



Self-Regulatory Organizations; Investors Exchange LLC; Order Granting Approval of a Proposed Rule Change to Amend Rule 11.190(g) to Provide an Alternative Calculation for Non-Displayed Pegged Order Types for Determining Whether a Quote Instability Condition Exists
December 1, 2022.

I. Introduction

On September 27, 2022, the Investors Exchange LLC (“IEX” or the “Exchange”) filed with the Securities and Exchange Commission (“Commission”), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Exchange Act”)¹ and Rule 19b-4 thereunder,² a proposed rule change to provide an alternative calculation for non-displayed pegged order types to determine whether a quote instability condition exists for purposes of determining when the Exchange’s proprietary Crumbling Quote Indicator (“CQI”) is to be triggered. The proposed rule change was published for comment in the Federal Register on October 17, 2022.³ The Commission received no comments on the proposed rule change. This order approves the proposed rule change.

II. Description of the Proposed Rule Change

Current CQI Operation

Pursuant to IEX Rule 11.190(g), the Exchange utilizes quoting activity of eight away exchanges’ Protected Quotations⁴ and a mathematical calculation to assess the probability of an

¹ 15 U.S.C. 78s(b)(1).

² 17 CFR 240.19b-4.

³ See Securities Exchange Act Release No. 96014 (October 11, 2022), 87 FR 62903 (“Notice”).

⁴ See IEX Rule 1.160(bb) (defining “Protected Quotation” as an automated quotation that is calculated by IEX to be the best bid or best offer of an exchange). Current IEX Rule 11.190(g) uses the following eight exchanges’ Protected Quotations: New York Stock Exchange LLC, the Nasdaq Stock Market LLC, NYSE Arca, Inc., Nasdaq BX, Inc., Cboe BYX Exchange, Inc., Cboe Bats BZX Exchange, Inc., Cboe EDGA Exchange, Inc., and Cboe EDGX Exchange, Inc. (collectively, “Signal Exchanges”).

imminent change to the current Protected NBB⁵ to a lower price or imminent change to the current Protected NBO⁶ to a higher price for a particular security. When the quoting activity meets predetermined criteria, the System⁷ treats the quote as not stable (“quote instability” or a “crumbling quote”) and the CQI is then “on” at that price level for two milliseconds. During all other times, the quote is considered stable and the CQI is “off”. The System independently assesses the stability of the Protected NBB and Protected NBO for each security. IEX characterizes these order types and the CQI functionality as being designed to “counter the costs of ‘adverse selection’ that participants supplying liquidity incur when their orders are executed at worse prices as a result of certain speed-based trading strategies.”⁸

This proposal applies to the CQI formula that informs the exercise of “discretion” by Discretionary Peg (“D-Peg”)⁹ orders, Primary Peg (“P-Peg”)¹⁰ orders, and Corporate Discretionary Peg (“C-Peg”) orders.¹¹ Each of those resting peg order types, all of which are non-displayed, passively rest at prices slightly less aggressive than the near-side quote. When the quote is stable, those peg orders exercise price discretion by “jumping” to a more aggressive price to interact with an active incoming liquidity taking order when the quote is stable. However, when the CQI comes on, those orders do not exercise price discretion and instead continue to rest passively. Specifically, D-Peg, P-Peg, and C-Peg orders rest at a pegged price that is the less aggressive of one minimum price variant (“MPV”)¹² less aggressive than the

⁵ See IEX Rule 1.160(cc).

⁶ See IEX Rule 1.160(cc).

⁷ See IEX Rule 1.160(nn).

⁸ Notice, supra note 3, at 62904.

⁹ See IEX Rule 11.190(b)(10).

¹⁰ See IEX Rule 11.190(b)(8).

¹¹ See IEX Rule 11.190(b)(16). Note that C-Peg orders can only be buy orders, so any discussion of D-Peg sell orders does not apply to C-Peg orders. This proposal does not apply to Discretionary Limit (“D-Limit”) orders, which can be displayed. See IEX Rule 11.190(b)(10).

