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SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
Form 19b-4

File No. * SR 2024 - * 07

Amendment No. (req. for Amendments *)

Filing by Investors' Exchange LLC

Pursuant to Rule 19b-4 under the Securities Exchange Act of 1934

Initial * <input checked="" type="checkbox"/>	Amendment * <input type="checkbox"/>	Withdrawal <input type="checkbox"/>	Section 19(b)(2) * <input type="checkbox"/>	Section 19(b)(3)(A) * <input checked="" type="checkbox"/>	Section 19(b)(3)(B) * <input type="checkbox"/>
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Pilot <input type="checkbox"/>	Extension of Time Period for Commission Action * <input type="checkbox"/>	Date Expires * <input type="text"/>	Rule <input type="checkbox"/> 19b-4(f)(1) <input type="checkbox"/> 19b-4(f)(4) <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)		
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Notice of proposed change pursuant to the Payment, Clearing, and Settlement Act of 2010
Section 806(e)(1) *

Section 806(e)(2) *

Security-Based Swap Submission pursuant to the Securities Exchange Act of 1934
Section 3C(b)(2) *

Exhibit 2 Sent As Paper Document

Exhibit 3 Sent As Paper Document

Description

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

Proposed Rule Change to Amend IEX Rule 11.190(g).

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 * Last Name *

Title *

E-mail *

Telephone * Fax

Signature

Pursuant to the requirements of the Securities Exchange of 1934, Investors' Exchange LLC has duly caused this filing to be signed on its behalf by the undersigned thereunto duly authorized.

Date (Title *)

By
(Name *)

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

Claudia Crowley
Digitally signed by Claudia Crowley
Date: 2024.04.12 15:55:20 -04'00'

Required fields are shown with yellow backgrounds and astericks.

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

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

Form 19b-4 Information *

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CQI 6.1 19b-4 v8 SEC filing.docx

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 *

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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 Advanced Notice by Clearing Agencies *

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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 2- Notices, Written Comments, Transcripts, Other Communications

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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 Sent As Paper Document

Exhibit 3 - Form, Report, or Questionnaire

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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 Sent As Paper Document

Exhibit 4 - Marked Copies

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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

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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

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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 Proposed Rule Change

(a) Pursuant to the provisions of Section 19(b)(1) under the Securities Exchange Act of 1934 (“Act”),¹ and Rule 19b-4 thereunder,² Investors Exchange LLC (“IEX” or “Exchange”) is filing with the Securities and Exchange Commission (“Commission”) a proposed rule change to amend IEX Rule 11.190(g)(2) to incrementally optimize the effectiveness of the proprietary mathematical calculation used to make quote instability determinations for certain orders, and to correct two cross-reference errors and one typographical error. The Exchange has designated this proposal as non-controversial and provided the Commission with the notice required by Rule 19b-4(f)(6)(iii) under the Act.³

A notice of the proposed rule change for publication in the Federal Register is attached hereto as Exhibit 1. The text of the proposed rule change is attached as Exhibit 5.

(b) The Exchange does not believe that the proposed rule change will have any direct effect, or any significant indirect effect, on any other Exchange rule in effect at the time of this filing.

(c) Not applicable.

2. Procedures of the Self-Regulatory Organization

Senior management has approved the proposed rule change pursuant to authority delegated to it by the Board of the Exchange. No further action is required under the

¹ 15 U.S.C. 78s(b)(1).

² 17 CFR 240.19b-4.

³ 17 CFR 240.19b-4(f)(6)(iii).

Exchange's governing documents. Therefore, the Exchange's internal procedures with respect to the proposed rule change are complete.

The persons on the Exchange staff prepared to respond to questions and comments on the proposed rule change are:

Claudia Crowley
Chief Regulatory Officer
Investors Exchange LLC
646-343-2041

Nathaniel Kolodny
Lead Regulation Counsel
Investors Exchange LLC
646-343-2034

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

a. Purpose

The purpose of the proposed rule change is to amend IEX Rule 11.190(g)(2) to incrementally optimize the proprietary mathematical calculation used to make quote instability determinations for certain orders (i.e., to assess the probability of a "crumbling quote" -- an imminent change to the current Protected NBB⁴ to a lower price or the current Protected NBO⁵ to a higher price for a particular security). This calculation is referred to as the "crumbling quote indicator" or "CQI". This proposed rule change would only modify the functionality of CQI 2⁶, which is the CQI version used to make quote instability determinations for all Discretionary Limit ("D-Limit")⁷ orders, and for

⁴ See IEX Rule 1.160(cc).

⁵ See IEX Rule 1.160(cc).

⁶ IEX supports two versions of the CQI – Option 1 Crumbling Quote (which is based on the CQI in effect when IEX began operating as a national securities exchange in 2016) ("CQI 1") and Option 2 Crumbling Quote ("CQI 2"). See IEX Rule 11.190(g)(1) and (g)(2), respectively. CQI 1 is not affected by this proposed rule change.

⁷ See IEX Rule 11.190(b)(7).

Discretionary Peg (“D-Peg”)⁸, primary peg (“P-Peg”)⁹, and Corporate Discretionary Peg (“C-Peg”)¹⁰ orders for which the User¹¹ selected CQI 2 (collectively “CQI 2 enhanced pegged orders”).¹²

The Exchange also proposes to correct two cross-reference errors and one typographical error in the rule text defining the CQI 2.

Background

When CQI 2 generates a quote instability determination (i.e., it is “on” pursuant to IEX Rule 11.190(g)(2)), CQI 2 enhanced pegged orders resting on the Order Book¹³ do not exercise price discretion to meet the limit price of an active (i.e., taking) order, and remain pegged to a price that is the less aggressive of one (1) minimum price variant (“MPV”)¹⁴ less aggressive than the primary quote (i.e., one MPV below (above) the NBB.¹⁵ (NBO.¹⁶ for buy (sell) orders) or the order’s limit price, if any.¹⁷

Relatedly, D-Limit orders priced at or more aggressively than the quote instability

⁸ See Rule 11.190(b)(10).

⁹ See Rule 11.190(b)(8).

¹⁰ See Rule 11.190(b)(16).

¹¹ See IEX Rule 1.160(qq).

¹² Users may select which CQI version to apply to D-Peg, P-Peg, and C-Peg orders (pegged orders eligible to exercise price discretion to their discretionary price except during periods of quote instability). See IEX Rules 11.190(b)(8)(K), 11.190(b)(10)(K), and 11.190(b)(16)(K).

¹³ See IEX Rule 1.160(p).

¹⁴ See IEX Rule 11.210.

¹⁵ See IEX Rule 1.160(u).

¹⁶ See IEX Rule 1.160(u).

¹⁷ C-Peg orders are also constrained by the consolidated last sale price of the security, and therefore cannot trade, book, or exercise discretion at a price that is more aggressive than the consolidated last sale price. See IEX Rule 11.190(b)(16).

determination price level (“CQI Price”) are re-priced when CQI 2 is on.¹⁸ Specifically, if the System¹⁹ receives a D-Limit buy (sell) order when CQI 2 is on, and the D-Limit order has a limit price equal to or higher (lower) than the CQI Price, the price of the order will be automatically adjusted by the System to a price one (1) MPV lower (higher) than the CQI Price (the “effective limit price”). Similarly, when unexecuted shares of a D-Limit buy (sell) order are posted to the Order Book, if a quote instability determination is made and such shares are ranked and displayed (in the case of a displayed order) by the System at a price equal to or higher (lower) than the CQI Price, the price of the order will be automatically adjusted by the System to a price one MPV lower (higher) than the CQI Price.²⁰

Once the price of a D-Limit order that has been posted to the Order Book is automatically adjusted by the System to its effective limit price, the order will continue to be ranked and displayed (in the case of a displayed order) at the adjusted price²¹, unless subject to another automatic adjustment; if the order is subject to the price sliding provisions of IEX Rule 11.190(h); or if the User elects, pursuant to IEX Rule 11.190(b)(7)(E)(i), that the order will be re-priced if resting at a price that is less aggressive than the NBB (for a buy order) or NBO (for a sell order) ten (10) milliseconds after the most recent quote instability determination. Otherwise, a D-Limit order operates in the same manner as either a displayed or non-displayed limit order, as applicable.²²

¹⁸ See IEX Rules 11.190(b)(7)(A) and (B).

¹⁹ See IEX Rule 1.160(mn).

²⁰ See IEX Rule 11.190(b)(7)(C) and (D).

²¹ See IEX Rule 11.190(b)(7)(F).

²² See IEX Rule 11.190(b)(7).

Overview of CQI 2

The Exchange has made incremental changes to optimize and enhance the effectiveness of CQI 1 in determining whether a crumbling quote exists three times since Exchange launch²³ and in 2022, introduced CQI 2.²⁴ CQI 2 is designed to incrementally increase the coverage²⁵ of the quote instability determinations in predicting whether a particular quote is unstable by adjusting the logic underlying the quote instability calculation and introducing enhanced functionality designed to increase the number of crumbling quotes identified, while maintaining CQI 1's accuracy rate²⁶ in predicting the direction and timing of the next price change in the NBB or NBO, as applicable.

