



## SECURITIES AND EXCHANGE COMMISSION

[Release No. 34-88261; File No. SR-CboeEDGA-2019-012]

### **Self-Regulatory Organizations; Cboe EDGA Exchange, Inc.; Order Disapproving Proposed Rule Change to Introduce a Liquidity Provider Protection Delay Mechanism on EDGA**

February 21, 2020

#### I. Introduction

On June 7, 2019, Cboe EDGA Exchange, Inc. (“EDGA” or “Exchange”) filed with the Securities and Exchange Commission (“Commission”), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Exchange Act”)<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> a proposed rule change to introduce a delay mechanism on EDGA. The proposed rule change was published for comment in the Federal Register on June 26, 2019.<sup>3</sup> On August 5, 2019, pursuant to Section 19(b)(2) of the Exchange Act,<sup>4</sup> the Commission designated a longer period within which to

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

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

<sup>3</sup> See Securities Exchange Act Release No. 86168 (June 20, 2019), 84 FR 30282 (“Notice”).

<sup>4</sup> 15 U.S.C. 78s(b)(2).

approve the proposed rule change, disapprove the proposed rule change, or institute proceedings to determine whether the proposed rule change should be disapproved.<sup>5</sup>

On September 24, 2019, the Commission instituted proceedings to determine whether to approve or disapprove the proposed rule changes.<sup>6</sup> On December 16, the Commission designated a longer period for Commission action on the proposed rule change.<sup>7</sup> This order disapproves the proposed rule change.

## II. Description of the Proposed Rule Change

The Exchange proposes to adopt the Liquidity Provider Protection (“LP2”) delay mechanism in order “to protect liquidity providers and thereby enable those liquidity providers to make better markets in equity securities traded on the Exchange.”<sup>8</sup> As described in detail in the Notice,<sup>9</sup> the LP2 delay mechanism would delay all incoming executable orders that would remove liquidity from the EDGA Book, but not incoming or outgoing market data, for up to four milliseconds. Under the proposal, if book conditions changed such that an incoming order was no longer executable against orders resting on the EDGA Book (e.g., resting orders on the book are cancelled or modified such that they are no longer marketable against the delayed incoming order), the incoming order would be released from the queue prior to the completion of the 4

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<sup>5</sup> See Securities Exchange Act Release No. 86567 (Aug. 5, 2019), 84 FR 39385 (Aug. 9, 2019). The Commission designated September 24, 2019, as the date by which it should approve, disapprove, or institute proceedings to determine whether to disapprove the proposed rule change.

<sup>6</sup> See Securities Exchange Act Release No. 87096, 84 FR 51657 (September 30, 2019) (“Order Instituting Proceedings” or “OIP”).

<sup>7</sup> See Securities Exchange Act Release No. 87757, 84 FR 70231 (December 20, 2019).

<sup>8</sup> See Notice, 84 FR at 30282.

<sup>9</sup> See id. at 30283-89.

millisecond delay.<sup>10</sup> The LP2 delay mechanism would also apply to the cancel, cancel/replace, or modification messages that are associated with liquidity taking orders.<sup>11</sup> The Exchange would apply such messages after the liquidity taking order is released from the delay mechanism.<sup>12</sup> At the end of the delay period, incoming orders, cancel, cancel/replace, and modification messages subjected to the delay mechanism would be processed after the System<sup>13</sup> has processed, if applicable, all messages in the security received by the Exchange during such delay period.<sup>14</sup>

Certain order types, or orders with instructions, that are not eligible for execution upon entry would become subject to the LP2 delay mechanism when a potential execution is triggered by a subsequent incoming order. For example, orders entered with either a Stop Price or Stop Limit Price instruction would not be executed until elected, and would only be subject to the delay mechanism after the order is converted to either a Market Order or Limit Order. Similarly, orders entered with a time-in-force instruction of Regular Hours Only would be subjected to the delay mechanism when entered into the EDGA Book after an opening or re-opening process.<sup>15</sup> An incoming order that is not executable upon entry would not be subject to the delay mechanism. For example, orders with instructions that are not executable when entered due to

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<sup>10</sup> See id. at 30284.

<sup>11</sup> See id.

<sup>12</sup> See id.

<sup>13</sup> The term “System” refers to the electronic communications and trading facility designated by the Board through which securities orders of Users are consolidated for ranking, execution and, when applicable, routing away. See EDGA Rule 1.5(cc).

<sup>14</sup> See Notice, 84 FR at 30284, n. 11. According to the Exchange, an incoming message may be delayed for longer than four milliseconds depending on the volume of messages being processed by the Exchange. Id.

<sup>15</sup> See EDGA Rule 11.7 relating to the opening and re-opening process.

its order instructions (e.g., Minimum Quantity and Post Only) would not be subject to the LP2 Delay Mechanism. In addition, incoming routable orders that bypass the EDGA book would not be subject to the LP2 delay mechanism, but any returning, executable remainder of such a routed order would be subject to the delay mechanism. The sole exception to a non-executable incoming order being subject to the delay would be incoming orders with the EdgeRisk Self Trade Protection (“ERSTP”) modifier. ERSTP modifiers are an optional risk protection that prevents the execution of orders originating from the same market participant identifier, Exchange Member identifier or ERSTP Group identifier.<sup>16</sup> The ERSTP modifier would be applied to the order after it is delayed.

