submitted by Member A were non-Customer orders.
  - The executions in all series would be nullified to the extent the incoming orders submitted by Member A were Customer orders.
- As the Exchange and all other options exchanges would have identical rules with respect to the process described above, as other options exchanges intend to adopt the same rule if the proposed rule is approved, the transactions on the Away Exchange would also be nullified or adjusted as set forth above.
- If this example was instead modified such that Market Maker A was quoting in 200 series rather than 20, the Exchange notes that Market Maker A could only request that the Exchange consider as invalid their quotations in 25 of those series on other exchanges. As noted above, the Exchange has proposed to limit the proposed rule to 25 series in order to continue to process requests for review in a timely and organized fashion in order to provide certainty to

market participants. This is due to the amount of coordination that will be necessary in such a scenario to confirm that the quotations in question on an away options exchange were indeed submitted by a party to a transaction on the Exchange.

b. Statutory Basis

The Exchange believes that its proposal is consistent with the requirements of the Act and the rules and regulations thereunder that are applicable to a national securities exchange, and, in particular, with the requirements of Section 6(b) of the Act.<sup>15</sup> Specifically, the proposal is consistent with Section 6(b)(5) of the Act<sup>16</sup> because it would promote just and equitable principles of trade, remove impediments to, and perfect the mechanism of, a free and open market and a national market system, and, in general, protect investors and the public interest.

As described above, the Exchange and other options exchanges are seeking to further modify their harmonized rules related to the adjustment and nullification of erroneous options transactions. The Exchange believes that the proposal to utilize a TP Provider in the event the NBBO is unavailable or unreliable will provide greater transparency and clarity with respect to the adjustment and nullification of erroneous options transactions. Particularly, the proposed changes seek to achieve consistent results for participants across U.S. options exchanges while maintaining a fair and orderly market, protecting investors and protecting the public interest. Thus, the Exchange

---

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

<sup>16</sup> 15 U.S.C. 78f(b)(5).

believes that the proposal is consistent with Section 6(b)(5) of the Act<sup>17</sup> in that the proposed Rule will foster cooperation and coordination with persons engaged in regulating and facilitating transactions.

The Exchange again reiterates that it has retained the standard of the current rule for most reviews of options transactions pursuant to Rule 1092, which is to rely on the NBBO to determine Theoretical Price if such NBBO can reasonably be relied upon. The proposal to use a TP Provider when the NBBO is unavailable or unreliable is consistent with Section 6(b)(5) of the Act<sup>18</sup> in that the proposed Rule will foster cooperation and coordination with persons engaged in regulating and facilitating transactions by further reducing the possibility of disparate results between options exchanges and increasing the objectivity of the application of Rule 1092. Further, the Exchange believes that the proposed Rule is transparent with respect to the limited circumstances under which the Exchange will request a review and correction of Theoretical Price from the TP Provider, and has sought to limit such circumstances as much as possible. The Exchange notes that under the current Rule, Exchange personnel are required to determine Theoretical Price in certain circumstances and yet rarely do so because such circumstances have already been significantly limited under the harmonized rule (for example, because the wide quote provision of the harmonized rule only applies if the quote was narrower and then gapped but does not apply if the quote had been persistently wide). Thus, the Exchange believes it will need to request Theoretical Price from the TP Provider only in very rare circumstances and in turn, the Exchange anticipates that the need to contact the TP

---

<sup>17</sup> Id.

<sup>18</sup> Id.

Provider for additional review of the Theoretical Price provided by the TP Provider will be even rarer. Similarly, the Exchange believes it is unlikely that an Exchange Official will ever be required to determine Theoretical Price, as such circumstance would only be in the event of a systems issue that has rendered the TP Provider's services unavailable and such issue cannot be corrected in a timely manner.

The Exchange also believes its proposal to adopt language in paragraph (d) of Commentary .05 to Rule 1092 to disclaim the liability of the Exchange and the TP Provider in connection with the proposed Rule, the TP Provider's calculation of Theoretical Price, and the Exchange's use of such Theoretical Price is consistent with the Act. As noted above, this proposed language is modeled after existing language in Exchange Rules regarding "reporting authorities" that calculate indices,<sup>19</sup> and is consistent with Section 6(b)(5) of the Act<sup>20</sup> in that the proposed Rule will foster cooperation and coordination with persons engaged in regulating and facilitating transactions.

As described above, the Exchange proposes a modification to the valid quotes provision to also exclude quotes in a series published by another options exchange if either party to the transaction in question submitted the orders or quotes in the series representing such options exchange's best bid or offer. The Exchange believes this proposal is consistent with Section 6(b)(5) of the Act<sup>21</sup> because the application of the rule will foster cooperation and coordination with persons engaged in regulating and

---

<sup>19</sup> See supra, note 12.

<sup>20</sup> 15 U.S.C. 78f(b)(5).

<sup>21</sup> 15 U.S.C. 78f(b)(5).

facilitating transactions by allowing the Exchange to coordinate with other options exchanges to determine whether a market participant that is party to a potentially erroneous transaction on the Exchange established the market in an option on other options exchanges; to the extent this can be established, the Exchange believes such participant's quotes should be excluded in the same way such quotes are excluded on the Exchange. The Exchange also believes it is reasonable to limit the scope of this provision to twenty-five (25) series and to require the party that believes it established the best bid or offer on one or more other options exchanges to identify to the Exchange the quotes which were submitted by that party and published by other options exchanges. The Exchange believes these limitations are consistent with Section 6(b)(5) of the Act<sup>22</sup> because they will ensure that the Exchange is able to continue to apply the Rule in a timely and organized fashion, thus fostering cooperation and coordination with persons engaged in regulating and facilitating transactions and also removing impediments to and perfecting the mechanism of a free and open market and a national market system.

4. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange believes the entire proposal is consistent with Section 6(b)(8) of the Act<sup>23</sup> in that it does not impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act as explained below.