IEX introduced CQI 2 into its System on March 31, 2023 (i.e., it began generating quote instability determinations for informational and planning purposes), and CQI 2 became optionally available for D-Peg, P-Peg, and C-Peg orders on May 16, 2023²⁷ and for all D-Limit orders on November 10, 2023.²⁸

²³ See Securities Exchange Act Release 34-78510 (August 9, 2016), 81 FR 54166 (August 15, 2016) (SR-IEX-2016-11); Securities Exchange Act Release No. 80202 (March 10, 2017), 82 FR 14058 (March 16, 2017) (SR-IEX-2017-06); Securities Exchange Act Release No. 83048 (April 13, 2018), 83 FR 17467 (April 19, 2018) (SR-IEX-2018-07).

²⁴ See Securities Exchange Act Release No. 96014 (October 11, 2022), 87 FR 62903 (October 17, 2022) ("CQI 2 Proposal"); Securities Exchange Act Release No. 96416 (December 1, 2022), 87 FR 75099 (December 7, 2022) ("CQI 2 Approval Order") (SR-IEX-2022-06).

²⁵ "Coverage" means the percentage of all "adverse" NBBO changes per symbol (lower for bids, higher for offers) that were predicted by CQI 2 (meaning CQI 2 was "on" at the time of the adverse NBBO change).

²⁶ "Accuracy rate" means the percentage of time that CQI 2 accurately predicted the direction of the next price change.

²⁷ See IEX Trading Alert # 2023-010, available at <https://iextrading.com/alerts/#/217>; see also CQI 2 Approval Order, *supra* note 24.

²⁸ See IEX Trading Alert # 2023-023, available at <https://iextrading.com/alerts/#/231>; see also Securities Exchange Act Release No. 98625 (September 28, 2023), 88 FR 68709 (October 4, 2023) (SR-IEX-2023-10).

CQI 2 utilizes real time relative quoting activity of certain Protected Quotations²⁹ and a “quote instability calculation” in which nine separate “quote instability rules”³⁰ – each with specific conditions based on either the price, size, or price and size of the Signal Exchanges to assess the probability of a crumbling quote. Each of these rules can trigger a quote instability determination for either the NBB (for buy orders) the NBO (for sell orders), or both, of a particular security, meaning the System treats the quote as unstable and CQI 2 is on at that price level for two milliseconds.³¹ During all other times, the quote is considered stable, and CQI 2 is off. The System independently assesses the stability of the Protected NBB and Protected NBO for each security.

CQI 2 includes four categories of rules designed to predict whether the Protected NBB or Protected NBO is unstable, as follows:

- Disappearing bids (or offers) – This category includes four rules that focus on whether one or more of the Signal Exchanges is no longer disseminating a bid or offer at the Signal Best Bid³² or Signal Best Offer³³ as applicable³⁴;
- Recent changes in quote size – This category includes two rules that focus on whether there is an imbalance in the size of bids and offers at the Signal Best

²⁹ Specifically, IEX utilizes real time relative quoting activity of Protected Quotations from the “Signal Exchanges”, which are the following eleven exchanges: Cboe BZX Exchange (“BATS”), Cboe BYX Exchange (“BATY”), Cboe EDGA Exchange (“EDGA”), Cboe EDGX Exchange (“EDGX”), MIAX Pearl (“EPRL”), MEMX LLC (“MEMX”), the Nasdaq Stock Market (“XNGS”), Nasdaq BX (“XBOS”), Nasdaq PHLX (“XPHL”), the New York Stock Exchange (“XNYS”), and NYSE Arca (“ARCX”). See IEX Rule 11.190(g).

³⁰ See IEX Rule 11.190(g)(2)(C).

³¹ The nine rules are designed to work together in determining whether a quote instability determination is triggered, so if a User selects the alternative model all nine rules would be applicable. Users cannot elect that only some of the rules would apply.

³² “Signal Best Bid” means the highest Protected Bid of the Signal Exchanges. See IEX Rule 11.190(g)(2)(B)(i).

³³ “Signal Best Offer” means the lowest Protected Offer of the Signal Exchanges. See IEX Rule 11.190(g)(2)(B)(v).

³⁴ See IEX Rule 11.190(g)(2)(C)(i).

Bid or Signal Best Offer³⁵;

- Locked or crossed market – This category includes one rule that focuses on situations where the Signal Best Bid and Signal Best Offer are locked or crossed³⁶; and
- Quotation Changes – This category includes two rules that focus on changes to the Signal Best Bid or Signal Best Offer.³⁷

On a security-by-security basis, if the specified conditions of any of the quote instability rules are met, then the rule is deemed to be “True” for that security. Each rule also must be active before it can trigger a quote instability determination. When one or more quote instability rules is deemed to be True and any of such rules are active, the System will treat the quote as unstable.

For CQI 2, the Exchange maintains an activation value (“Activation Value”) for each quote instability rule, which is used to determine if each rule is active. Each rule’s Activation Value is computed (on a security-by-security basis for both the Bid side and the Offer side) in real time as a function of the number of times the quote moves to a less aggressive price within the two milliseconds following the time the rule was True and the total number of times the rule was True. Whenever the Activation Value for a given rule exceeds a fixed predetermined activation threshold specific to that rule (“Activation Threshold”)³⁸, the rule is active (i.e., it is eligible to trigger a quote instability determination when True). If a rule’s Activation Value is below its Activation Threshold, it will not trigger a quote instability determination when True.

³⁵ See IEX Rule 11.190(g)(2)(C)(ii).

³⁶ See IEX Rule 11.190(g)(2)(C)(iii).

³⁷ See IEX Rule 11.190(g)(2)(C)(iv).

³⁸ The Activation Thresholds for the quote instability rules range from 0 to .50.

The Activation Value and Activation Threshold computations are designed to optimize the overall accuracy of the quote instability determinations by providing a mechanism to turn off a particular rule when market conditions are such that it is relatively less accurate in predicting a crumbling quote. IEX believes that utilizing Activation Thresholds is a useful innovation because it enables the use of rules that can be highly predictive in certain market conditions but not in others. The Activation Thresholds are tailored for each rule based on the rule's expected general accuracy in predicting a crumbling quote, based on IEX's market data analysis, so that a rule that has a higher potential to be less accurate has a higher activation threshold burden to meet. The Activation Thresholds are designed to enable increased coverage for CQI 2 by enabling more frequent triggers with accuracy control safeguards.

The Exchange utilizes an initial activation value of 0.50 for all rules at the start of the Regular Market Session³⁹, which is then modified during the course of the Regular Market Session to reflect each rule's predictive performance. Specifically, each time a rule is True⁴⁰ its existing Activation Value is multiplied by a Decay Factor of 0.94. In addition, each time the Protected NBB or Protected NBO moves to a less aggressive price within two milliseconds of a rule being True at that price level, 0.06 will be added to that rule's existing Activation Value (i.e., $(1 - \text{decay factor}) + \text{previous Activation Value}$) as specified in IEX Rule 11.190(g)(2)(D)(ii).

Whenever a rule is True, the System evaluates if its Activation Value exceeds its

³⁹ See IEX Rule 1.160(gg).

⁴⁰ Excluding instances where the rule was already True at the same unchanged price level in the prior two milliseconds.

Activation Threshold, regardless of whether the rule is active. If a rule is True and its Activation Value exceeds its Activation Threshold, the rule is active and will trigger the System to treat the relevant quote as unstable. If a rule is True but its Activation Value does not exceed its Activation Threshold, the rule is inactive, and it will not trigger the System to treat the relevant quote as unstable. If one or more rules are True, and if any one of such rules has an Activation Value that exceeds the rule's Activation Threshold, the System will treat the relevant quote as unstable. The System continues to update the Activation Value for rules that are inactive, and if the Activation Value subsequently exceeds the rule's Activation Threshold, the System will reactivate the rule.

IEX believes that these Activation Thresholds provide a dynamic performance evaluation methodology that is designed to optimize the frequency and accuracy of the quote instability calculation, by enabling IEX to utilize a broader array of rules that may be predictive of a crumbling quote in certain market conditions but not others.

IEX Rule 11.190(g)(3) provides that IEX reserves the right to modify the quote instability calculations as appropriate, subject to a filing of a proposed rule change with the SEC. Pursuant to this provision, IEX identified a modification to CQI 2 that it believes will enhance its effectiveness, as described below.

Proposal

IEX conducted an analysis of the efficacy of CQI 2 in predicting whether a crumbling quote would occur, by reviewing randomly selected market data from the second half of 2023 and the first quarter of 2024. These results were then validated by testing different randomly selected dates from the same time period. Based upon this analysis, IEX proposes to make an incremental change to the CQI 2 Activation Value

calculation process, which is designed to enhance CQI 2's accuracy by better reflecting market conditions. Specifically, the Exchange is proposing to extend the amount of time the System waits after a quote instability rule is True to assess if the quote moved to a less aggressive price. Currently, the System waits two milliseconds following the time a quote instability rule was True to assess whether the quote instability rule accurately predicted that the next price change would be to a less aggressive price. IEX proposes to modify IEX Rule 11.190(g)(2)(D)(ii), so that the System would wait up to one second after a quote instability rule is True to assess if the next price change is to a less aggressive price (hereafter the "CQI 2 Update"). If the next price change occurs within one second after a quote instability rule is True and is to a less aggressive price, the System would add .06 to that rule's previous Activation Value. However, if one second passes from the time that a quote instability rule's conditions are met with no price change, or if the next price change was to a more aggressive price, then the System will not update that quote instability rule's Activation Value.