#### Market Data

The Exchange proposes that the LP2 delay mechanism would not apply to inbound or outbound market data. Current, un-delayed data, would be used for all purposes including regulatory compliance and the pricing of pegged orders and the quotation and trade data would continue to be disseminated, without delay, to the applicable securities information processor (“SIP”) and direct market data feeds.<sup>17</sup>

#### Regulation NMS

In conjunction with the proposed LP2 delay mechanism, the Exchange proposes to disseminate a manual, unprotected quotation to the SIP.<sup>18</sup> In addition, because certain Regulation NMS rules related to locked and crossed markets would apply differently to EDGA’s

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<sup>16</sup> See Notice, 84 FR at 30283-84.

<sup>17</sup> See id.

<sup>18</sup> Rule 600(a)(37) defines a “manual quotation” as any quotation other than an automated quotation.

manual, unprotected quotation, compared to its current automated, protected quotation, the Exchange proposed to make the two rule changes described below.

First, the Exchange proposes to add new EDGA Rule 11.10(a)(6) to provide that a bid (offer) on the EDGA Book is eligible to remain posted to the EDGA Book for one second after such bid (offer) is crossed by a Protected Offer (Protected Bid). The bid (offer) on the EDGA Book will be cancelled if it continues to be higher (lower) than a Protected Offer (Protected Bid) after this one second period. Because the delayed cancellation behavior set forth by proposed EDGA Rule 11.10(a)(6) would allow bids and offers on EDGA to remain posted and executable for up to one second if crossed by a Protected Bid or Protected Offer of another market, the Exchange also proposes to amend EDGA Rule 11.10(a)(2) to provide that the Exchange will not execute any portion of a bid or offer at a price that is more than the greater of five cents or 0.5 percent through the lowest Protected Offer or highest Protected Bid, as applicable.

Second, the Exchange proposes to amend EDGA Rule 11.10(f) related to the dissemination and display of Locking Quotations or Crossing Quotations.<sup>19</sup> Because the Exchanges' quotations would be marked manual, Rule 610(d)(1)(ii) of Regulation NMS requires that the Exchange avoid locking or crossing any quotation in an NMS stock disseminated pursuant to an effective national market system plan. The Exchange proposes to amend EDGA

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<sup>19</sup> A "Locking Quotation" is the display of a bid for an NMS stock at a price that equals the price of an offer for such NMS stock previously disseminated pursuant to an effective national market system plan, or the display of an offer for an NMS stock at a price that equals the price of a bid for such NMS stock previously disseminated pursuant to an effective national market system plan in violation of Rule 610(d) of Regulation NMS. See EDGA Rule 11.6(g). A "Crossing Quotation" is the display of a bid (offer) for an NMS stock at a price that is higher (lower) than the price of an offer (bid) for such NMS stock previously disseminated pursuant to an effective national market system plan in violation of Rule 610(d) of Regulation NMS. See EDGA Rule 11.6(c).

Rule 11.10(f)(3) to provide that an EDGA quotation would not be considered a Locking or Crossing Quotation if the quotation being locked or crossed is a manual quotation that is allowed to be locked or crossed pursuant to an exemption request submitted by the Exchange.<sup>20</sup>

#### Eliminate or Modify Certain Order Types and Instructions

The Exchange proposes to eliminate or modify certain order types and instructions to reduce System complexity in light of the operation of the proposed LP2 delay mechanism.

Specifically, the Exchange proposes to eliminate the:

- Discretionary Range instruction<sup>21</sup> and the MidPoint Discretionary Order (“MDO”);<sup>22</sup>
- Pegged instruction,<sup>23</sup> including the Market Peg<sup>24</sup> and Primary Peg<sup>25</sup> instruction;

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<sup>20</sup> See Notice, 84 FR at 30285. In the Notice, the Exchange notes that it submitted an exemption request to the Commission pursuant to Rule 610(e) of Regulation NMS that, if granted by the Commission, would permit the Exchange to lock or cross manual quotations disseminated by the New York Stock Exchange LLC (“NYSE”). Id.; see also Letter from Adrian Griffiths, Assistant General Counsel, Cboe, to Vanessa Countryman, Acting Secretary, dated June 7, 2019 (requesting exemptive relief from certain requirements related to locked and crossed markets pursuant to Rule 610(e) of Regulation NMS).

<sup>21</sup> Discretionary Range is an optional instruction that a User may attach to an order to buy (sell) a stated amount of a security at a specified, displayed or non-displayed ranked price with discretion to execute up (down) to another specified, non-displayed price. See EDGA Rule 11.6(d).

<sup>22</sup> A Midpoint Discretionary Order is a limit order to buy that is pegged to the NBB, with discretion to execute at prices up to and including the midpoint of the NBBO, or a limit order to sell that is pegged to the NBO, with discretion to execute at prices down to and including the midpoint of the NBBO. See EDGA Rule 11.8(e).

<sup>23</sup> Pegged is an instruction to automatically re-price an order in response to changes in the NBBO, and can be entered as either a Market Peg or Primary Peg. See EDGA Rule 11.6(j).