¹² See IEX Rule 11.210.

primary quote (i.e., one MPV below (above) the NBB¹³ (NBO¹⁴) for buy (sell) orders) or the order's limit price, if any.¹⁵ In addition, when the CQI is on at the NBB (in the case of a buy order) or NBO (in the case of a sell order), P-Peg orders are restricted by the System from exercising price discretion to trade at the quote instability determination price level (the "CQI Price"), and D-Peg and C-Peg orders are restricted by the System from exercising price discretion to trade at the CQI Price or at more aggressive prices than the CQI Price.

Proposed Alternative CQI Calculation

As proposed, Users¹⁶ of D-Peg, P-Peg and C-Peg orders will be able to designate whether the order's price will be adjusted using the existing quote instability calculation (hereinafter referred to as the "Current CQI Calculation") or the new proposed alternative quote instability calculation (hereinafter referred to as the "Alternative CQI Calculation"). According to the Exchange, the Alternative CQI Calculation is "designed to incrementally increase the coverage of the quote instability calculation 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 the quote instability calculation's accuracy in predicting the direction and timing of the next price change in the NBB or NBO, as applicable."¹⁷

The Alternative CQI Calculation applies four separate rule categories of Protected Quotation changes, each encompassing one or more sub-rules ("quote instability rules"), to determine whether the System should trigger the CQI. When a quote instability rule is "active," as described below, the CQI will trigger when the rule is "true" thus indicating a potential

¹³ See IEX Rule 1.160(u).

¹⁴ See IEX Rule 1.160(u).

¹⁵ 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).

¹⁶ See IEX Rule 1.160(qq).

¹⁷ Notice, supra note 3, at 62904.

crumbling quote. These quote instability rules are grouped into the following four categories:

1. **Disappearing Bids/Offers:** Four separate rules look at when the Signal Exchanges¹⁸ fall off the best prices.
2. **Quote Size:** Two separate rules look at size imbalances between buys and sells at the best price on the Signal Exchanges.
3. **Locked or Crossed Markets:** This single rule looks for locked and crossed conditions at a Signal Exchange.
4. **Quotation Price:** Two separate rules evaluate changes in the best prices on the Signal Exchanges.¹⁹

Overall, there are several notable differences between the Alternative CQI Calculation and the Current CQI Calculation. First, the Alternative CQI Calculation expands the number of exchange protected quotes (i.e., Signal Exchanges) that are evaluated by the System from eight exchanges to eleven.²⁰ In addition, the Alternative CQI Calculation can activate crumbling quote protection for one or both sides of the market (e.g., it can determine a crumbling quote to exist on the bid side and, while that crumbling quote protection is active, separately and concurrently determine a crumbling quote to exist on the offer side), whereas the Current CQI Calculation only activates the CQI for one side of the market at a time.²¹ Further, under the Current CQI Calculation, the Exchange only analyzes the relevant prices at the Signal Exchanges, whereas the Alternative CQI Calculation will also take into account quotation sizes at the eleven away exchanges under the Quote Size rules.

¹⁸ See infra note 20 and accompanying text.

¹⁹ See Notice, supra note 3, at 62905-07 for the Exchange's detailed discussion of the proposed quote instability rules.

²⁰ The additional Signal Exchanges are MIAX PEARL, LLC, MEMX LLC, and Nasdaq Phlx LLC.

²¹ More specifically, the current rule text reads as follows: "Only one determination may be in effect at any given time for a particular security. A new determination may be made after at least 200 microseconds has elapsed since a preceding determination, or a price change on either side of the Protected NBBO occurs, whichever is first." The new rule text for the Alternative CQI Calculation reads: "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." Additionally, the revised rule text states that "[a] determination that the Protected NBB for a particular security is unstable does not impact the System's ability to determine that the Protected NBO for that same security is also unstable, and vice versa."