In deciding to propose increasing the interval for the Activation Value calculation process to assess if the next price change was to a less aggressive price (from two milliseconds to one second), the Exchange considered that a predicted price change may take more than two milliseconds to occur for several reasons. For example, large reserve orders might take more than two milliseconds to fully exhaust the reserve volume allowing a price change to occur. Additionally, periods of relatively higher market volume (or bursts of market data) can impact the time it takes for price changes to materialize because of increased time for markets to process incoming orders and executions. During periods of market volatility, trading functions such as order

processing, order matching, and the publishing of market data may be delayed due to higher message rates (which are correlated with the Exchange making quote instability determinations). Significantly, during these time periods of increased market activity and volatility, latency arbitrage strategies have an opportunity to be more prevalent because there are more opportunities to react to market volatility to take advantage of resting orders.

In light of the foregoing, IEX believes a modest increase of the time used in the Activation Value calculation process is a narrowly tailored approach to enhance the efficacy of CQI 2 in predicting an imminent quote change to a price adverse to a resting order.

IEX's market data analysis⁴¹ evidences that the proposed CQI 2 Update would result in an incremental enhancement to the efficacy of CQI 2 as set forth in the chart below:

Chart 1

<u>Metric</u>	<u>CQI 2</u>	<u>CQI 2 Update</u>
Average time on ^a (average of all symbols)	3.6 seconds	6.5 seconds
Average time on (volume weighted)	32.6 seconds	52.4 seconds
Coverage (volume weighted) ^b	63.3%	69.7%
Accuracy Rate (volume weighted) ^c	78%	80%
% of the Day CQI is "On" (volume-weighted)	0.139%	0.224%
% of the day D-Limit is available at specified limit price	99.861%	99.776%

^a "Time on" means the average time CQI 2 is on during a day per symbol.

^b See supra note 25.

^c "Accuracy" means the percent of time that following CQI 2 being "on" the NBB or NBO (as

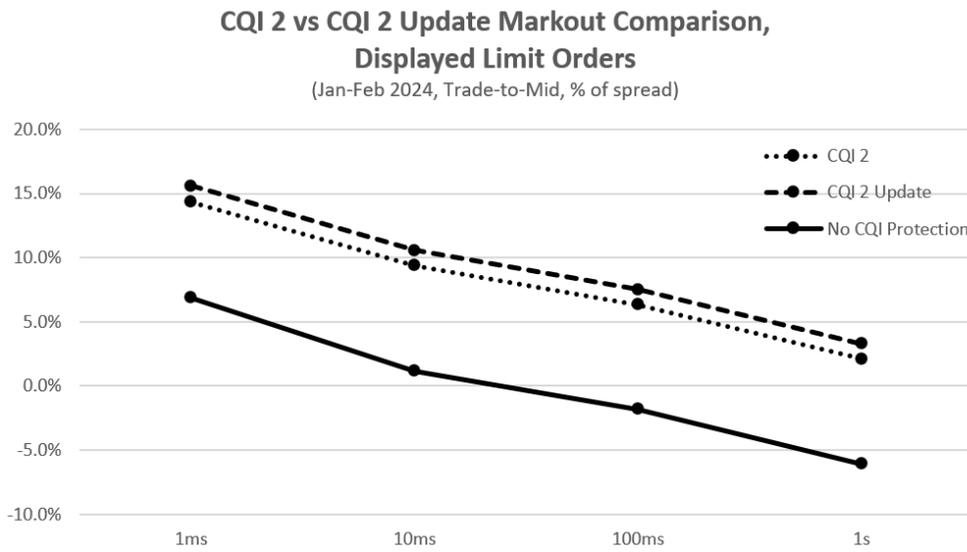
⁴¹ As noted above, IEX analyzed the efficacy of CQI 2 and developed the proposed incremental enhancement in this rule filing using market data from the second half of 2023 and the first quarter of 2024. However, for Charts 1, 2, and 3, IEX used all the trading days in January and February 2024, which, according to IEX's market data analysis, were representative of regular trading activity throughout the calendar year.

applicable) moves in the predicted direction on the next price change.

Thus, IEX believes that the CQI 2 Update will incrementally enhance the existing protection provided by D-Limit orders by providing greater coverage (i.e., identifying more potentially crumbling quotes) with increased accuracy. IEX estimated the impact of the CQI 2 Update (compared to the existing CQI 2) on standard limit order executions by simulating the markouts⁴² had the orders been subject to the protection of the current CQI 2 or the CQI 2 Update. Assessment of these executions is designed to simulate differences in adverse selection protection from the current CQI 2 and the CQI 2 Update. As shown in the chart below, both the current CQI 2 and the CQI 2 Update result in improved markouts over executions without CQI protection, but the CQI 2 Update would have provided incrementally enhanced protection compared to the current CQI 2 (as measured by markouts) because it is better at identifying situations when adverse selection is most likely:

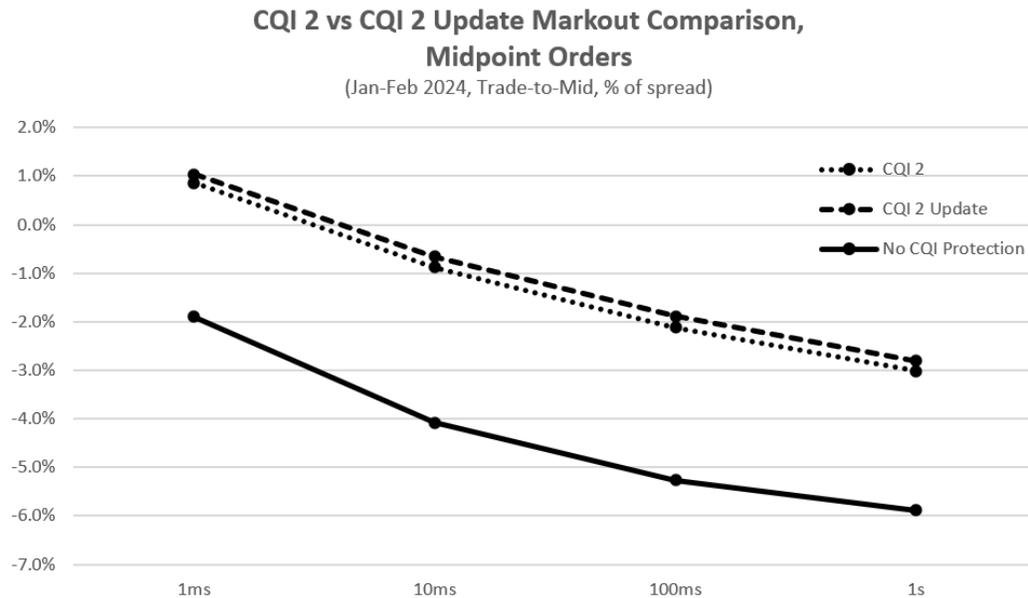
Chart 2

⁴² Markouts measure the direction and degree to which the market moved after an execution, and are often measured as the difference between the execution price and the midpoint of the NBBO at various time intervals after a trade. Markouts are typically used as a way to measure the “quality” of a trade. In particular, short-term markouts of several milliseconds after the time of execution, are often used to assess whether an order was subject to “adverse selection” that can occur when a liquidity providing order is executed at a price that was about to become stale as a result of certain speed-based trading strategies.



Similarly, IEX believes that the CQI 2 Update will incrementally enhance the existing protection CQI 2 offers pegged orders by providing greater coverage (i.e., identifying more potentially crumbling quotes) with increased accuracy. IEX estimated the impact of the CQI 2 Update (compared to the existing CQI 2) on traditional midpoint order executions by simulating the markouts had the orders been subject to the protection of the current CQI 2 or the CQI 2 Update. Assessment of these executions is designed to simulate differences in adverse selection protection from CQI 2 and CQI 2 Update. As shown in the chart below, both CQI 2 and the CQI 2 Update result in improved markouts over executions without CQI protection, but CQI 2 Update would have provided incrementally enhanced protection compared to CQI 2 (as measured by markouts) because it is better at identifying situations when adverse selection is most likely:

Chart 3



IEX believes that this proposed minor change in methodology for the calculation of Activation Values would increase CQI 2's efficacy by better reflecting the market activity in a particular security, as described above. Specifically, IEX believes that it is appropriate to provide slightly more time to determine if the next price change is adverse (i.e., consistent with the quote instability determination prediction), and thus consistent with the quote instability determination that the quote in question was about to become stale and thus subject to potential latency arbitrage, in calculating whether the rule's Activation Value should be increased. IEX believes that one second is an appropriate time period to wait based on an analysis of the effectiveness of various potential time frames (including the current two milliseconds) in predicting whether a crumbling quote would occur, by reviewing randomly selected market data from the second half of 2023 and the first quarter of 2024.

Accordingly, based on this analysis, the Exchange believes that extending the time period used to calculate Activation Value changes to one second is a narrowly

tailored approach that would incrementally increase the effectiveness of CQI 2 in predicting whether a crumbling quote will occur.

Cross-Reference and Typographical Error Fixes

IEX also proposes to correct two internal cross-reference errors in IEX Rule 11.190(g)(2). Specifically, IEX proposes to modify the cross reference in IEX Rule 11.190(g)(2)(B) to refer to IEX Rule 11.190(g)(2)(C), instead of IEX Rule 11.190(g)(1)(C), and to modify the cross reference in IEX Rule 11.190(g)(2)(D)(i) to refer to IEX Rule 11.190(g)(2)(A), instead of IEX Rule 11.190(g)(1)(A). While these two cross-references cite to the rule provisions for CQI 1 instead of CQI 2, IEX notes that the context of the rule text mitigates any possible confusion since each is within the rule provisions describing CQI 2. Moreover, the third paragraph of IEX Rule 11.190(g), which provides a summary description of CQI 2, accurately describes the functionality that is described in the two rule provisions containing cross-reference errors.