- Supplemental Peg Orders;<sup>26</sup> and
- Non-Displayed Swap and Super Aggressive instructions.<sup>27</sup>

In addition, the Exchange proposes to modify the:

- MidPoint Peg Order (“MPO”)<sup>28</sup> by eliminating the optional functionality that allows a User to: (1) peg the order to the less aggressive midpoint or one minimum price variation inside the same side of the NBBO, and (2) opt for executions during a locked market;

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<sup>24</sup> Market Peg is an order instruction to peg an order to the NBB, for a sell order, or the NBO, for a buy order. See EDGA Rule 11.6(j)(1).

<sup>25</sup> Primary Peg is an order instruction to peg an order to the NBB, for a buy order, or the NBO, for a sell order. See EDGA Rule 11.6(j)(2).

<sup>26</sup> Supplemental Peg Orders are non-displayed Limit Orders that are eligible for execution at the NBB for a buy order and NBO for a sell order against an order that is in the process of being routed to an away Trading Center if such order that is in the process of being routed away is equal to or less than the aggregate size of the Supplemental Peg Order interest available at that price. See EDGA Rule 11.8(g).

<sup>27</sup> Currently, when an order entered with an NDS or Super Aggressive instruction is locked by an incoming order with a Post Only instruction that would not remove liquidity based on the economic impact of removing liquidity on entry compared to resting on the order book and subsequently providing liquidity, the order with the NDS or Super Aggressive instruction is converted to an executable order and will remove liquidity against such incoming order. If an order that does not contain a Super Aggressive instruction maintains higher priority than one or more Super Aggressive eligible orders, the Super Aggressive eligible order(s) with lower priority will not be converted and the incoming order with a Post Only instruction will be posted or cancelled in accordance with Rule 11.6(n)(4). This does not apply to orders entered with an NDS instruction. See EDGA Rule 11.6(n)(2), (n)(7).

<sup>28</sup> MPOs are non-displayed, market or limit orders with an instruction to execute at the midpoint of the NBBO, or, alternatively, pegged to the less aggressive of the midpoint of the NBBO or one minimum price variation inside the same side of the NBBO as the order. See EDGA Rule 11.9(c)(9).

- Price Adjust<sup>29</sup> and Display-Price Sliding<sup>30</sup> instructions to eliminate the functionality to allow orders with these instructions to adjust multiple times to a more aggressive price in response to changes to the prevailing NBBO;<sup>31</sup>
- Post Only<sup>32</sup> instruction to (1) limit the use of the instruction to displayed orders and MPOs and (2) eliminate the ability of such orders to execute on an incoming basis; and
- Market Maker Peg Orders to require the use of a Post Only instruction with such orders.<sup>33</sup>

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<sup>29</sup> Price Adjust is an order instruction requiring that where an order would be a locking quotation or crossing quotation of an external market if displayed by the System on the EDGA Book at the time of entry, the order will be displayed and ranked at a price that is one minimum price variation lower (higher) than the locking price for orders to buy (sell). See EDGA Rule 11.6(l)(1)(A).

<sup>30</sup> Display-Price Sliding is an order instruction requiring that where an order would be a locking quotation or crossing quotation of an external market if displayed by the System on the EDGA Book at the time of entry, will be ranked at the locking price in the EDGA Book and displayed by the System at one minimum price variation lower (higher) than the locking price for orders to buy (sell). See EDGA Rule 11.6(l)(1)(B).

<sup>31</sup> See EDGA Rule 11.6(l)(1)(A)(i),(B)(iii).

<sup>32</sup> Post Only is an order instruction that would allow an otherwise marketable incoming order to (1) cancel or (2) post to the System in a manner that complies with Regulation NMS and forego an execution with a resting order on the EDGA book unless the execution would be economically beneficial when considered in tandem with the applicable Exchange fee or rebate for taking liquidity. See EDGA Rules 11.6(n)(4), 11.9, and 11.10(a)(4).

<sup>33</sup> A Market Maker Peg Order is designed to assist market makers maintain compliance with their continuous quoting obligations. Specifically, it is a limit order that is automatically priced by the System at the Designated Percentage away from the then current NBB (in the case of an order to buy) or NBO (in the case of an order to sell), or if there is no NBB or NBO at such time, at the Designated Percentage away from the last reported sale from the responsible single plan processor.

Finally, the Exchange proposes conforming changes to rules referencing the current Post Only functionality that would permit an incoming order to be executed.<sup>34</sup>

### III. Discussion

#### A. The Applicable Standard for Review

Under Section 19(b)(2)(C) of the Exchange Act,<sup>35</sup> the Commission shall approve a proposed rule change of a self-regulatory organization (“SRO”) if it finds that such proposed rule change is consistent with the requirements of the Exchange Act and the rules and regulations thereunder that are applicable to such organization.<sup>36</sup> The Commission shall disapprove a proposed rule change if it does not make such a finding.<sup>37</sup> Rule 700(b)(3) of the Commission’s Rules of Practice states that the “burden to demonstrate that a proposed rule change is consistent with the [Exchange Act] and the rules and regulations issued thereunder . . . is on the self-regulatory organization that proposed the rule change” and that a “mere assertion that the proposed rule change is consistent with those requirements . . . is not sufficient.”<sup>38</sup> Rule 700(b)(3) also states that “the description of a proposed rule change, its purpose and operation, its effect, and a legal analysis of its consistency with applicable requirements must all be sufficiently detailed and specific to support an affirmative Commission finding.”<sup>39</sup> Any failure of an SRO to provide this information may result in the Commission not having a sufficient basis

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<sup>34</sup> See e.g., EDGA Rule 11.6(l)(A)(4),(B)(4) and EDGA Rule 11.8(c)(5).