Importantly, the Exchange does not believe that the proposal will impose a burden on intermarket competition but rather that it will alleviate any burden on competition because it is the result of a collaborative effort by all options exchanges to further

---

<sup>22</sup> Id.

<sup>23</sup> 15 U.S.C. 78f(b)(8).

harmonize and improve the process related to the adjustment and nullification of erroneous options transactions. The Exchange does not believe that the rules applicable to such process is an area where options exchanges should compete, but rather, that all options exchanges should have consistent rules to the extent possible. Particularly where a market participant trades on several different exchanges and an erroneous trade may occur on multiple markets nearly simultaneously, the Exchange believes that a participant should have a consistent experience with respect to the nullification or adjustment of transactions. To that end, the selection and implementation of a TP Provider utilized by all options exchanges will further reduce the possibility that participants with potentially erroneous transactions that span multiple options exchanges are handled differently on such exchanges. Similarly, the proposed ability to consider quotations invalid on another options exchange if ultimately originating from a party to a potentially erroneous transaction on the Exchange represents a proposal intended to further foster cooperation by the options exchanges with respect to market events. The Exchange understands that all other options exchanges either have or they intend to file proposals that are substantially similar to this proposal.

The Exchange does not believe that the proposed rule change imposes a burden on intramarket competition because the proposed provisions apply to all market participants equally.

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

No written comments were either solicited or received.

6. Extension of Time Period for Commission Action

Not Applicable.

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

The foregoing rule change has become effective pursuant to Section 19(b)(3)(A)(iii)<sup>24</sup> of the Act and Rule 19b-4(f)(6) thereunder<sup>25</sup> in that it effects a change that: (i) does not significantly affect the protection of investors or the public interest; (ii) does not impose any significant burden on competition; and (iii) by its terms, does not become operative for 30 days after the date of the filing, or such shorter time as the Commission may designate if consistent with the protection of investors and the public interest.

The Exchange's proposal does not significantly affect the protection of investors or the public interest because it will merely serve to provide transparency and clarity with respect to the adjustment and nullification of erroneous options transactions. Furthermore, the proposal does not impose any significant burden on competition insofar as it reflects proposals that have been filed already or soon will be filed by all competing options exchanges.

Furthermore, Rule 19b-4(f)(6)(iii) requires a self-regulatory organization to give the Commission written notice of its intent to file a proposed rule change under that subsection at least five business days prior to the date of filing, or such shorter time as designated by the Commission. The Exchange has provided such notice.

At any time within 60 days of the filing of the proposed rule change, the Commission summarily may temporarily suspend such rule change if it appears to the Commission that such action is: (i) necessary or appropriate in the public interest; (ii) for

---

<sup>24</sup> 15 U.S.C. 78s(b)(3)(A)(iii).

<sup>25</sup> 17 CFR 240.19b-4(f)(6).

the protection of investors; or (iii) otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission shall institute proceedings to determine whether the proposed rule should be approved or disapproved.

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

The proposal is similar to SR-BatsBZX-2017-35, except that it omits the section concerning trading halts insofar as Commentary .03 to Exchange Rule 1092 already contains the applicable language.

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

Not applicable.

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

Not applicable.

11. Exhibits

1. Notice of Proposed Rule Change for publication in the Federal Register.
5. Text of the proposed rule change.

**EXHIBIT 1**

SECURITIES AND EXCHANGE COMMISSION  
(Release No. \_\_\_\_\_ ; File No. SR-Phlx-2017-42)

July \_\_, 2017

Self-Regulatory Organizations; NASDAQ PHLX LLC; Notice of Filing and Immediate Effectiveness of Proposed Rule Change to amend Rule 1092, Nullification and Adjustment of Options Transactions including Obvious Errors

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Act”),<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> notice is hereby given that on July, 17 2017, NASDAQ PHLX LLC (“Phlx” or “Exchange”) filed with the Securities and Exchange Commission (“SEC” or “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

The Exchange proposes to amend Rule 1092, Nullification and Adjustment of Options Transactions including Obvious Errors. While these amendments are effective upon filing, the Exchange has designated the proposed amendments to be operative within ninety (90) days following the approval of the proposal.

The text of the proposed rule change is available on the Exchange’s Website at <http://nasdaqphlx.cchwallstreet.com/>, at the principal office of the Exchange, and at the Commission’s Public Reference Room.

---

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

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

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

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

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

1. Purpose

The Exchange and other options exchanges recently adopted a new, harmonized rule related to the adjustment and nullification of erroneous options transactions, including a specific provision related to coordination in connection with large-scale events involving erroneous options transactions.<sup>3</sup> The Exchange believes that the changes the options exchanges implemented with the new, harmonized rule have led to increased transparency and finality with respect to the adjustment and nullification of erroneous options transactions. However, as part of the initial initiative, the Exchange and other options exchanges deferred a few specific matters for further discussion. Specifically, as described in the Initial Filing, the Exchange and all other options exchanges have been working to further improve the review of potentially erroneous transactions as well as their subsequent adjustment by creating an objective and universal way to determine Theoretical Price in the event a reliable NBBO is not available. Because this initiative required additional exchange and industry discussion as well as additional time for

---

<sup>3</sup> See Securities Exchange Act Release No. 34-74919 (May 8, 2015); 80 FR 27766 (May 8, 2015) (SR-PHLX-2015-43) (the "Initial Filing").

development and implementation, the Exchange and the other options exchanges determined to proceed with the Initial Filing and to undergo a secondary initiative to complete any additional improvements to the applicable rule. In this filing, the Exchange proposes to adopt procedures that will lead to a more objective and uniform way to determine Theoretical Price in the event a reliable NBBO is not available. In addition to this change, the Exchange has proposed two additional minor changes to its rules. The Exchange's proposal mirrors that of Bats BZX, which the Exchange approved on July 6, 2017,<sup>4</sup> and those that the other options exchanges intend to file, except that it omits the section of the proposal that pertains to handling the adjustment and nullification of erroneous complex order transactions due to the fact that Commentary .03 to Exchange Rule 1092 already includes the applicable language.