Finally, IEX proposes to make a typographical correction to IEX Rule 11.190(g)(2)(B)(vii) by adding a missing period to the end of the text.

Implementation

The Exchange will announce the implementation date of the proposed rule change by Trading Alert at least ten business days in advance of such implementation date and within 90 days of effectiveness of this proposed rule change.

b. Statutory Basis

IEX believes that the proposed rule change is consistent with Section 6(b)⁴³ of the

⁴³ 15 U.S.C. 78f.

Act in general, and furthers the objectives of Section 6(b)(5) of the Act,⁴⁴ in particular, in that it is designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to foster cooperation and coordination with persons engaged in facilitating transactions in securities, to remove impediments to and perfect the mechanism of a free and open market and a national market system and, in general, to protect investors and the public interest. As discussed in the Purpose section, the proposed minor change is based on the Exchange's analysis of market data, which supports that the proposed change would incrementally optimize the effectiveness of CQI 2 by better reflecting market conditions that could delay a predicted quote change being realized until more than two milliseconds (but less than one second) has passed. Further, as noted in Chart 1 in the Purpose section, the proposed CQI 2 Update would increase CQI 2's volume-weighted coverage by 6.4% (from 63.3% to 69.7%) while increasing its volume-weighted accuracy by 2% (from 78% to 80%). Thus, the Exchange believes that it is consistent with the Act to expand the amount of time used to calculate Activation Value updates because it is designed to provide additional protection to D-Limit orders and CQI-enhanced pegged orders from adverse selection associated with latency arbitrage during periods of quote instability, thus protecting investors and the public interest. Moreover, IEX's market data analysis, as described in the Purpose section and demonstrated in Chart 1, evidences that, as with CQI 2, the CQI 2 Update would be "on" for only a small portion of the trading day while providing robust protection in a narrowly tailored manner that balances the ability of long-term investors to access

⁴⁴ 15 U.S.C. 78f(b)(5).

displayed liquidity in the ordinary course against the current structural advantages enjoyed by short-term latency arbitrage trading strategies that rely on superior access to the fastest data and connectivity.

Additionally, the Exchange believes that the proposed rule change may result in more and larger sized displayed and non-displayed D-Limit orders and CQI 2 enhanced pegged orders being entered on IEX as a result of the improved coverage and continued accuracy of CQI 2. To the extent more orders are entered, the increased liquidity would benefit all IEX members and their customers. And to the extent that more displayed D-Limit orders are entered, price discovery and price formation will be enhanced on IEX and in the market generally to the benefit of all IEX Members and market participants. Furthermore, the Exchange notes that all Members and their customers are eligible to use D-Limit orders and CQI 2 enhanced pegged orders, and therefore all Members and their customers are eligible to benefit from the proposed enhanced protections against adverse selection in the CQI 2 Update. Thus, the Exchange believes that application of the rule change is equitable and not unfairly discriminatory.

Additionally, the Exchange notes that the existing CQI 2 is a narrowly tailored fixed formula specified transparently in IEX rules, that was previously approved by the SEC.⁴⁵ The Exchange is not proposing to add any new functionality, but merely to enhance an SEC approved quote instability calculation as described in the Purpose Section. And as proposed, CQI 2 will continue to be a fixed formula specified transparently in IEX's rules. Thus, IEX does not believe that the proposal raises any new

⁴⁵ See supra note 24.

or novel issues that have not already been considered by the Commission, in that the CQI 2 functionality was previously approved by the Commission.⁴⁶

Also, IEX Rule 11.190(g)(3) specifically contemplates that the Exchange will periodically modify the quote instability calculations as appropriate, and the proposed rule change is consistent with this provision.

Furthermore, the Exchange believes that the proposed corrections of the two internal cross-reference errors in IEX Rule 11.190(g)(2)(B) and IEX Rule 11.190(g)(2)(D)(i) would remove impediments to and perfect the mechanism of a free and open market and a national market system because the proposed changes are designed to update internal rule references. As noted in the Purpose section, the overall context of CQI 2's rule text mitigates any possible confusion attributable to the erroneous cross-references. Nevertheless, the Exchange believes that Users would benefit from the increased clarity of correct cross-reference citations, thereby reducing potential confusion and ensuring that persons subject to the Exchange's jurisdiction, regulators, and the investing public can more easily navigate and understand the Exchange's rules.

Additionally, IEX believes that the proposed addition of a period at the end of IEX Rule 11.190(g)(2)(B)(vii) is consistent with Section 6(b)(5) of the Act because it will eliminate any confusion regarding IEX rules by correcting an inadvertent typographical error without changing the substance of such rule.

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

IEX does not believe that the proposed rule change will result in any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act.

⁴⁶ See supra note 24.

To the contrary, as discussed in the Statutory Basis section, the proposal is designed to enhance competition by incentivizing additional liquidity.

With regard to intra-market competition, the proposed change to CQI 2 would apply equally to all Members on a fair, impartial and nondiscriminatory basis without imposing any new burdens on the Members because D-Limit is an optional order type, and CQI 2 is one of two choices of CQI that Members may apply to their eligible pegged orders. The Commission has already approved CQI 2.⁴⁷ As discussed in the Purpose and Statutory Basis sections, the proposed rule change is designed to provide a narrowly tailored enhancement to an SEC approved quote instability calculation; therefore, no new burdens are being proposed.

With regard to inter-market competition, other exchanges are free to adopt similar quote instability calculations subject to the SEC rule filing process. In this regard, the Exchange notes that NYSE American LLC until recently had a “discretionary pegged order type”, see former NYSE American LLC Rule 7.31E(h)(3)(D), which copied an earlier iteration of the Exchange’s quote instability calculation.⁴⁸

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

Written comments were neither solicited nor received.

6. Extension of Time Period for Commission Action

Not applicable.

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

⁴⁷ See supra note 24.

⁴⁸ See Securities Exchange Act Release 34-99827 (March 21, 2024), 89 FR 21302 (March 27, 2024) (SR-NYSEAMER-2024-21) (modifying NYSE American’s discretionary pegged order type to remove its quote instability calculation).

Effectiveness Pursuant to Section 19(b)(2)

The Exchange has designated this rule filing as non-controversial under Section 19(b)(3)(A) of the Act⁴⁹ and paragraph (f)(6) of Rule 19b-4 thereunder.⁵⁰ The Exchange asserts that the proposed rule change: (1) will not significantly affect the protection of investors or the public interest, (2) will not impose any significant burden on competition, (3) and will not become operative for 30 days from the date on which it was filed, or such shorter time as the Commission may designate if consistent with the protection of investors and the public interest. In addition, the Exchange provided the Commission with written notice of its intent to file the proposed rule change, along with a brief description and text of the proposed rule change, at least five business days prior to the date of filing.⁵¹

The Exchange believes that the proposed rule change meets the criteria of subparagraph (f)(6) of Rule 19b-4.⁵² because it would neither significantly affect the protection of investors or the public interest nor impose any significant burden on competition. Rather, the proposed rule change is designed to benefit investors through a minor enhancement to CQI 2 to enhance its accuracy and coverage by better reflecting market conditions, as described herein.

IEX notes that it has previously adopted three rule changes that made other incremental enhancements to the quote instability calculation specified in Rule 11.190(g)

⁴⁹ 15 U.S.C. 78s(b)(3)(A).

⁵⁰ 17 CFR 240.19b-4(f)(6).

⁵¹ 17 CFR 240.19b-4(f)(6)(iii).

⁵² 17 CFR 240.19b-4(f)(6).

through rule filings pursuant to subparagraph (f)(6) of Rule 19b-4.⁵³ The Exchange believes that this proposed rule change is comparable or smaller in scope to those earlier filings and does not raise any new or novel issues not already considered by the Commission. Additionally, IEX notes that the proposed corrections to the two internal cross-reference errors and the addition of a period at the end of IEX Rule 11.190(g)(2)(B)(vii) neither significantly affect the protection of investors or the public interest, nor do they impose any burden on competition because they merely correct inadvertent typographical errors in an existing rule without changing its substance.

Accordingly, the Exchange believes that the proposed rule change is noncontroversial and satisfies the requirements of Rule 19b-4(f)(6).⁵⁴

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 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.

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

The proposed rule change is not based on the rules of another self-regulatory organization or of the Commission.

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

⁵³ See supra note 23.

⁵⁴ 17 CFR 240.19b-4(f)(6).

Not applicable.

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

Not applicable.

11. Exhibits

Exhibit 1 – Form of Notice of the Proposed Rule Change for Publication in the Federal Register.

Exhibit 5 – Text of Proposed Rule Change.

EXHIBIT 1

SECURITIES AND EXCHANGE COMMISSION
(Release No. 34 -); File No. SR-IEX-2024-07

Self-Regulatory Organizations: Investors Exchange LLC; Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Amend IEX Rule 11.190(g)(2).