<sup>35</sup> 15 U.S.C. 78s(b)(2)(C).

<sup>36</sup> 15 U.S.C. 78s(b)(2)(C)(i).

<sup>37</sup> 15 U.S.C. 78s(b)(2)(C)(ii); see also 17 CFR 201.700(b)(3).

<sup>38</sup> 17 CFR 201.700(b)(3).

<sup>39</sup> Id.

to make an affirmative finding that a proposed rule change is consistent with the Exchange Act and the applicable rules and regulations.<sup>40</sup> Moreover, “unquestioning reliance” on an SRO’s representations in a proposed rule change is not sufficient to justify Commission approval of a proposed rule change.<sup>41</sup>

The Commission concludes that the Exchange has not met its burden to show that approval of the proposed rule change is consistent with the requirements of the Exchange Act and the rules and regulations thereunder applicable to a national securities exchange.<sup>42</sup> In particular, as discussed below, the Exchange has not met its burden with respect to Section 6(b)(5) of the Exchange Act, which requires, among other things, that the rules of a national securities exchange be designed to remove impediments to and perfect the mechanism of a free and open market and a national market system, to promote just and equitable principles of trade, and, in general, to protect investors and the public interest and not to permit unfair discrimination between customers, issuers, brokers, or dealers.<sup>43</sup>

B. Whether EDGA Has Met its Burden to Demonstrate that the Proposal Is Designed Not to Permit Unfair Discrimination

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<sup>40</sup> See id.

<sup>41</sup> Susquehanna Int’l Group, LLP v. Securities and Exchange Commission, 866 F.3d 442, 447 (D.C. Cir. 2017).

<sup>42</sup> In disapproving the 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). The Commission recognizes that some commenters stated that the proposal would help foster competition. See, e.g., Letter from Steve Crutchfield, Head of Market Structure, CTC Trading Group, LLC, dated October 28, 2019 (“CTC Letter II”) at 1-2. But, for the reasons discussed throughout, the Commission is disapproving the proposed rule change because the Exchange has not met its burden to demonstrate that the proposed rule change is consistent with the Exchange Act.

<sup>43</sup> 15 U.S.C. 78f(b)(5).

The proposed rule change is discriminatory in that the Exchange would delay incoming executable orders by 4 milliseconds, which would allow market participants with orders on the EDGA book that are not subject to the delay up to 4 milliseconds to cancel or modify their orders. A discriminatory proposal, however, is not inconsistent with the Exchange Act if the discrimination permitted is not unfair. The Commission has previously stated that “a proposed access delay that is only imposed on certain market participants or certain types of orders would be scrutinized to determine whether or not the discriminatory application of that delay is unfair.”<sup>44</sup> In analyzing whether the Exchange has met its burden to demonstrate that its proposal is consistent with Section 6(b)(5) of the Exchange Act,<sup>45</sup> the Commission examines below whether the record supports the Exchange’s assertions that the LP2 delay mechanism is designed to not permit unfair discrimination.

1. The Exchange’s Basis for a Four Millisecond Delay

The Exchange stated that the proposal is designed to protect liquidity providers by reducing the effectiveness of certain harmful latency arbitrage strategies employed by a small number of liquidity takers and thereby promote improvements to market quality.<sup>46</sup> Specifically, the Exchange asserted that the reduced risk of adverse selection for market makers would result

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<sup>44</sup> See Securities Exchange Act Release No. 78102; 81 FR 40785, 40792 n.75 (June 23, 2016) (Commission Interpretation Regarding Automated Quotations Under Regulation NMS). See also Securities Exchange Act Release No. 77406, 81 FR 15765 (Mar 24, 2016) (File No. 10-222) (Order Instituting Proceedings on IEX’s Form 1 with discussion related to the potentially unfair discriminatory application of an access delay to advantage an affiliated outbound routing broker).

<sup>45</sup> 15 U.S.C. 78f(b)(5).

<sup>46</sup> See Letters from Adrian Griffiths, Assistant General Counsel, Cboe Global Markets, dated August 22, 2019 (“Exchange Response Letter I”) at 1, and dated December 20, 2019 (“Exchange Response Letter II”) at 4.

in increased displayed liquidity with tighter spreads and greater size on the Exchange.<sup>47</sup>

According to the Exchange, the potential for trading at stale prices increases risk for firms that wish to provide liquidity to the market, and harms market quality by causing liquidity providers to enter quotes with either a wider spread or a smaller size than they may otherwise display.<sup>48</sup>

The Exchange believes that a “meaningful portion” of any savings earned by liquidity providers would be passed on to investors in the form of better market quality and benefit the majority of investors.<sup>49</sup>

A commenter supporting the proposal asserted that the term latency arbitrage “generally means using dedicated microwave towers to transmit order information from one location to another to trade the same or correlated financial instrument based on information that is a few milliseconds away from becoming available to all market participants.”<sup>50</sup> This commenter stated that the 4 millisecond delay “would neutralize the difference between commodity fiber connections and microwave networks.”<sup>51</sup> In contrast, several commenters opposing the proposal asserted that the proposed rule change did not identify the problem (*i.e.*, cross-asset latency arbitrage) with sufficient specificity or detail to establish the scope of the problem to be

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<sup>47</sup> See Exchange Response Letter I at 1.