***Calculation of Theoretical Price Using a Third Party Provider***

Under the harmonized rule, when reviewing a transaction as potentially erroneous, the Exchange needs to first determine the "Theoretical Price" of the option, *i.e.*, the Exchange's estimate of the correct market price for the option. Pursuant to Rule 1092, if the applicable option series is traded on at least one other options exchange, then the Theoretical Price of an option series is the last national best bid ("NBB") just prior to the trade in question with respect to an erroneous sell transaction or the last national best offer ("NBO") just prior to the trade in question with respect to an erroneous buy transaction unless one of the exceptions described below exists. Thus, whenever the

---

<sup>4</sup> See Securities Exchange Act Release No. 34-81084 (July 6, 2017) (granting approval of Bats BZX proposal), 82 FR 32214 (July 12, 2017); 82 FR 23684 (May 23, 2017) (SR-BatsBZX-2017-035) (notice of filing of Bats BZX proposal).

Exchange has a reliable NBB or NBO, as applicable, just prior to the transaction, then the Exchange uses this NBB or NBO as the Theoretical Price.

The Rule also contains various provisions governing specific situations where the NBB or NBO is not available or may not be reliable. Specifically, the Rule specifies situations in which there are no quotes or no valid quotes for comparison purposes, when the national best bid or offer (“NBBO”) is determined to be too wide to be reliable, and at the open of trading on each trading day. In each of these circumstances, in turn, because the NBB or NBO is not available or is deemed to be unreliable, the Exchange determines Theoretical Price. Under the current Rule, when determining Theoretical Price, Exchange personnel generally consult and refer to data such as the prices of related series, especially the closest strikes in the option in question. Exchange personnel may also take into account the price of the underlying security and the volatility characteristics of the option as well as historical pricing of the option and/or similar options. Although the Rule is administered by experienced personnel and the Exchange believes the process is currently appropriate, the Exchange recognizes that it is also subjective and could lead to disparate results for a transaction that spans multiple options exchanges.

The Exchange proposes to adopt Commentary .05 to specify how the Exchange will determine Theoretical Price when required by sub-paragraphs (b)(1)-(3) of the Rule (*i.e.*, at the open, when there are no valid quotes or when there is a wide quote). In particular, the Exchange has been working with other options exchanges to identify and select a reliable third party vendor (“TP Provider”) that would provide Theoretical Price to the Exchange whenever one or more transactions is under review pursuant to Rule 1092 and the NBBO is unavailable or deemed unreliable pursuant to Rule 1092(b). The

Exchange and other options exchanges have selected CBOE Livevol, LLC (“Livevol”) as the TP Provider, as described below. As further described below, proposed Commentary .05 would codify the use of the TP Provider as well as limited exceptions where the Exchange would be able to deviate from the Theoretical Price given by the TP Provider.

Pursuant to proposed Commentary .05, when the Exchange must determine Theoretical Price pursuant to the sub-paragraphs (b)(1)-(3) of the Rule, the Exchange will request Theoretical Price from the third party vendor to which the Exchange and all other options exchanges have subscribed. Thus, as set forth in this proposed language, Theoretical Price would be provided to the Exchange by the TP Provider on request and not through a streaming data feed.<sup>5</sup> This language also makes clear that the Exchange and all other options exchanges will use the same TP Provider.

As noted above, the proposed TP Provider selected by the Exchange and other options exchanges is Livevol. The Exchange proposes to codify this selection in proposed paragraph (d) to Commentary .05. As such, the Exchange would file a rule proposal and would provide notice to the options industry of any proposed change to the TP Provider.

The Exchange and other options exchanges have selected Livevol as the proposed TP Provider after diligence into various alternatives. Livevol has, since 2009, been the options industry leader in providing equity and index options market data and analytics services.<sup>6</sup> The Exchange believes that Livevol has established itself within the options

---

<sup>5</sup> Though the Exchange and other options exchanges considered a streaming feed, it was determined that it would be more feasible to develop and implement an on demand service and that such a service would satisfy the goals of the initiative.

<sup>6</sup> The Exchange notes that in 2015, Livevol was acquired by CBOE Holdings, Inc., the ultimate parent company of the Chicago Board Options Exchange (“CBOE”) and C2 Options Exchange (“C2”).

industry as a trusted provider of such services and notes that it and all other options exchanges already subscribe to various Livevol services. In connection with this proposal, Livevol will develop a new tool based on its existing technology and services that will supply Theoretical Price to the Exchange and other options exchanges upon request. The Theoretical Price tool will leverage current market data and surrounding strikes to assist in a relative value pricing approach to generating a Theoretical Price. When relative value methods are incapable of generating a valid Theoretical Price, the Theoretical Price tool will utilize historical trade and quote data to calculate Theoretical Price.

Because the purpose of the proposal is to move away from a subjective determination by Exchange personnel when the NBBO is unavailable or unreliable, the Exchange intends to use the Theoretical Price provided by the TP Provider in all such circumstances. However, the Exchange believes it is necessary to retain the ability to contact the TP Provider if it believes that the Theoretical Price provided is fundamentally incorrect and to determine the Theoretical Price in the limited circumstance of a systems issue experienced by the TP Provider, as described below.

As proposed, to the extent an Official<sup>7</sup> of the Exchange believes that the Theoretical Price provided by the TP Provider is fundamentally incorrect and cannot be used consistent with the maintenance of a fair and orderly market, the Official shall contact the TP Provider to notify the TP Provider of the reason the Official believes such Theoretical Price is inaccurate and to request a review and correction of the calculated

---

<sup>7</sup> For purposes of the Rule, an Official is an Exchange staff member or contract employee designated as such by the Chief Regulatory Officer. See Rule 1092(a)(3).