Pursuant to Section 19(b)(1)¹ of the Securities Exchange Act of 1934 (the “Act”)² and Rule 19b-4 thereunder,³ notice is hereby given that, on (date), the Investors Exchange LLC (“IEX” or the “Exchange”) filed with the Securities and Exchange Commission (the “Commission”) the proposed rule change as described in Items I, II and III below, which Items have been prepared by the self-regulatory organization. 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

Pursuant to the provisions of Section 19(b)(1) under the Act⁴, and Rule 19b-4 thereunder,⁵ the Exchange is filing with the Commission a proposed rule change to amend IEX Rule 11.190(g)(2) to incrementally optimize the effectiveness of the proprietary mathematical calculation used to make quote instability determinations for certain orders, and to correct two cross-reference errors and one typographical error. The Exchange has designated this proposal as non-controversial and provided the Commission with the notice required by Rule 19b-4(f)(6)(iii)

¹ 15 U.S.C. 78s(b)(1).

² 15 U.S.C. 78a.

³ 17 CFR 240.19b-4.

⁴ 15 U.S.C. 78s(b)(1).

⁵ 17 CFR 240.19b-4.

under the Act.⁶

The text of the proposed rule change is available at the Exchange's website at www.iextrading.com, at the principal office of the Exchange, and at the Commission's Public Reference Room.

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

In its filing with the Commission, the self-regulatory organization 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 self-regulatory organization 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 the Statutory Basis for, the Proposed Rule Change

1. Purpose

The purpose of the proposed rule change is to amend IEX Rule 11.190(g)(2) to incrementally optimize the proprietary mathematical calculation used to make quote instability determinations for certain orders (i.e., to assess the probability of a "crumbling quote" -- an imminent change to the current Protected NBB⁷ to a lower price or the current Protected NBO⁸ to a higher price for a particular security). This calculation is referred to as the "crumbling quote indicator" or "CQI". This proposed rule change would only modify the functionality of CQI 2⁹,

⁶ 17 CFR 240.19b-4(f)(6)(iii).

⁷ See IEX Rule 1.160(cc).

⁸ See IEX Rule 1.160(cc).

⁹ IEX supports two versions of the CQI – Option 1 Crumbling Quote (which is based on the CQI in effect when IEX began operating as a national securities exchange in 2016) ("CQI 1") and Option 2 Crumbling Quote ("CQI 2"). See IEX Rule 11.190(g)(1) and (g)(2), respectively. CQI 1 is not affected by this proposed rule change.

which is the CQI version used to make quote instability determinations for all Discretionary Limit (“D-Limit”)¹⁰ orders, and for Discretionary Peg (“D-Peg”)¹¹, primary peg (“P-Peg”)¹², and Corporate Discretionary Peg (“C-Peg”)¹³ orders for which the User¹⁴ selected CQI 2 (collectively “CQI 2 enhanced pegged orders”).¹⁵

The Exchange also proposes to correct two cross-reference errors and one typographical error in the rule text defining the CQI 2.

Background

When CQI 2 generates a quote instability determination (i.e., it is “on” pursuant to IEX Rule 11.190(g)(2)), CQI 2 enhanced pegged orders resting on the Order Book¹⁶ do not exercise price discretion to meet the limit price of an active (i.e., taking) order, and remain pegged to a price that is the less aggressive of one (1) minimum price variant (“MPV”)¹⁷ less aggressive than the primary quote (i.e., one MPV below (above) the NBB¹⁸ (NBO¹⁹) for buy (sell) orders) or the order’s limit price, if any.²⁰

Relatedly, D-Limit orders priced at or more aggressively than the quote instability

¹⁰ See IEX Rule 11.190(b)(7).

¹¹ See Rule 11.190(b)(10).

¹² See Rule 11.190(b)(8).

¹³ See Rule 11.190(b)(16).

¹⁴ See IEX Rule 1.160(qq).

¹⁵ Users may select which CQI version to apply to D-Peg, P-Peg, and C-Peg orders (pegged orders eligible to exercise price discretion to their discretionary price except during periods of quote instability). See IEX Rules 11.190(b)(8)(K), 11.190(b)(10)(K), and 11.190(b)(16)(K).

¹⁶ See IEX Rule 1.160(p).

¹⁷ See IEX Rule 11.210.

¹⁸ See IEX Rule 1.160(u).

¹⁹ See IEX Rule 1.160(u).

²⁰ C-Peg orders are also constrained by the consolidated last sale price of the security, and therefore cannot trade, book, or exercise discretion at a price that is more aggressive than the consolidated last sale price. See IEX Rule 11.190(b)(16).

determination price level (“CQI Price”) are re-priced when CQI 2 is on.²¹ Specifically, if the System²² receives a D-Limit buy (sell) order when CQI 2 is on, and the D-Limit order has a limit price equal to or higher (lower) than the CQI Price, the price of the order will be automatically adjusted by the System to a price one (1) MPV lower (higher) than the CQI Price (the “effective limit price”). Similarly, when unexecuted shares of a D-Limit buy (sell) order are posted to the Order Book, if a quote instability determination is made and such shares are ranked and displayed (in the case of a displayed order) by the System at a price equal to or higher (lower) than the CQI Price, the price of the order will be automatically adjusted by the System to a price one MPV lower (higher) than the CQI Price.²³

Once the price of a D-Limit order that has been posted to the Order Book is automatically adjusted by the System to its effective limit price, the order will continue to be ranked and displayed (in the case of a displayed order) at the adjusted price²⁴, unless subject to another automatic adjustment; if the order is subject to the price sliding provisions of IEX Rule 11.190(h); or if the User elects, pursuant to IEX Rule 11.190(b)(7)(E)(i), that the order will be re-priced if resting at a price that is less aggressive than the NBB (for a buy order) or NBO (for a sell order) ten (10) milliseconds after the most recent quote instability determination. Otherwise, a D-Limit order operates in the same manner as either a displayed or non-displayed limit order, as applicable.²⁵

Overview of CQI 2

The Exchange has made incremental changes to optimize and enhance the effectiveness

²¹ See IEX Rules 11.190(b)(7)(A) and (B).

²² See IEX Rule 1.160(m).

²³ See IEX Rule 11.190(b)(7)(C) and (D).

²⁴ See IEX Rule 11.190(b)(7)(F).

²⁵ See IEX Rule 11.190(b)(7).

of CQI 1 in determining whether a crumbling quote exists three times since Exchange launch²⁶ and in 2022, introduced CQI 2.²⁷ CQI 2 is designed to incrementally increase the coverage²⁸ of the quote instability determinations in predicting whether a particular quote is unstable by adjusting the logic underlying the quote instability calculation and introducing enhanced functionality designed to increase the number of crumbling quotes identified, while maintaining CQI 1's accuracy rate²⁹ in predicting the direction and timing of the next price change in the NBB or NBO, as applicable.

IEX introduced CQI 2 into its System on March 31, 2023 (i.e., it began generating quote instability determinations for informational and planning purposes), and CQI 2 became optionally available for D-Peg, P-Peg, and C-Peg orders on May 16, 2023.³⁰ and for all D-Limit orders on November 10, 2023.³¹

CQI 2 utilizes real time relative quoting activity of certain Protected Quotations³² and a

²⁶ See Securities Exchange Act Release 34-78510 (August 9, 2016), 81 FR 54166 (August 15, 2016) (SR-IEX-2016-11); Securities Exchange Act Release No. 80202 (March 10, 2017), 82 FR 14058 (March 16, 2017) (SR-IEX-2017-06); Securities Exchange Act Release No. 83048 (April 13, 2018), 83 FR 17467 (April 19, 2018) (SR-IEX-2018-07).

²⁷ See Securities Exchange Act Release No. 96014 (October 11, 2022), 87 FR 62903 (October 17, 2022) ("CQI 2 Proposal"); Securities Exchange Act Release No. 96416 (December 1, 2022), 87 FR 75099 (December 7, 2022) ("CQI 2 Approval Order") (SR-IEX-2022-06).

²⁸ "Coverage" means the percentage of all "adverse" NBBO changes per symbol (lower for bids, higher for offers) that were predicted by CQI 2 (meaning CQI 2 was "on" at the time of the adverse NBBO change).

²⁹ "Accuracy rate" means the percentage of time that CQI 2 accurately predicted the direction of the next price change.

³⁰ See IEX Trading Alert # 2023-010, available at <https://iextrading.com/alerts/#/217>; see also CQI 2 Approval Order, *supra* note 27.

³¹ See IEX Trading Alert # 2023-023, available at <https://iextrading.com/alerts/#/231>; see also Securities Exchange Act Release No. 98625 (September 28, 2023), 88 FR 68709 (October 4, 2023) (SR-IEX-2023-10).

³² Specifically, IEX utilizes real time relative quoting activity of Protected Quotations from the "Signal Exchanges", which are the following eleven exchanges: Cboe BZX Exchange ("BATS"), Cboe BYX Exchange ("BATY"), Cboe EDGA Exchange ("EDGA"), Cboe EDGX Exchange ("EDGX"), MIAX Pearl ("EPRL"), MEMX LLC ("MEMX"), the Nasdaq Stock Market ("XNGS"), Nasdaq BX ("XBOS"), Nasdaq PHLX ("XPHL"), the New York Stock Exchange ("XNYS"), and NYSE Arca ("ARCX"). See IEX Rule 11.190(g).

“quote instability calculation” in which nine separate “quote instability rules”³³ – each with specific conditions based on either the price, size, or price and size of the Signal Exchanges to assess the probability of a crumbling quote. Each of these rules can trigger a quote instability determination for either the NBB (for buy orders) the NBO (for sell orders), or both, of a particular security, meaning the System treats the quote as unstable and CQI 2 is on at that price level for two milliseconds.³⁴ During all other times, the quote is considered stable, and CQI 2 is off. The System independently assesses the stability of the Protected NBB and Protected NBO for each security.