<sup>48</sup> See Notice at 30289. The Exchange also stated “that the LP2 delay mechanism would promote liquidity provision without unfairly discriminating against specific segments of the market” and that it is appropriate to provide protection for orders that provide liquidity because these orders provide an important service to the market and face asymmetric risks due to the fact that the market may move while they are posted to the order book. See id. at 30290.

<sup>49</sup> See Exchange Response Letter II at 5.

<sup>50</sup> See Letter from Eric Swanson, CEO, XTX Markets LLC (Americas), dated July 16, 2019 (“XTX Letter I”) at 2.

<sup>51</sup> See XTX Letter I at 5.

addressed or the magnitude of the problem on the Exchange.<sup>52</sup> Five commenters indicated that the data provided by EDGA was inadequate to establish the extent of the negative impact of cross-asset latency arbitrage on the EDGA market.<sup>53</sup> Two commenters indicated that the term “latency arbitrage” was too broad and not clearly defined, and expressed concern that beneficial hedging activity for Exchange Traded Funds (“ETFs”) or by options liquidity providers in the underlying markets could be caught in the definition of latency arbitrage.<sup>54</sup> Two commenters did not believe that EDGA offered credible evidence to establish how the proposal would reduce cross-market latency arbitrage.<sup>55</sup>

In order to (1) establish the extent of the latency arbitrage issue on EDGA, (2) explain how the LP2 delay mechanism would resolve the latency arbitrage issue without permitting unfair discrimination, and (3) demonstrate that 4 milliseconds was an appropriate duration for the LP2 delay mechanism, the Exchange provided a markout analysis (i.e., an analysis of execution

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<sup>52</sup> See Letters from: Stephen John Berger, Managing Director, Global Head of Government and Regulatory Policy, Citadel Securities, dated July 16, 2019 (“Citadel Letter I”) at 6-7; Joanna Mallers, Secretary, FIA Principal Traders Group, dated July 16, 2019 (“FIA Letter I”) at 2; ”); Joanna Mallers, Secretary, FIA Principal Traders Group, dated October 21, 2019 (“FIA Letter II”) at 1-2; Tyler Gellasch, Executive Director, Healthy Markets, dated July 16, 2019 (“Healthy Markets Letter I”) at 6; Tyler Gellasch, Executive Director, Healthy Markets Association, dated Oct. 21, 2019 (“Healthy Markets Letter II”) at 2; R.T. Leuchtkafer, dated October 21, 2019 (“Leuchtkafer Letter IV”) at 1, 3; Theodore R. Lazo, Managing Director and Associate General Counsel, SIFMA, dated July 18, 2019 (“SIFMA Letter”) at 2.

<sup>53</sup> See Citadel Letter I at 6-7; FIA Letter I at 2; FIA Letter II at 1-2; Healthy Markets Letter I at 6; Healthy Markets Letter II at 2; Leuchtkafer Letter IV at 1, 3; SIFMA Letter at 2.

<sup>54</sup> See Citadel Letter II at 3 n.5; FIA Letter II at 1-2.

<sup>55</sup> See Healthy Markets Letter II at 2; Letter from R.T. Leuchtkafer, dated February 7, 2020 (“Leuchtkafer Letter V”) at 2. One of these commenters also believed that EDGA did not establish the taxonomy of cross-market latency arbitrage that the proposal would seek to address, or to what extent market participants would use the “time advantage” contemplated by the proposal. Healthy Markets Letter II at 2.

costs) for EDGA liquidity providers in SPY during July 2019.<sup>56</sup> The Exchange stated that the charts demonstrated whether a liquidity provider attempted and failed to cancel or replace their quotation within 4 milliseconds after an execution and the price differential between the execution price and the midpoint price at the time of the trade and the milliseconds following an execution.<sup>57</sup> The Exchange also asserted that the charts showed that “the midpoint price move[d] dramatically in the milliseconds immediately following transactions in this category, and often involved a handful of faster firms that are routinely able to predict and profit from prices that are about to change.”<sup>58</sup> According to the Exchange, the markout analysis represented “the majority of trading activity conducted on the Exchange, [and] showed relatively stable prices following an execution.”<sup>59</sup> The Exchange also included a similar markout analysis for other securities during July 2019.<sup>60</sup> The Exchange concluded, based on the markout analysis, that investors that are not actively engaging in latency arbitrage would not be harmed by the LP2 delay mechanism and would continue to be able to access liquidity at similar prices after the 4 millisecond delay because “published quotations are relatively stable immediately following an execution.”<sup>61</sup> The Exchange also concluded that concerns related to “the possibility that a published quotation may not be accessible because a liquidity provider cancels its orders before an investor can access the published bid or offer”, were unwarranted because the data showed that prices are “relatively

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<sup>56</sup> See Exchange Response Letter I at 3.

<sup>57</sup> See id. at 3-4.

<sup>58</sup> See id. at 3.

<sup>59</sup> See id. at 4.

<sup>60</sup> See id. at Appendix.