Theoretical Price. For example, if an Official received from the TP Provider a Theoretical Price of \$80 in a series that the Official might expect to be instead in the range of \$8 to \$10 because of a recent corporate action in the underlying, the Official would request that the TP Provider review and confirm its calculation and determine whether it had appropriately accounted for the corporate action. In order to ensure that other options exchanges that may potentially be relying on the same Theoretical Price that, in turn, the Official believes to be fundamentally incorrect, the Exchange also proposes to promptly provide notice to other options exchanges that the TP Provider has been contacted to review and correct the calculated Theoretical Price at issue and to include a brief explanation of the reason for the request.<sup>8</sup> Although not directly addressed by the proposed Rule, the Exchange expects that all other options exchanges once in receipt of this notification would await the determination of the TP Provider and would use the corrected price as soon as it is available. The Exchange further notes that it expects the TP Provider to cooperate with, but to be independent of, the Exchange and other options exchanges.<sup>9</sup>

The Exchange believes that the proposed provision to allow an Official to contact the TP Provider if he or she believes the provided Theoretical Price is fundamentally incorrect is necessary, particularly because the Exchange and other options exchanges

---

<sup>8</sup> See proposed paragraph (b) to Commentary .05.

<sup>9</sup> The Exchange expects any TP Provider selected by the Exchange and other options exchanges to act independently in its determination and calculation of Theoretical Price. With respect to Livevol specifically, the Exchange again notes that Livevol is a subsidiary of CBOE Holdings, Inc., which is also the ultimate parent company of multiple options exchanges. The Exchange expects Livevol to calculate Theoretical Price independent of its affiliated exchanges in the same way it will calculate Theoretical Price independent of non-affiliated exchanges.

will be using the new process for the first time. Although the exchanges have conducted thorough diligence with respect to Livevol as the selected TP Provider and would do so with any potential replacement TP Provider, the Exchange is concerned that certain scenarios could arise where the Theoretical Price generated by the TP Provider does not take into account relevant factors and would result in an unfair result for market participants involved in a transaction. The Exchange notes that if such situations do indeed arise, to the extent practicable the Exchange will also work with the TP Provider and other options exchanges to improve the TP Provider's calculation of Theoretical Price in future situations. For instance, if the Exchange determines that a particular type of corporate action is not being appropriately captured by the TP Provider when such provider is generating Theoretical Price, while the Exchange believes that it needs the ability to request a review and correction of the Theoretical Price in connection with a specific review in order to provide a timely decision to market participants, the Exchange would share information regarding the specific situation with the TP Provider and other options exchanges in an effort to improve the Theoretical Price service for future use. The Exchange notes that it does not anticipate needing to rely on this provision frequently, if at all, but believes the provision is necessary nonetheless to best prepare for all potential circumstances. Further, the Theoretical Price used by the Exchange in connection with its rulings will always be that received from the TP Provider and the Exchange has not proposed the ability to deviate from such price.<sup>10</sup>

---

<sup>10</sup> To the extent the TP Provider has been contacted by an Official of the Exchange, reviews the Theoretical Price provided but disagrees that there has been any error, then the Exchange would be bound to use the Theoretical Price provided by the TP Provider.

Pursuant to proposed paragraph (c) to Commentary .05, an Official of the Exchange may determine the Theoretical Price if the TP Provider has experienced a systems issue that has rendered its services unavailable to accurately calculate Theoretical Price and such issue cannot be corrected in a timely manner. The Exchange notes that it does not anticipate needing to rely on this provision frequently, if at all, but believes the provision is necessary nonetheless to best prepare for all potential circumstances. Further, consistent with existing text in Rule 1092(e)(4), the Exchange has not proposed a specific time by which the service must be available in order to be considered timely.<sup>11</sup> The Exchange expects that it would await the TP Provider's services becoming available again so long as the Exchange was able to obtain information regarding the issue and the TP Provider had a reasonable expectation of being able to resume normal operations within the next several hours based on communications with the TP Provider. More specifically with respect to Livevol, Livevol has business continuity and disaster recovery procedures that will help to ensure that the Theoretical Price tool remains available or, in the event of an outage, that service is restored in a timely manner.

The Exchange also notes that if a wide-scale event occurred, even if such event did not qualify as a "Significant Market Event" pursuant to Rule 1092(e), and the TP Provider was unavailable or otherwise experiencing difficulty, the Exchange believes that it and other options exchanges would seek to coordinate to the extent possible. In particular, the Exchange and other options exchanges now have a process, administered

---

<sup>11</sup> In the context of a Significant Market Event, the Exchange may determine, "in consultation with other options exchanges... that timely adjustment is not feasible due to the extraordinary nature of the situation." See Rule 1092(e)(4).

by the Options Clearing Corporation, to invoke a discussion amongst all options exchanges in the event of any widespread or significant market events. The Exchange believes that this process could be used in the event necessary if there were an issue with the TP Provider.

The Exchange also proposes to adopt language in paragraph (d) of Commentary .05 to Rule 1092 to disclaim the liability of the Exchange and the TP Provider in connection with the proposed Rule, the TP Provider's calculation of Theoretical Price, and the Exchange's use of such Theoretical Price. Specifically, the proposed rule would state that neither the Exchange, the TP Provider, nor any affiliate of the TP Provider (the TP Provider and its affiliates are referred to collectively as the "TP Provider"), makes any warranty, express or implied, as to the results to be obtained by any person or entity from the use of the TP Provider pursuant to Commentary .05. The proposed rule would further state that the TP Provider does not guarantee the accuracy or completeness of the calculated Theoretical Price and that the TP Provider disclaims all warranties of merchantability or fitness for a particular purpose or use with respect to such Theoretical Price. Finally, the proposed Rule would state that neither the Exchange nor the TP Provider shall have any liability for any damages, claims, losses (including any indirect or consequential losses), expenses, or delays, whether direct or indirect, foreseen or unforeseen, suffered by any person arising out of any circumstance or occurrence relating to the use of such Theoretical Price or arising out of any errors or delays in calculating

such Theoretical Price. This proposed language is modeled after existing language in Exchange Rules regarding “reporting authorities” that calculate indices.<sup>12</sup>

In connection with the proposed change described above, the Exchange proposes to modify Rule 1092 to state that the Exchange will rely on paragraph (b) and Commentary .05 when determining Theoretical Price.