CQI 2 includes four categories of rules designed to predict whether the Protected NBB or Protected NBO is unstable, as follows:

- Disappearing bids (or offers) – This category includes four rules that focus on whether one or more of the Signal Exchanges is no longer disseminating a bid or offer at the Signal Best Bid³⁵ or Signal Best Offer³⁶ as applicable³⁷;
- Recent changes in quote size – This category includes two rules that focus on whether there is an imbalance in the size of bids and offers at the Signal Best Bid or Signal Best Offer³⁸;
- Locked or crossed market – This category includes one rule that focuses on situations where the Signal Best Bid and Signal Best Offer are locked or crossed³⁹; and
- Quotation Changes – This category includes two rules that focus on changes to the

³³ See IEX Rule 11.190(g)(2)(C).

³⁴ The nine rules are designed to work together in determining whether a quote instability determination is triggered, so if a User selects the alternative model all nine rules would be applicable. Users cannot elect that only some of the rules would apply.

³⁵ “Signal Best Bid” means the highest Protected Bid of the Signal Exchanges. See IEX Rule 11.190(g)(2)(B)(i).

³⁶ “Signal Best Offer” means the lowest Protected Offer of the Signal Exchanges. See IEX Rule 11.190(g)(2)(B)(v).

³⁷ See IEX Rule 11.190(g)(2)(C)(i).

³⁸ See IEX Rule 11.190(g)(2)(C)(ii).

³⁹ See IEX Rule 11.190(g)(2)(C)(iii).

Signal Best Bid or Signal Best Offer.⁴⁰

On a security-by-security basis, if the specified conditions of any of the quote instability rules are met, then the rule is deemed to be “True” for that security. Each rule also must be active before it can trigger a quote instability determination. When one or more quote instability rules is deemed to be True and any of such rules are active, the System will treat the quote as unstable.

For CQI 2, the Exchange maintains an activation value (“Activation Value”) for each quote instability rule, which is used to determine if each rule is active. Each rule’s Activation Value is computed (on a security-by-security basis for both the Bid side and the Offer side) in real time as a function of the number of times the quote moves to a less aggressive price within the two milliseconds following the time the rule was True and the total number of times the rule was True. Whenever the Activation Value for a given rule exceeds a fixed predetermined activation threshold specific to that rule (“Activation Threshold”),⁴¹ the rule is active (i.e., it is eligible to trigger a quote instability determination when True). If a rule’s Activation Value is below its Activation Threshold, it will not trigger a quote instability determination when True.

The Activation Value and Activation Threshold computations are designed to optimize the overall accuracy of the quote instability determinations by providing a mechanism to turn off a particular rule when market conditions are such that it is relatively less accurate in predicting a crumbling quote. IEX believes that utilizing Activation Thresholds is a useful innovation because it enables the use of rules that can be highly predictive in certain market conditions but not in others. The Activation Thresholds are tailored for each rule based on the rule’s expected general accuracy in predicting a crumbling quote, based on IEX’s market data analysis, so that a

⁴⁰ See IEX Rule 11.190(g)(2)(C)(iv).

⁴¹ The Activation Thresholds for the quote instability rules range from 0 to .50.

rule that has a higher potential to be less accurate has a higher activation threshold burden to meet. The Activation Thresholds are designed to enable increased coverage for CQI 2 by enabling more frequent triggers with accuracy control safeguards.

The Exchange utilizes an initial activation value of 0.50 for all rules at the start of the Regular Market Session⁴², which is then modified during the course of the Regular Market Session to reflect each rule's predictive performance. Specifically, each time a rule is True⁴³ its existing Activation Value is multiplied by a Decay Factor of 0.94. In addition, each time the Protected NBB or Protected NBO moves to a less aggressive price within two milliseconds of a rule being True at that price level, 0.06 will be added to that rule's existing Activation Value (i.e., $(1 - \text{decay factor}) + \text{previous Activation Value}$) as specified in IEX Rule 11.190(g)(2)(D)(ii).

Whenever a rule is True, the System evaluates if its Activation Value exceeds its Activation Threshold, regardless of whether the rule is active. If a rule is True and its Activation Value exceeds its Activation Threshold, the rule is active and will trigger the System to treat the relevant quote as unstable. If a rule is True but its Activation Value does not exceed its Activation Threshold, the rule is inactive, and it will not trigger the System to treat the relevant quote as unstable. If one or more rules are True, and if any one of such rules has an Activation Value that exceeds the rule's Activation Threshold, the System will treat the relevant quote as unstable. The System continues to update the Activation Value for rules that are inactive, and if the Activation Value subsequently exceeds the rule's Activation Threshold, the System will reactivate the rule.

⁴² See IEX Rule 1.160(gg).

⁴³ Excluding instances where the rule was already True at the same unchanged price level in the prior two milliseconds.

IEX believes that these Activation Thresholds provide a dynamic performance evaluation methodology that is designed to optimize the frequency and accuracy of the quote instability calculation, by enabling IEX to utilize a broader array of rules that may be predictive of a crumbling quote in certain market conditions but not others.

IEX Rule 11.190(g)(3) provides that IEX reserves the right to modify the quote instability calculations as appropriate, subject to a filing of a proposed rule change with the SEC. Pursuant to this provision, IEX identified a modification to CQI 2 that it believes will enhance its effectiveness, as described below.

Proposal

IEX conducted an analysis of the efficacy of CQI 2 in predicting whether a crumbling quote would occur, by reviewing randomly selected market data from the second half of 2023 and the first quarter of 2024. These results were then validated by testing different randomly selected dates from the same time period. Based upon this analysis, IEX proposes to make an incremental change to the CQI 2 Activation Value calculation process, which is designed to enhance CQI 2's accuracy by better reflecting market conditions. Specifically, the Exchange is proposing to extend the amount of time the System waits after a quote instability rule is True to assess if the quote moved to a less aggressive price. Currently, the System waits two milliseconds following the time a quote instability rule was True to assess whether the quote instability rule accurately predicted that the next price change would be to a less aggressive price. IEX proposes to modify IEX Rule 11.190(g)(2)(D)(ii), so that the System would wait up to one second after a quote instability rule is True to assess if the next price change is to a less aggressive price (hereafter the "CQI 2 Update"). If the next price change occurs within one second after a quote instability rule is True and is to a less aggressive price, the System would

add .06 to that rule's previous Activation Value. However, if one second passes from the time that a quote instability rule's conditions are met with no price change, or if the next price change was to a more aggressive price, then the System will not update that quote instability rule's Activation Value.

In deciding to propose increasing the interval for the Activation Value calculation process to assess if the next price change was to a less aggressive price (from two milliseconds to one second), the Exchange considered that a predicted price change may take more than two milliseconds to occur for several reasons. For example, large reserve orders might take more than two milliseconds to fully exhaust the reserve volume allowing a price change to occur. Additionally, periods of relatively higher market volume (or bursts of market data) can impact the time it takes for price changes to materialize because of increased time for markets to process incoming orders and executions. During periods of market volatility, trading functions such as order processing, order matching, and the publishing of market data may be delayed due to higher message rates (which are correlated with the Exchange making quote instability determinations). Significantly, during these time periods of increased market activity and volatility, latency arbitrage strategies have an opportunity to be more prevalent because there are more opportunities to react to market volatility to take advantage of resting orders.

In light of the foregoing, IEX believes a modest increase of the time used in the Activation Value calculation process is a narrowly tailored approach to enhance the efficacy of CQI 2 in predicting an imminent quote change to a price adverse to a resting order.

IEX's market data analysis⁴⁴ evidences that the proposed CQI 2 Update would result in

⁴⁴ As noted above, IEX analyzed the efficacy of CQI 2 and developed the proposed incremental enhancement in this rule filing using market data from the second half of 2023 and the first quarter of 2024. However, for Charts 1, 2, and 3, IEX used all the trading days in January and February 2024, which, according to IEX's market data analysis, were representative of regular trading activity throughout the calendar year.

an incremental enhancement to the efficacy of CQI 2 as set forth in the chart below:

Chart 1

<u>Metric</u>	<u>CQI 2</u>	<u>CQI 2 Update</u>
Average time on ^a (average of all symbols)	3.6 seconds	6.5 seconds
Average time on (volume weighted)	32.6 seconds	52.4 seconds
Coverage (volume weighted) ^b	63.3%	69.7%
Accuracy Rate (volume weighted) ^c	78%	80%
% of the Day CQI is “On” (volume-weighted)	0.139%	0.224%
% of the day D-Limit is available at specified limit price	99.861%	99.776%

^a “Time on” means the average time CQI 2 is on during a day per symbol.