<sup>61</sup> See id. at 5.

stable for most investors” after an execution, and the liquidity would likely be available notwithstanding the introduction of the delay.<sup>62</sup> The Exchange stated that “the [p]roposal is likely to make it less profitable to engage in latency arbitrage while not materially affecting the ability of ordinary investors to access liquidity on EDGA.”<sup>63</sup>

In response to the Exchange’s markout analysis, one commenter supporting the proposal stated that the Exchange’s markout analysis could be used to measure the reduction in adverse selection on executed transactions.<sup>64</sup> In contrast, two commenters opposing the proposal did not believe that the Exchange’s markout analysis established the latency arbitrage problem on the Exchange or that the proposal would necessarily provide an effective counter measure.<sup>65</sup> One commenter suggested that the Exchange’s markout analysis did not necessarily show stale quotes being picked off by latency arbitrageurs out of Chicago, but rather may demonstrate that either (1) the SPY signal for the cancellation of orders is coming from somewhere geographically closer than Chicago, or (2) that EDGA market makers could be utilizing connections that are faster than fiber.<sup>66</sup> This commenter believed that the Exchange’s markout analysis could be evidence that the proposal may provide EDGA market makers with an “investor-funded subsidy” of \$900 a day or more in SPY.<sup>67</sup> This commenter also suggested that the data likely shows the

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<sup>62</sup> See id.

<sup>63</sup> See Exchange Response Letter I at 5-6.

<sup>64</sup> See Letter from Eric Swanson, CEO, XTX Markets LLC (Americas), dated October 18, 2019 (“XTX Letter III”) at 2.

<sup>65</sup> See FIA Letter II at 2; Letter from R.T. Leuchtkafer, dated September 9, 2019 (“Leuchtkafer Letter III”) at 2-3; Leuchtkafer Letter IV at 4-5; Leuchtkafer Letter V at 2.

<sup>66</sup> See Leuchtkafer Letter III at 2-3; Leuchtkafer Letter IV at 4-5.

<sup>67</sup> See Leuchtkafer Letter III at 5; Leuchtkafer Letter IV at 9.

effect of investor equities market sweeps as opposed to latency arbitrage activity based on the futures markets in Chicago.<sup>68</sup> Another commenter believed that the markout data did not provide evidence of stale prices, but rather showed that liquidity providers try, but fail, to cancel their quotes before receiving an execution more often when the price is moving compared to when the price is stable.<sup>69</sup> This commenter believed that the execution prices for failed cancellations “very likely matched the executed prices on other exchanges as investors executed orders against existing market-maker quotes and other resting orders.”<sup>70</sup> This commenter also believed the data was consistent with the “standard” broker-dealer practice of sweeping the top-of-book across all exchanges on behalf of both institutional and retail investors seeking to fill orders that are equal to, or larger than, the size at the NBB or NBO.<sup>71</sup>

In response, the Exchange disagreed with the comment related to its markout analysis that reducing adverse selection risk for liquidity providers would effectively serve as a “subsidy” for liquidity providers.<sup>72</sup> The Exchange stated that “only a very small minority of market participants are capable of targeting millisecond or microsecond level price changes, and the benefits the [p]roposal would offer in terms of reduced adverse selection risk for liquidity providers would come primarily from the reduced ability of those firms to continue engaging in potentially harmful latency arbitrage strategies.”<sup>73</sup> The Exchange also stated that liquidity

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<sup>68</sup> See Leuchtkafer Letter III at 6.

<sup>69</sup> See FIA Letter II at 2.

<sup>70</sup> See id. at 2.

<sup>71</sup> See id.

<sup>72</sup> See Exchange Response Letter II at 5.

<sup>73</sup> See id. at 5.

providers would not benefit at the expense of investors, but rather that investors could “more accurately” be considered the ultimate beneficiaries of the proposal.<sup>74</sup> The Exchange also stated that while certain commenters were dubious as to whether the benefits received by a liquidity provider under the proposal would be passed on to investors, such factual questions could only be answered “with finality” by implementing the proposed delay mechanism and attempting to improve the market.<sup>75</sup>

Certain commenters cited to studies suggesting that the TSX Alpha speedbump (i.e., an intentional, asymmetric delay for otherwise marketable orders in a market with a taker/maker or inverted fee structure) increased transaction costs and decreased market quality in the Canadian equities markets.<sup>76</sup> In response, the Exchange stated that these commenters failed to mention the results of a subsequent study by Canadian regulators that found that the TSX Alpha speedbump “did not adversely affect the quality of Canadian equity markets” or the results of an analysis that found “no evidence” of market quality being negatively impacted.<sup>77</sup> While the Exchange

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<sup>74</sup> See id. at 5.

<sup>75</sup> See id. at 5-6.

<sup>76</sup> See e.g., Chen, Haoming et al., The value of a Millisecond: Harnessing Information in Fast, Fragmented Markets, SSRN (Nov. 18, 2017), available at: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2860359](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2860359) (“Australian Study”); see also OIP supra note 6, notes 139-146 and accompanying text, for a summary of the comments referenced by the Exchange.