***No Valid Quotes – Market Participant Quoting on Multiple Exchanges***

As described above, one of the times where the NBB or NBO is deemed to be unreliable for purposes of Theoretical Price is when there are no quotes or no valid quotes for the affected series. In addition to when there are no quotes, the Exchange does not consider the following to be valid quotes: (i) all quotes in the applicable option series published at a time where the last NBB is higher than the last NBO in such series (a “crossed market”); (ii) quotes published by the Exchange that were submitted by either party to the transaction in question; and (iii) quotes published by another options exchange against which the Exchange has declared self-help. In recognition of today’s market structure where certain participants actively provide liquidity on multiple exchanges simultaneously, the Exchange proposes to add an additional category of invalid quotes. Specifically, in order to avoid a situation where a market participant has established the market at an erroneous price on multiple exchanges, the Exchange proposes to consider as invalid the quotes in a series published by another options exchange if either party to the transaction in question submitted the quotes in the series representing such options exchange’s best bid or offer. Thus, similar to being able to

---

<sup>12</sup> See, e.g., Rule 1102A, which relates to index options potentially listed and traded on the Exchange and disclaims liability for a reporting authority and their affiliates.

ignore for purposes of the Rule the quotes published by the Exchange if submitted by either party to the transaction in question, the Exchange would be able to ignore for purposes of the rule quotations on other options exchanges by that same market participant.

In order to continue to apply the Rule in a timely and organized fashion, however, the Exchange proposes to initially limit the scope of this proposed provision in two ways. First, because the process will take considerable coordination with other options exchanges to confirm that the quotations in question on an away options exchange were indeed submitted by a party to a transaction on the Exchange, the Exchange proposes to limit this provision to apply to up to twenty-five (25) total options series (i.e., whether such series all relate to the same underlying security or multiple underlying securities). Second, the Exchange proposes to require the party that believes it established the best bid or offer on one or more other options exchanges to identify to the Exchange the quotes which were submitted by such party and published by other options exchanges. In other words, as proposed, the burden will be on the party seeking that the Exchange disregard their quotations on other options exchanges to identify such quotations. In turn, the Exchange will verify with such other options exchanges that such quotations were indeed submitted by such party.

Below are examples of both the current rule and the rule as proposed to be amended.

*Example 1 - Current Rule, Member Erroneously Quotes on One Exchange*

Assumptions

For purposes of this example, assume the following:

- A Member acting as a Market Maker on the Exchange (“Market Maker A”) is quoting in twenty series of options underlying security ABCD on the Exchange (and only the Exchange).
- Market Maker A makes an error in calculating the market for options on ABCD, and publishes quotes in all twenty series to buy options at \$1.00 and to sell options at \$1.05.
- In fact, options on ABCD in these series are nearly worthless and no other market participant is quoting in such series.
- Therefore, the NBBO in the twenty series at issue is \$1.00 x \$1.05 (with the Exchange representing the NBBO based on Market Maker A’s quotes).
- Assume Member A immediately enters sell orders and executes against Market Maker A’s quotes at \$1.00.
- Assume Market Maker A submits to the Exchange a timely request for review of the trades with Member A as potentially erroneous transactions to buy.

#### Result

- Based on the Exchange’s current rules, the Exchange would identify Market Maker A as a participant to the trades at issue and would consider Market Maker A’s quotations invalid pursuant to Rule 1092(b)(2).
- As there were no other valid quotes to use as a reference price, the Exchange would then determine Theoretical Price.
- Assume the Exchange determines a Theoretical Price of \$0.05.
  - The execution price of \$1.00 exceeds the \$0.25 minimum amount set forth in the Exchange’s table to determine whether an obvious error has

occurred (i.e.,  $\$0.05 + \$0.25 = \$0.30$ ) so any execution at or above this price is an obvious error.

- Accordingly, the executions in all series would be adjusted by the Exchange to executions at \$0.20 per contract (Theoretical Price of \$0.05 plus \$0.15) to the extent the incoming orders submitted by Member A were non-Customer orders.
- The executions in all series would be nullified to the extent the incoming orders submitted by Member A were Customer orders.

*Example 2 - Current Rule, Member Erroneously Quotes on Multiple Exchanges*

Assumptions

For purposes of this example, assume the following:

- A Member acting as a Market Maker on the Exchange (“Market Maker A”) is quoting in twenty series of options underlying security ABCD on the Exchange and on a second exchange (“Away Exchange”).
- Market Maker A makes an error in calculating the market for options on ABCD, and publishes quotes on both the Exchange and the Away Exchange in all twenty series to buy options at \$1.00 and to sell options at \$1.05.
- In fact, options on ABCD in these series are nearly worthless and no other market participant is quoting in such series.
- Therefore, the NBBO in the twenty series at issue is \$1.00 x \$1.05 (with the Exchange and the Away Exchange representing the NBBO based on Market Maker A’s quotes).

- Assume Member A immediately enters sell orders and executes against Market Maker A's quotes at \$1.00.
- Assume Market Maker A submits to the Exchange and to the Away Exchange timely requests for review of the trades with Member A as potentially erroneous transactions to buy.