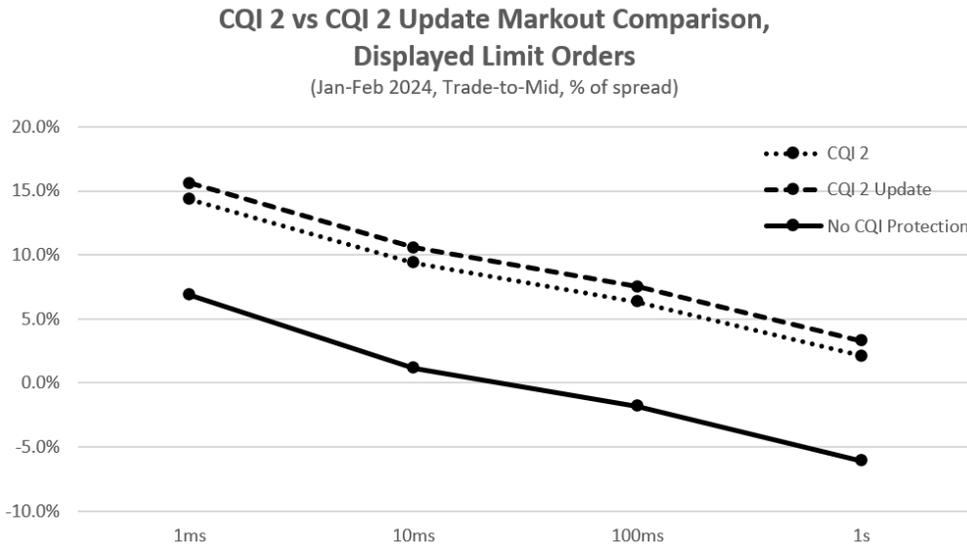
^b See supra note 28.

^c “Accuracy” means the percent of time that following CQI 2 being “on” the NBB or NBO (as applicable) moves in the predicted direction on the next price change.

Thus, IEX believes that the CQI 2 Update will incrementally enhance the existing protection provided by D-Limit orders by providing greater coverage (i.e., identifying more potentially crumbling quotes) with increased accuracy. IEX estimated the impact of the CQI 2 Update (compared to the existing CQI 2) on standard limit order executions by simulating the markouts⁴⁵ had the orders been subject to the protection of the current CQI 2 or the CQI 2 Update. Assessment of these executions is designed to simulate differences in adverse selection protection from the current CQI 2 and the CQI 2 Update. As shown in the chart below, both the current CQI 2 and the CQI 2 Update result in improved markouts over executions without CQI protection, but the CQI 2 Update would have provided incrementally enhanced protection compared to the current CQI 2 (as measured by markouts) because it is better at identifying situations when adverse selection is most likely:

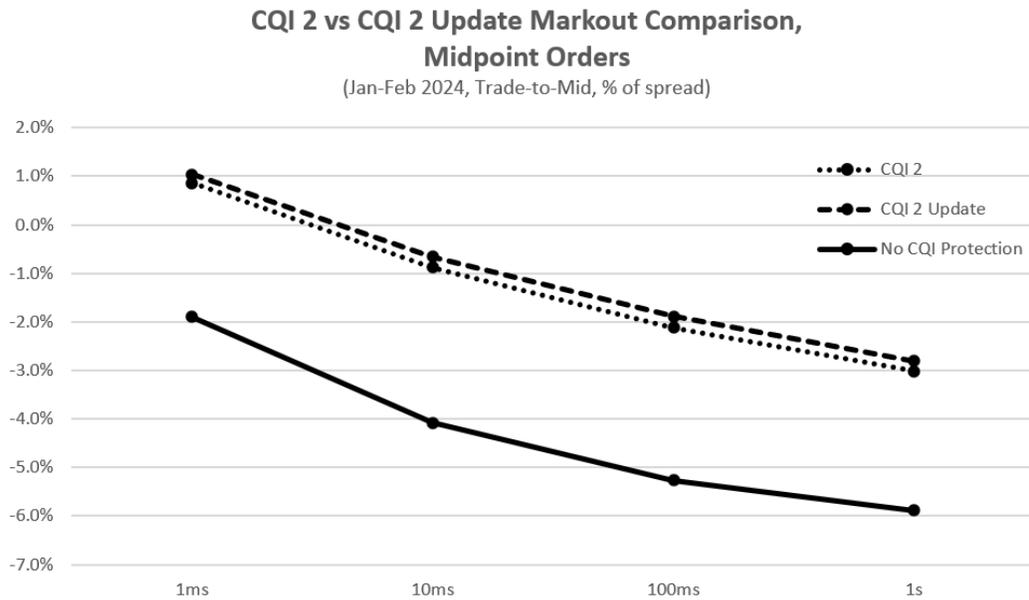
⁴⁵ Markouts measure the direction and degree to which the market moved after an execution, and are often measured as the difference between the execution price and the midpoint of the NBBO at various time intervals after a trade. Markouts are typically used as a way to measure the “quality” of a trade. In particular, short-term markouts of several milliseconds after the time of execution, are often used to assess whether an order was subject to “adverse selection” that can occur when a liquidity providing order is executed at a price that was about to become stale as a result of certain speed-based trading strategies.

Chart 2



Similarly, IEX believes that the CQI 2 Update will incrementally enhance the existing protection CQI 2 offers pegged orders by providing greater coverage (i.e., identifying more potentially crumbling quotes) with increased accuracy. IEX estimated the impact of the CQI 2 Update (compared to the existing CQI 2) on traditional midpoint order executions by simulating the markouts had the orders been subject to the protection of the current CQI 2 or the CQI 2 Update. Assessment of these executions is designed to simulate differences in adverse selection protection from CQI 2 and CQI 2 Update. As shown in the chart below, both CQI 2 and the CQI 2 Update result in improved markouts over executions without CQI protection, but CQI 2 Update would have provided incrementally enhanced protection compared to CQI 2 (as measured by markouts) because it is better at identifying situations when adverse selection is most likely:

Chart 3



IEX believes that this proposed minor change in methodology for the calculation of Activation Values would increase CQI 2's efficacy by better reflecting the market activity in a particular security, as described above. Specifically, IEX believes that it is appropriate to provide slightly more time to determine if the next price change is adverse (i.e., consistent with the quote instability determination prediction), and thus consistent with the quote instability determination that the quote in question was about to become stale and thus subject to potential latency arbitrage, in calculating whether the rule's Activation Value should be increased. IEX believes that one second is an appropriate time period to wait based on an analysis of the effectiveness of various potential time frames (including the current two milliseconds) in predicting whether a crumbling quote would occur, by reviewing randomly selected market data from the second half of 2023 and the first quarter of 2024.

Accordingly, based on this analysis, the Exchange believes that extending the time period used to calculate Activation Value changes to one second is a narrowly tailored approach that would incrementally increase the effectiveness of CQI 2 in predicting whether a crumbling quote

will occur.

Cross-Reference and Typographical Error Fixes

IEX also proposes to correct two internal cross-reference errors in IEX Rule 11.190(g)(2). Specifically, IEX proposes to modify the cross reference in IEX Rule 11.190(g)(2)(B) to refer to IEX Rule 11.190(g)(2)(C), instead of IEX Rule 11.190(g)(1)(C), and to modify the cross reference in IEX Rule 11.190(g)(2)(D)(i) to refer to IEX Rule 11.190(g)(2)(A), instead of IEX Rule 11.190(g)(1)(A). While these two cross-references cite to the rule provisions for CQI 1 instead of CQI 2, IEX notes that the context of the rule text mitigates any possible confusion since each is within the rule provisions describing CQI 2. Moreover, the third paragraph of IEX Rule 11.190(g), which provides a summary description of CQI 2, accurately describes the functionality that is described in the two rule provisions containing cross-reference errors.

Finally, IEX proposes to make a typographical correction to IEX Rule 11.190(g)(2)(B)(vii) by adding a missing period to the end of the text.

Implementation

The Exchange will announce the implementation date of the proposed rule change by Trading Alert at least ten business days in advance of such implementation date and within 90 days of effectiveness of this proposed rule change.

2. Statutory Basis

IEX believes that the proposed rule change is consistent with Section 6(b)⁴⁶ of the Act in general, and furthers the objectives of Section 6(b)(5) of the Act,⁴⁷ in particular, in that it is designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable

⁴⁶ 15 U.S.C. 78f.

⁴⁷ 15 U.S.C. 78f(b)(5).

principles of trade, to foster cooperation and coordination with persons engaged in facilitating transactions in securities, to remove impediments to and perfect the mechanism of a free and open market and a national market system and, in general, to protect investors and the public interest. As discussed in the Purpose section, the proposed minor change is based on the Exchange's analysis of market data, which supports that the proposed change would incrementally optimize the effectiveness of CQI 2 by better reflecting market conditions that could delay a predicted quote change being realized until more than two milliseconds (but less than one second) has passed. Further, as noted in Chart 1 in the Purpose section, the proposed CQI 2 Update would increase CQI 2's volume-weighted coverage by 6.4% (from 63.3% to 69.7%) while increasing its volume-weighted accuracy by 2% (from 78% to 80%). Thus, the Exchange believes that it is consistent with the Act to expand the amount of time used to calculate Activation Value updates because it is designed to provide additional protection to D-Limit orders and CQI-enhanced pegged orders from adverse selection associated with latency arbitrage during periods of quote instability, thus protecting investors and the public interest. Moreover, IEX's market data analysis, as described in the Purpose section and demonstrated in Chart 1, evidences that, as with CQI 2, the CQI 2 Update would be "on" for only a small portion of the trading day while providing robust protection in a narrowly tailored manner that balances the ability of long-term investors to access displayed liquidity in the ordinary course against the current structural advantages enjoyed by short-term latency arbitrage trading strategies that rely on superior access to the fastest data and connectivity.