<sup>77</sup> See Exchange Response Letter I at 10. The Exchange referenced a joint study on the impact of the TSX Alpha redesign, which included the implementation of a randomized 1-3 millisecond speedbump, conducted by the Investment Industry Regulatory Organization of Canada (“IIROC”) and the Bank of Canada, as well as a review of the market quality impact of the TSX Alpha speedbump conducted by the Ontario Securities Commission (“Canadian Studies”). See id. at 10-11; see also Exchange Response Letter II at 10.

acknowledged the material differences between the instant proposal and the randomized 1-3 millisecond, asymmetric, intentional delay implemented on TSX Alpha as well as significant differences between the U.S. and Canadian equities markets,<sup>78</sup> it also stated that to the extent that the analysis by the Canadian regulators is instructive it demonstrates the value of market innovation similar to the instant proposal.<sup>79</sup>

Four commenters opposing the proposal did not believe that the analyses conducted by Canadian regulators, and referenced by the Exchange, necessarily supported the Exchange's assertions.<sup>80</sup> One commenter stated that the empirical data obtained from the asymmetric delay introduced by TSX Alpha in the Canadian equity markets is not sufficient or conclusive as to whether an asymmetric delay should be introduced in U.S. equity markets.<sup>81</sup> This commenter emphasized that the IIROC and Bank of Canada study found "no evidence" that the TSX Alpha speedbump impacted certain market-wide measures.<sup>82</sup> One commenter noted that while the IIROC and Bank of Canada study did not find that the TSX Alpha speedbump impacted market-wide liquidity, it did find that certain market participants, such as buy-side investors, were

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<sup>78</sup> See Exchange Response Letter I at 11.

<sup>79</sup> See id.

<sup>80</sup> See Letter from Stephen John Berger, Managing Director, Global Head of Government and Regulatory Policy, Citadel Securities, dated October 21, 2019 ("Citadel Letter II") at 4; Leuchtkafer Letter IV at 7; Letter from Rick A. Fleming, Investor Advocate, Office of the Investor Advocate at the U.S. Securities and Exchange Commission, dated December 13, 2019 ("Investor Advocate Letter") at 8; Letter from Doug Clark, Chairman, and James Toes, President & CEO, Security Traders Association, dated October 21, 2019 ("STA Letter") at 2.

<sup>81</sup> See STA Letter at 2.

<sup>82</sup> See id. at 4.

negatively impacted by higher price impacts and effective spreads.<sup>83</sup> Another commenter stated that the IIROC and Bank of Canada study “fails to provide evidence that the proposed speedbump will actually benefit investors.”<sup>84</sup> Another commenter stated that the evidence from the “reasonably comparable” asymmetric delay implemented on the TSX Alpha exchange in the Canadian equity market showed that institutional and retail investor concerns related to an increase in quote fading and a decline in fill rates were legitimate.<sup>85</sup> This commenter stated that neither of the Canadian Studies disputed the conclusion of the Australian study<sup>86</sup> that the implementation of the asymmetric speedbump enabled fast liquidity providers to “fade” away from liquidity taking orders across multiple venues and quote fading increased by 46% on average.<sup>87</sup> This commenter did a separate analysis of quote fading on TSX Alpha using Canadian exchange data and reached conclusions that it believed were consistent with the Australian study.<sup>88</sup> Two commenters pointed out that, as per an Ontario Securities Commission review, market participants reported a decrease in fill rates on TSX Alpha, particularly for orders

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<sup>83</sup> See Leuchtkafer Letter IV at 7.

<sup>84</sup> Investor Advocate Letter at 8.

<sup>85</sup> See Citadel Letter II at 4.

<sup>86</sup> See note 77 *supra*.

<sup>87</sup> See Citadel Letter II at 4.

<sup>88</sup> See id. The commenter found the following for price-level depleting trade clusters based on their analysis: (1) quote fading on TSX Alpha “immediately and significantly” increased following the implementation of the asymmetric speedbump in September 2015; (2) these elevated quote fading rates persisted, as data over the last 12 months showed that approximately 70-80% of the quoted volume on TSX Alpha is being cancelled without executing; and (3) this contrasts with quote fading rates of approximately 30% on other inverted venues and approximately 20% on maker-taker venues. See id. at 4-5.

that were expected to sweep through multiple price levels or be routed to multiple marketplaces simultaneously (e.g., institutional orders).<sup>89</sup>

The Exchange responded that the analysis of the Canadian market conducted by one commenter<sup>90</sup> was “unhelpful” and had “fundamental flaws”.<sup>91</sup> The Exchange stated that evidence from the Canadian markets suggests that investors using a combination of strategies designed to take advantage of the TSX Alpha speedbump “may benefit from improved market quality without sacrificing order interaction.”<sup>92</sup> The Exchange stated that evidence from Canadian market studies had shown an increase in trade size on TSX Alpha following the introduction of its speedbump, and suggested that market participants may be able to get their orders filled on a single venue such as EDGA due to the expected increase in liquidity.<sup>93</sup> The Exchange indicated that although a chart published by TSX Alpha in December 2019 shows that proprietary and high speed participants may experience lower order interaction rates, as intended, order interaction rates remain high for retail and institutional orders routed by broker-dealers “that have taken appropriate steps” to account for the TSX Alpha speedbump.<sup>94</sup> The Exchange believed that, while broker-dealers may need to change their routing methodologies, a delay

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<sup>89</sup> See Citadel Letter II at 4; Leuchtkafer Letter IV at 7.