### Result

- Based on the Exchange's current rules, the Exchange would identify Market Maker A as a participant to the trades at issue and would consider Market Maker A's quotations on the Exchange invalid pursuant to Rule 1092(b)(2). The Exchange, however, would view the Away Exchange's quotations as valid, and would thus determine Theoretical Price to be \$1.05 (i.e., the NBO in the case of a potentially erroneous buy transaction).
- The execution price of \$1.00 does not exceed the \$0.25 minimum amount set forth in the Exchange's table to determine whether an obvious error has occurred (i.e.,  $\$1.05 + \$0.25 = \$1.30$ ) so any execution at or above this price is an obvious error.
- The transactions on the Exchange would not be nullified or adjusted.
- As the Exchange and all other options exchanges have identical rules with respect to the process described above, the transactions on the Away Exchange would not be nullified or adjusted.

### *Example 3 - Proposed Rule, Member Erroneously Quotes on Multiple Exchanges*<sup>13</sup>

---

<sup>13</sup> The Exchange notes that its proposed rule will not impact the proposed handling of a request for review where a market participant is quoting only on the

### Assumptions

For purposes of this example, assume the following:

- A Member acting as a Market Maker on the Exchange (“Market Maker A”) is quoting in twenty series of options underlying security ABCD on the Exchange and on a second exchange (“Away Exchange”).<sup>14</sup>
- Market Maker A makes an error in calculating the market for options on ABCD, and publishes quotes on both the Exchange and the Away Exchange in all twenty series to buy options at \$1.00 and to sell options at \$1.05.
- In fact, options on ABCD in these series are nearly worthless and no other market participant is quoting in such series.
- Therefore, the NBBO in the twenty series at issue is \$1.00 x \$1.05 (with the Exchange and the Away Exchange representing the NBBO based on Market Maker A’s quotes).
- Assume Member A immediately enters sell orders and executes against Market Maker A’s quotes at \$1.00.
- Assume Market Maker A submits to the Exchange and to the Away Exchange timely requests for review of the trades with Member A as potentially erroneous transactions to buy. At the time of submitting the requests for review to the Exchange and the Away Exchange, Market Maker A identifies to the Exchange the quotes on the Away Exchange as quotes also represented

---

Exchange, thus, the Exchange has not included a separate example for such a fact pattern.

<sup>14</sup> The Exchange notes that the proposed rule would operate the same if Market Maker A was quoting on more than two exchanges. The Exchange has limited the example to two exchanges for simplicity.

by Market Maker A (and to the Away Exchange, the quotes on the Exchange as quotes also represented by Market Maker A).

### Result

- Based on the proposed rules, the Exchange would identify Market Maker A as a participant to the trades at issue and would consider Market Maker A's quotations on the Exchange invalid pursuant to Rule 1092(b)(2).
- The Exchange and the Away Exchange would also coordinate to confirm that the quotations identified by Market Maker A on the other exchange were indeed Market Maker A's quotations. Once confirmed, each of the Exchange and the Away Exchange would also consider invalid the quotations published on the other exchange.
- As there were no other valid quotes to use as a reference price, the Exchange would then determine Theoretical Price.
- Assume the Exchange determines a Theoretical Price of \$0.05.
  - The execution price of \$1.00 exceeds the \$0.25 minimum amount set forth in the Exchange's table to determine whether an obvious error has occurred (i.e.,  $\$0.05 + \$0.25 = \$0.30$ ) so any execution at or above this price is an obvious error.
  - Accordingly, the executions in all series would be adjusted by the Exchange to executions at \$0.20 per contract (Theoretical Price of \$0.05 plus \$0.15) to the extent the incoming orders submitted by Member A were non-Customer orders.

- The executions in all series would be nullified to the extent the incoming orders submitted by Member A were Customer orders.
- As the Exchange and all other options exchanges would have identical rules with respect to the process described above, as other options exchanges intend to adopt the same rule if the proposed rule is approved, the transactions on the Away Exchange would also be nullified or adjusted as set forth above.

If this example was instead modified such that Market Maker A was quoting in 200 series rather than 20, the Exchange notes that Market Maker A could only request that the Exchange consider as invalid their quotations in 25 of those series on other exchanges. As noted above, the Exchange has proposed to limit the proposed rule to 25 series in order to continue to process requests for review in a timely and organized fashion in order to provide certainty to market participants. This is due to the amount of coordination that will be necessary in such a scenario to confirm that the quotations in question on an away options exchange were indeed submitted by a party to a transaction on the Exchange.

## 2. Statutory Basis

The Exchange believes that its proposal is consistent with the requirements of the Act and the rules and regulations thereunder that are applicable to a national securities exchange, and, in particular, with the requirements of Section 6(b) of the Act.<sup>15</sup> Specifically, the proposal is consistent with Section 6(b)(5) of the Act<sup>16</sup> because it would promote just and equitable principles of trade, remove impediments to, and perfect the

---

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

<sup>16</sup> 15 U.S.C. 78f(b)(5).

mechanism of, a free and open market and a national market system, and, in general, protect investors and the public interest.

As described above, the Exchange and other options exchanges are seeking to further modify their harmonized rules related to the adjustment and nullification of erroneous options transactions. The Exchange believes that the proposal to utilize a TP Provider in the event the NBBO is unavailable or unreliable will provide greater transparency and clarity with respect to the adjustment and nullification of erroneous options transactions. Particularly, the proposed changes seek to achieve consistent results for participants across U.S. options exchanges while maintaining a fair and orderly market, protecting investors and protecting the public interest. Thus, the Exchange believes that the proposal is consistent with Section 6(b)(5) of the Act<sup>17</sup> in that the proposed Rule will foster cooperation and coordination with persons engaged in regulating and facilitating transactions.