Additionally, the Exchange believes that the proposed rule change may result in more and larger sized displayed and non-displayed D-Limit orders and CQI 2 enhanced pegged orders being entered on IEX as a result of the improved coverage and continued accuracy of CQI 2. To

the extent more orders are entered, the increased liquidity would benefit all IEX members and their customers. And to the extent that more displayed D-Limit orders are entered, price discovery and price formation will be enhanced on IEX and in the market generally to the benefit of all IEX Members and market participants. Furthermore, the Exchange notes that all Members and their customers are eligible to use D-Limit orders and CQI 2 enhanced pegged orders, and therefore all Members and their customers are eligible to benefit from the proposed enhanced protections against adverse selection in the CQI 2 Update. Thus, the Exchange believes that application of the rule change is equitable and not unfairly discriminatory.

Additionally, the Exchange notes that the existing CQI 2 is a narrowly tailored fixed formula specified transparently in IEX rules, that was previously approved by the SEC.⁴⁸ The Exchange is not proposing to add any new functionality, but merely to enhance an SEC approved quote instability calculation as described in the Purpose Section. And as proposed, CQI 2 will continue to be a fixed formula specified transparently in IEX's rules. Thus, IEX does not believe that the proposal raises any new or novel issues that have not already been considered by the Commission, in that the CQI 2 functionality was previously approved by the Commission.⁴⁹

Also, IEX Rule 11.190(g)(3) specifically contemplates that the Exchange will periodically modify the quote instability calculations as appropriate, and the proposed rule change is consistent with this provision.

Furthermore, the Exchange believes that the proposed corrections of the two internal cross-reference errors in IEX Rule 11.190(g)(2)(B) and IEX Rule 11.190(g)(2)(D)(i) would remove impediments to and perfect the mechanism of a free and open market and a national market system because the proposed changes are designed to update internal rule references. As

⁴⁸ See supra note 27.

⁴⁹ See supra note 27.

noted in the Purpose section, the overall context of CQI 2's rule text mitigates any possible confusion attributable to the erroneous cross-references. Nevertheless, the Exchange believes that Users would benefit from the increased clarity of correct cross-reference citations, thereby reducing potential confusion and ensuring that persons subject to the Exchange's jurisdiction, regulators, and the investing public can more easily navigate and understand the Exchange's rules.

Additionally, IEX believes that the proposed addition of a period at the end of IEX Rule 11.190(g)(2)(B)(vii) is consistent with Section 6(b)(5) of the Act because it will eliminate any confusion regarding IEX rules by correcting an inadvertent typographical error without changing the substance of such rule.

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

IEX does not believe that the proposed rule change will result in any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act. To the contrary, as discussed in the Statutory Basis section, the proposal is designed to enhance competition by incentivizing additional liquidity.

With regard to intra-market competition, the proposed change to CQI 2 would apply equally to all Members on a fair, impartial and nondiscriminatory basis without imposing any new burdens on the Members because D-Limit is an optional order type, and CQI 2 is one of two choices of CQI that Members may apply to their eligible pegged orders. The Commission has already approved CQI 2.⁵⁰ As discussed in the Purpose and Statutory Basis sections, the proposed rule change is designed to provide a narrowly tailored enhancement to an SEC approved quote instability calculation; therefore, no new burdens are being proposed.

⁵⁰ See supra note 27.

With regard to inter-market competition, other exchanges are free to adopt similar quote instability calculations subject to the SEC rule filing process. In this regard, the Exchange notes that NYSE American LLC until recently had a “discretionary pegged order type”, see former NYSE American LLC Rule 7.31E(h)(3)(D), which copied an earlier iteration of the Exchange’s quote instability calculation.⁵¹

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

Written comments were neither solicited nor received.

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

The Exchange has designated this rule filing as non-controversial under Section 19(b)(3)(A)⁵² of the Act and Rule 19b-4(f)(6)⁵³ thereunder. Because the 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) of the Act and Rule 19b-4(f)(6) thereunder.

The Exchange believes that the proposed rule change meets the criteria of subparagraph (f)(6) of Rule 19b-4⁵⁴ because it would neither significantly affect the protection of investors or the public interest nor impose any significant burden on competition. Rather, the proposed rule change is designed to benefit investors through a minor enhancement to CQI 2 to enhance its accuracy and coverage by better reflecting market conditions, as described herein.

⁵¹ See Securities Exchange Act Release 34-99827 (March 21, 2024), 89 FR 21302 (March 27, 2024) (SR-NYSEAMER-2024-21) (modifying NYSE American’s discretionary pegged order type to remove its quote instability calculation).

⁵² 15 U.S.C. 78s(b)(3)(A).

⁵³ 17 CFR 240.19b-4(f)(6).

⁵⁴ 17 CFR 240.19b-4(f)(6).

IEX notes that it has previously adopted three rule changes that made other incremental enhancements to the quote instability calculation specified in Rule 11.190(g) through rule filings pursuant to subparagraph (f)(6) of Rule 19b-4.⁵⁵ The Exchange believes that this proposed rule change is comparable or smaller in scope to those earlier filings and does not raise any new or novel issues not already considered by the Commission. Additionally, IEX notes that the proposed corrections to the two internal cross-reference errors and the addition of a period at the end of IEX Rule 11.190(g)(2)(B)(vii) neither significantly affect the protection of investors or the public interest, nor do they impose any burden on competition because they merely correct inadvertent typographical errors in an existing rule without changing its substance.

Accordingly, the Exchange believes that the proposed rule change is noncontroversial and satisfies the requirements of Rule 19b-4(f)(6).⁵⁶

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 necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission shall institute proceedings under Section 19(b)(2)(B).⁵⁷ of the Act to determine whether the proposed rule change 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:

⁵⁵ See supra note 26.

⁵⁶ 17 CFR 240.19b-4(f)(6).

⁵⁷ 15 U.S.C. 78s(b)(2)(B).

Electronic Comments:

- Use the Commission's internet comment form (<https://www.sec.gov/rules/sro.shtml>); or
- Send an email to rule-comments@sec.gov. Please include file number SR-IEX-2024-07 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-IEX-2024-07. This file number should be included on the subject line if email is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's internet website (<https://www.sec.gov/rules/sro.shtml>). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street NE, Washington, DC 20549, on official business days between the hours of 10 a.m. and 3 p.m. Copies of the filing will also be available for inspection and copying at the principal office of the Exchange. Do not include personal identifiable information in submissions; you should submit only information that you wish to make available publicly. We may redact in part or withhold entirely from publication submitted material that is obscene or subject to copyright protection. All submissions should refer to file number SR-IEX-2024-07 and should be submitted on or before [INSERT DATE 21 DAYS AFTER DATE OF PUBLICATION IN THE

FEDERAL REGISTER].

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.⁵⁸

Sherry R. Haywood,

Assistant Secretary.

⁵⁸ 17 CFR 200.30-3(a)(12).

Exhibit 5 – Text of Proposed Rule Change

Proposed new language is underlined; proposed deletions are in brackets.

Rule 11.190. Orders and Modifiers

(a)-(f) No change.

(g) *Quote Stability.*

The Exchange utilizes two User selected alternative proprietary mathematical calculations to assess the probability of an imminent change to the current Protected NBB to a lower price or a Protected NBO to a higher price for a particular security.

(1) No change.

(2) Option 2 Crumbling Quote. When the System determines that either the Protected NBB or the Protected NBO in a particular security is unstable, the determination remains in effect at that price level for two (2) milliseconds (a “Quote Instability Determination”). Quote Instability Determinations are made separately for the Protected NBB and Protected NBO, so it is possible for zero, one or both of the Protected NBB and Protected NBO to be subject to a quote instability determination concurrently. A new Quote Instability Determination may be made after at least 250 microseconds has elapsed since a preceding Quote Instability Determination on the same side of the market in a particular security (i.e., Protected NBB or Protected NBO). If a new Quote Instability Determination is made, the Quote Instability Determination will be extended and in effect until two (2) milliseconds after the new Quote Instability Determination. Quote instability is determined by the System when:

(A) No Change.

(B) Quote Stability Variables. The Exchange uses the quote stability variables defined below to calculate whether the conditions set forth in each Quote Instability Rule set forth in subparagraph ([1]2)(C) of this IEX Rule 11.190(g) are met.

(i)-(vi) No change

(vii) “Update” means any change to either the price or size of a Signal Exchange’s Protected Bid or Offer, including a

change to the quote condition of a Signal Exchange's Protected Bid or Protected Offer.

(viii)-(xx) No change.

(C) No Change.

(D) Activation Value.

(i) Whenever the conditions set forth in a Quote Instability Rule are met, the Exchange's proprietary quote instability calculation determines its new Activation Value by multiplying its current Activation Value by the decay factor. The Exchange utilizes an Activation Value of 0.5 at the start of the Regular Market Session and a constant decay factor of 0.94. If the new Activation Value is above the Activation Threshold for the applicable Quote Instability Rule, the System will generate a Quote Instability Determination in accordance with subparagraph ([1]2)(A) of this IEX Rule 11.190(g).

(a) No change.

(ii) Irrespective of whether or not a Quote Instability Determination was generated pursuant to subparagraph (i) above, the Activation Value for each Quote Instability Rule will also be modified during the Regular Market Session [if]after the conditions set forth in a Quote Instability Rule were met, if within one second immediately thereafter, [(and within 2 milliseconds of the time such conditions were met)] the next price change to the PBB or PBO (as applicable) is to a less aggressive price, in which case, a new Activation Value for that Quote Instability Rule [is]will be calculated pursuant to the following formula: $(1 - \text{decay factor}) + \text{previous Activation Value}$.

(3) No change.