In addition, the Alternative CQI Calculation increases the minimum time period between CQI determinations (i.e., when a new CQI can trigger during the two millisecond “on” period). Currently, the System will keep the CQI in effect for two milliseconds, unless, after 200 microseconds, a new determination is made by the System that the quote continues to crumble, in which case the CQI will extend for another two milliseconds from that point. Under the Alternative CQI Calculation, the CQI will also remain in effect for two milliseconds, but a determination to extend the CQI cannot be made until at least 250 microseconds have passed. The Exchange states that CQI triggers in extremely rapid succession are unnecessary to continuously restrict discretion across successive NBBO changes, and that increasing what it refers to as the CQI “cooldown period” from 200 microsecond to 250 microseconds before the System can make another quote instability determination will reduce the technical processing burden on the System.²²

In general, the Exchange explains that the current quote instability calculation “utilizes a logistic regression model with multiple coefficients and variables that must exceed a pre-defined threshold in order for the System to treat the quote as unstable.” The Exchange characterizes the new Alternative CQI Calculation as a “rules-based model” that “incorporates and expands on the existing approach.”²³

The Alternative CQI Calculation also uses the concept of an activation value (“Activation Value”) for each of the new quote instability rules. As explained in more detail in the Notice, the Activation Values and corresponding thresholds are “intended 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.”²⁴

²² See Notice supra note 3, at 62907.

²³ See id. at 62905.

²⁴ See id. at 62907.

Specifically, the Activation Value is a function generally of the number of times the quote moves to a less aggressive price within the two milliseconds “on” timeframe following the time the rule was “True” (i.e., to assess whether the rule correctly predicted a crumbling quote) and the total number of times the rule was True. Whenever the Activation Value for a given quote instability rule exceeds a fixed predetermined activation threshold specific to that rule (the “Activation Threshold”), the rule is active (i.e., it is eligible to trigger a quote instability determination when True).

Finally, the proposal sets forth several conforming changes throughout IEX Rule 11.190(b) to establish that Users may utilize one of the two crumbling quote calculations for P-Peg, D-Peg, and C-Peg orders. The Exchange also proposes to amend IEX Rule 11.190(b)(7), which sets forth the Exchange’s D-Limit order type, to make clear that a User may only use the Current CQI Calculation when entering a D-Limit order.²⁵

III. Discussion and Commission Findings

After careful review, the Commission finds that the Exchange’s proposal is consistent with the requirements of the Exchange Act and the rules and regulations thereunder applicable to a national securities exchange.²⁶ In particular, the Commission finds that the proposed rule change is consistent with Sections 6(b)(5)²⁷ and 6(b)(8)²⁸ of the Exchange Act. Section 6(b)(5) of the Exchange Act requires that the rules of a national securities exchange be designed, among other things, to promote just and equitable principles of trade, to remove impediments to and perfect the mechanism of a free and open market and a national market system and, in general, to protect investors and the public interest, and not be designed to permit unfair discrimination

²⁵ Unlike the non-displayed P-Peg, D-Peg, and C-Peg order types, D-Limit orders can be displayed or non-displayed.

²⁶ In approving this proposed rule change, the Commission has considered the proposed rule’s impact on efficiency, competition, and capital formation. See 15 U.S.C. 78c(f).

²⁷ 15 U.S.C. 78f(b)(5).

²⁸ 15 U.S.C. 78f(b)(8).

between customers, issuers, brokers, or dealers. Section 6(b)(8) of the Exchange Act requires that the rules of a national securities exchange not impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Exchange Act.

In its filing, the Exchange explains that adding three more Signal Exchanges and also using quotation size data in addition to quotation price data is designed to increase the predictive power and accuracy of the quote instability calculation.²⁹ Adding additional reference exchanges and considering quoted size in addition to quoted price appear reasonably designed to contribute to the functioning of the crumbling quote indicator consistent with its original design and purpose.