The Exchange again reiterates that it has retained the standard of the current rule for most reviews of options transactions pursuant to Rule 1092, which is to rely on the NBBO to determine Theoretical Price if such NBBO can reasonably be relied upon. The proposal to use a TP Provider when the NBBO is unavailable or unreliable is consistent with Section 6(b)(5) of the Act<sup>18</sup> in that the proposed Rule will foster cooperation and coordination with persons engaged in regulating and facilitating transactions by further reducing the possibility of disparate results between options exchanges and increasing the objectivity of the application of Rule 1092. Further, the Exchange believes that the

---

<sup>17</sup> Id.

<sup>18</sup> Id.

proposed Rule is transparent with respect to the limited circumstances under which the Exchange will request a review and correction of Theoretical Price from the TP Provider, and has sought to limit such circumstances as much as possible. The Exchange notes that under the current Rule, Exchange personnel are required to determine Theoretical Price in certain circumstances and yet rarely do so because such circumstances have already been significantly limited under the harmonized rule (for example, because the wide quote provision of the harmonized rule only applies if the quote was narrower and then gapped but does not apply if the quote had been persistently wide). Thus, the Exchange believes it will need to request Theoretical Price from the TP Provider only in very rare circumstances and in turn, the Exchange anticipates that the need to contact the TP Provider for additional review of the Theoretical Price provided by the TP Provider will be even rarer. Similarly, the Exchange believes it is unlikely that an Exchange Official will ever be required to determine Theoretical Price, as such circumstance would only be in the event of a systems issue that has rendered the TP Provider's services unavailable and such issue cannot be corrected in a timely manner.

The Exchange also believes its proposal to adopt language in paragraph (d) of Commentary .05 to Rule 1092 to disclaim the liability of the Exchange and the TP Provider in connection with the proposed Rule, the TP Provider's calculation of Theoretical Price, and the Exchange's use of such Theoretical Price is consistent with the Act. As noted above, this proposed language is modeled after existing language in Exchange Rules regarding "reporting authorities" that calculate indices,<sup>19</sup> and is

---

<sup>19</sup> See supra, note 12.

consistent with Section 6(b)(5) of the Act<sup>20</sup> in that the proposed Rule will foster cooperation and coordination with persons engaged in regulating and facilitating transactions.

As described above, the Exchange proposes a modification to the valid quotes provision to also exclude quotes in a series published by another options exchange if either party to the transaction in question submitted the orders or quotes in the series representing such options exchange's best bid or offer. The Exchange believes this proposal is consistent with Section 6(b)(5) of the Act<sup>21</sup> because the application of the rule will foster cooperation and coordination with persons engaged in regulating and facilitating transactions by allowing the Exchange to coordinate with other options exchanges to determine whether a market participant that is party to a potentially erroneous transaction on the Exchange established the market in an option on other options exchanges; to the extent this can be established, the Exchange believes such participant's quotes should be excluded in the same way such quotes are excluded on the Exchange. The Exchange also believes it is reasonable to limit the scope of this provision to twenty-five (25) series and to require the party that believes it established the best bid or offer on one or more other options exchanges to identify to the Exchange the quotes which were submitted by that party and published by other options exchanges. The Exchange believes these limitations are consistent with Section 6(b)(5) of the Act<sup>22</sup> because they will ensure that the Exchange is able to continue to apply the Rule in a

---

<sup>20</sup> 15 U.S.C. 78f(b)(5).

<sup>21</sup> 15 U.S.C. 78f(b)(5).

<sup>22</sup> Id.

timely and organized fashion, thus fostering cooperation and coordination with persons engaged in regulating and facilitating transactions and also removing impediments to and perfecting 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 believes the entire proposal is consistent with Section 6(b)(8) of the Act<sup>23</sup> in that it does not impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act as explained below.

Importantly, the Exchange does not believe that the proposal will impose a burden on intermarket competition but rather that it will alleviate any burden on competition because it is the result of a collaborative effort by all options exchanges to further harmonize and improve the process related to the adjustment and nullification of erroneous options transactions. The Exchange does not believe that the rules applicable to such process is an area where options exchanges should compete, but rather, that all options exchanges should have consistent rules to the extent possible. Particularly where a market participant trades on several different exchanges and an erroneous trade may occur on multiple markets nearly simultaneously, the Exchange believes that a participant should have a consistent experience with respect to the nullification or adjustment of transactions. To that end, the selection and implementation of a TP Provider utilized by all options exchanges will further reduce the possibility that participants with potentially erroneous transactions that span multiple options exchanges are handled differently on such exchanges. Similarly, the proposed ability to consider quotations invalid on another options exchange if ultimately originating from a party to a potentially erroneous

---

<sup>23</sup> 15 U.S.C. 78f(b)(8).

transaction on the Exchange represents a proposal intended to further foster cooperation by the options exchanges with respect to market events. The Exchange understands that all other options exchanges either have or they intend to file proposals that are substantially similar to this proposal.

The Exchange does not believe that the proposed rule change imposes a burden on intramarket competition because the proposed provisions apply to all market participants equally.

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

No written comments were either solicited or received.

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

Because the foregoing proposed rule change does not: (i) significantly affect the protection of investors or the public interest; (ii) impose any significant burden on competition; and (iii) become operative for 30 days from the date on which it was filed, or such shorter time as the Commission may designate, it has become effective pursuant to Section 19(b)(3)(A)(iii) of the Act<sup>24</sup> and subparagraph (f)(6) of Rule 19b-4 thereunder.<sup>25</sup>

At any time within 60 days of the filing of the proposed rule change, the Commission summarily may temporarily suspend such rule change if it appears to the

---

<sup>24</sup> 15 U.S.C. 78s(b)(3)(A)(iii).

<sup>25</sup> 17 CFR 240.19b-4(f)(6). In addition, Rule 19b-4(f)(6) requires a self-regulatory organization to give the Commission written notice of its intent to file the proposed rule change at least five business days prior to the date of filing of the proposed rule change, or such shorter time as designated by the Commission. The Exchange has satisfied this requirement.