Further, the Exchange states that the use of Activation Thresholds for the Alternative CQI Calculation 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.³⁰ Specifically, IEX states that the proposed activation values and thresholds are designed to “enable broader coverage while controlling for 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” where certain rules with a higher potential to be less accurate have a higher activation threshold before they become active.³¹ The Exchange states that it expects the Current and Alternative CQI Calculations to continue to be “on” for only a small portion of the trading day.³² The Exchange further explains that it designed the Alternative CQI Calculation in response to feedback from Users of P-Peg, D-Peg, and C-Peg orders, some of which expressed a desire for additional coverage.³³ If allowed to use the Alternative CQI

²⁹ See Notice, supra note 3, at 62908.

³⁰ See id. at 62907.

³¹ See id. at 62909.

³² See id.

³³ See id. at 62908.

Calculation, IEX expects that some Users may begin to enter more and larger sized pegged orders on the Exchange.³⁴

While the Exchange acknowledges that the Alternative CQI Calculation may trigger more frequently than the current version, it has developed a reasonable method, through the Activation Values and Activation Thresholds, to cause the new rules to be used in those market conditions in which the Exchange expects them to be more accurate in predicting a crumbling quote. To the extent Users see their execution quality for non-displayed orders improve when they use the Alternative CQI Calculation, they may be incentivized to post more non-displayed pegged orders on the Exchange, which in turn will benefit liquidity seeking investors especially during most of the day when the quote is stable and those pegged orders are offering aggressive price improvement to those investors.

Based on the foregoing, the Commission believes that the proposal, including the Alternative CQI Calculation, is appropriately and narrowly tailored to provide a reasonable mechanism for Users of non-displayed peg orders on the Exchange to protect their orders from adverse selection during limited periods of time in specific market conditions. Further, the proposed Alternative CQI Calculation is transparent and fully-disclosed in the rules of the Exchange. While the Exchange uses the phrase “price discretion” to describe the operation of the crumbling quote functionality, the Exchange itself retains no discretion to deviate from the confines of the rule, as the rule contains the entirety of the parameters under which the Alternative CQI Calculation will operate. The Exchange’s proposal does not otherwise amend any functionality of the affected peg order types.

In addition, because the Alternative CQI Calculation will activate without further action from the User, all Users will benefit equally regardless of their technological capabilities and ability

³⁴ See id. at 62909.

to take action within a short prescribed period. To the extent the Alternative CQI Calculation is successful in incentivizing more firms to post non-displayed peg orders on the Exchange, it will contribute to liquidity that all market participants can access and increase opportunities for investors to receive improved prices on their liquidity taking orders. Accordingly, the proposal promotes just and equitable principles of trade, removes impediments to and perfects the mechanism of a free and open market and a national market, and, in general, protects investors and the public interest.

Finally, the Alternative CQI Calculation cannot be used to trigger the repricing of any displayed orders, specifically, the D-Limit Order type. As such, market participants seeking to execute against displayed liquidity on IEX, including protected quotes, will not be adversely affected by the addition of the Alternative CQI Calculation to the Exchange's rules because use of the Alternative CQI Calculation is limited to the P-Peg, D-Peg, and C-Peg order types.

For the reasons discussed above, the Commission finds that the proposal will not impair access to quotations and is narrowly tailored to not impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Exchange Act, and is reasonably designed to 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. Accordingly, the Commission finds the proposed rule change to be consistent with the Act, including the requirements of Section 6(b)(5) and Section 6(b)(8) of the Act.

IV. Conclusion

IT IS THEREFORE ORDERED, pursuant to Section 19(b)(2) of the Exchange Act,³⁵ that the proposed rule change (SR-IEX-2022-06), be, and it hereby is, approved.

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

³⁵ 15 U.S.C. 78s(b)(2).

³⁶ 17 CFR 200.30-3(a)(12).

Sherry R. Haywood,
Assistant Secretary.

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