Commission that such action is: (i) necessary or appropriate in the public interest; (ii) for the protection of investors; or (iii) otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission shall institute proceedings to determine whether the proposed rule should be approved or 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](mailto:rule-comments@sec.gov). Please include File Number SR-Phlx-2017-42 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-Phlx-2017-42. 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 Web site (<http://www.sec.gov/rules/sro.shtml>).

Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any

person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street, NE, Washington, DC 20549, on official business days between the hours of 10:00 a.m. and 3:00 p.m. Copies of the filing also will be available for inspection and copying at the principal office of the Exchange. All comments received will be posted without change; 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-Phlx-2017-42 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.<sup>26</sup>

Eduardo A. Aleman  
Assistant Secretary

---

<sup>26</sup> 17 CFR 200.30-3(a)(12).

**EXHIBIT 5**

Deleted text is [bracketed]. New text is underlined.

**NASDAQ PHLX Rules**

\* \* \* \* \*

**OPTIONS RULES****Rules Applicable to Trading of Options on Stocks, Exchange-Traded Fund Shares and Foreign Currencies (Rules 1000-1098)**

\* \* \* \* \*

**Rule 1092 Nullification and Adjustment of Options Transactions including Obvious Errors**

The Exchange may nullify a transaction or adjust the execution price of a transaction in accordance with this Rule. However, the determination as to whether a trade was executed at an erroneous price may be made by mutual agreement of the affected parties to a particular transaction. A trade may be nullified or adjusted on the terms that all parties to a particular transaction agree, provided, however, that such agreement to nullify or adjust must be conveyed to the Exchange in a manner prescribed by the Exchange prior to 8:30 a.m. Eastern Time on the first trading day following the execution. It is considered conduct inconsistent with just and equitable principles of trade for any member or member organization to use the mutual adjustment process to circumvent any applicable Exchange rule, the Act or any of the rules and regulations thereunder.

(a) No change.

(b) *Theoretical Price*. Upon receipt of a request for review and prior to any review of a transaction execution price, the "Theoretical Price" for the option must be determined. For purposes of this Rule, if the applicable option series is traded on at least one other options exchange, then the Theoretical Price of an option series is the last NBB just prior to the trade in question with respect to an erroneous sell transaction or the last NBO just prior to the trade in question with respect to an erroneous buy transaction unless one of the exceptions in sub-paragraphs (b)(1) through (3) below exists. For purposes of this provision, when a single order received by the Exchange is executed at multiple price levels, the last NBB and last NBO just prior to the trade in question would be the last NBB and last NBO just prior to Exchange's receipt of the order. The Exchange will rely on this paragraph (b) and Commentary .05 of this Rule when determining Theoretical Price.

(1) No change.

(2) *No Valid Quotes*. The Exchange will determine the Theoretical Price if there are no quotes or no valid quotes for comparison purposes. Quotes that are not valid are:

(A) all quotes in the applicable option series published at a time where the last NBB is higher than the last NBO in such series (a "crossed market")[,];

(B) quotes published by the Exchange that were submitted by either party to the transaction in question[, and];

(C) quotes published by another options exchange if either party to the transaction in question submitted the quotes in the series representing such options exchange's best bid or offer, provided that the Exchange will only consider quotes invalid on other options exchanges in up to twenty-five (25) total options series that the party identifies to the Exchange the quotes which were submitted by such party and published by other options exchanges; and

(D) quotes published by another options exchange against which the Exchange has declared self-help.

(3) No change.

(c) – (l) No change.

*Commentary:* -----

**.01 - .04.** No change.

**.05 Exchange Determining Theoretical Price.** For purposes of this Rule, when the Exchange must determine Theoretical Price pursuant to sub-paragraphs (b)(1)-(3) of this Rule (i.e., at the open, when there are no valid quotes or when there is a wide quote), then the Exchange will determine Theoretical Price as follows.

(a) The Exchange will request Theoretical Price from the third party vendor defined in paragraph (d) below ("TP Provider") to which the Exchange and all other options exchanges have subscribed. The Exchange will apply the Theoretical Price provided by the TP Provider, except as otherwise described below.

(b) To the extent an Official of the Exchange believes that the Theoretical Price provided by the TP Provider is fundamentally incorrect and cannot be used consistent with the maintenance of a fair and orderly market, the Official shall contact the TP Provider to notify the TP Provider of the reason the Official believes such Theoretical Price is inaccurate and to request a review and correction of the calculated Theoretical Price. The Exchange shall also promptly provide electronic notice to other options exchanges that the TP Provider has been contacted consistent with this paragraph and include a brief explanation of the reason for the request.

(c) An Official of the Exchange may determine the Theoretical Price if the TP Provider has experienced a systems issue that has rendered its services unavailable to accurately calculate Theoretical Price and such issue cannot be corrected in a timely manner.

(d) The current TP Provider to which the Exchange and all other options exchanges have subscribed is: CBOE Livevol, LLC. Neither the Exchange, the TP Provider, nor any affiliate of the TP Provider (the TP Provider and its affiliates are referred to collectively as the "TP Provider"), makes any warranty, express or implied, as to the results to be obtained by any person or entity from the use of the TP Provider pursuant to this Commentary .04. The TP Provider does not guarantee the accuracy or completeness of the calculated Theoretical Price. The TP Provider disclaims all warranties of merchantability or fitness for a particular purpose or use with respect to such Theoretical Price. Neither the Exchange nor the TP Provider shall have any liability for any damages, claims, losses (including any indirect or consequential losses), expenses, or delays, whether direct or indirect, foreseen or unforeseen, suffered by any person arising out of any circumstance or occurrence relating to the use of such Theoretical Price or arising out of any errors or delays in calculating such Theoretical Price.

\* \* \* \* \*