<sup>90</sup> See Citadel Letter II at 4.

<sup>91</sup> Exchange Response Letter II at 11.

<sup>92</sup> See id. at 11.

<sup>93</sup> See id.

<sup>94</sup> See id. at 12.

mechanism similar to that on TSX Alpha could benefit U.S. equities investors “without harming their ability to access needed liquidity.”<sup>95</sup>

One commenter stated that while the EDGA proposal is designed to reduce the overall execution risk for a certain class of liquidity providers (i.e., market makers), with the “hope” that these market makers voluntarily respond by taking on the additional risk of quoting tighter spreads for longer durations and with greater size, there is no requirement for them to do so, and furthermore the likelihood that these market makers will use the speedbump to avoid the execution risk presented by the orders of ordinary investors should be considered.<sup>96</sup> This commenter also stated that although the proposal describes potential benefits for retail and institutional investors in the market, there is no guarantee that such improvements would occur.<sup>97</sup> One commenter opposing the proposal believed that overall market quality would not improve because EDGA liquidity providers would tend to join existing quotes in order to maximize their ability to observe away executions.<sup>98</sup> Two commenters believed the proposal was unlikely to incentivize EDGA liquidity providers to set new price levels that would establish the NBBO, and would instead more often result in EDGA liquidity providers posting prices equal to or inferior to the NBBO set by liquidity providers on other exchanges.<sup>99</sup> One commenter stated that EDGA

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<sup>95</sup> See id.

<sup>96</sup> Investor Advocate Letter at 4-5.

<sup>97</sup> See id.

<sup>98</sup> See Letter from Mark D. Epley, Executive Vice President & Managing Director, General Counsel, and Jennifer W. Han, Associate General Counsel, Managed Funds Association, dated October 22, 2019 (“MFA Letter II”) at 3.

<sup>99</sup> See Citadel Letter II at 8; FIA Letter II at 2. One commenter explained that because EDGA is an inverted venue, matching the NBBO may also result in being routed to first in light of the rebate provided to the liquidity taker. See Citadel Letter II at 8

did not analyze its key assertion that the application of the LP2 delay mechanism would improve market quality in the light of the Exchange’s inverted (i.e., taker/maker) fee structure,<sup>100</sup> and one commenter stated that inverted markets set new prices only “a very small amount of the time” because typically liquidity providers that are improving price on an inverted venue do not also pay to post, because to do so is to pay twice.<sup>101</sup> The latter commenter expected that to the extent EDGA remains an inverted venue and the proposal does not contemplate a change in fee type, EDGA would rarely set new prices.<sup>102</sup> One commenter believed EDGA did not provide “any data or analysis regarding how many members could be expected to increase quoting as a result” of the proposal,<sup>103</sup> while another commenter indicated that EDGA did not provide “any estimate of what its market makers will return to investors via tighter spreads and larger quotes.”<sup>104</sup> This commenter also noted that the proposal would not require market makers to improve their quotes, and suggested that more stringent quoting obligations could be added to EDGA’s rulebook.<sup>105</sup> Another commenter indicated the proposal could potentially lead to decreased fill rates, misleading market-wide statistics, and altered execution prices.<sup>106</sup> Two commenters expressed concern about the proposal’s potential impact on transaction costs,<sup>107</sup> and one of these

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<sup>100</sup> See Citadel Letter I at 10.

<sup>101</sup> See STA Letter at 5.

<sup>102</sup> See id.

<sup>103</sup> See Healthy Markets Letter I at 7.

<sup>104</sup> See Leuchtkafer Letter V at 1.

<sup>105</sup> See id. at 1-2.

<sup>106</sup> See Healthy Markets Letter II at 8.

<sup>107</sup> See Letter from Tim Lang, Chief Executive Officer, ACS Execution Services, dated Oct. 21, 2019 (“ACS Letter”) at 2; MFA Letter II at 2.

commenters referenced a study on the impact of the intentional, randomized, asymmetric delay implemented on TSX Alpha which purportedly concluded that there was a negative impact on liquidity in the Canadian equities market and increased, market-wide costs for liquidity takers.<sup>108</sup> In response to concerns about whether there would be market quality improvements, the Exchange suggested that reducing the cost of adverse selection for liquidity providers would allow them to improve their quotations and increase available liquidity throughout the trading day.<sup>109</sup>

The Commission concludes that the Exchange has not met its burden to demonstrate that the proposed rule change is consistent with Section 6(b)(5) of the Exchange Act,<sup>110</sup> and the applicable rules and regulations thereunder. In particular, the Commission does not believe that the Exchange has supported its assertions and demonstrated that the LP2 delay mechanism is appropriately tailored to address latency arbitrage and not permit unfair discrimination.

Commenters raised questions as to whether the proposed LP2 delay mechanism is appropriately tailored to its stated purpose, which is to reduce the risk of adverse selection to market makers, improve displayed liquidity on the Exchange, and thereby potentially enable market makers to offer tighter quotes and greater size. The Exchange has not demonstrated why, in light of these questions, the proposal is consistent with the Act. For example, the Exchange points to the differentials between the geographical latencies for microwave and fiber optic connections

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<sup>108</sup> See ACS Letter at 2.

<sup>109</sup> See Exchange Response Letter II at 4; see also Section III.B.1.a supra for further discussion of market quality improvements that the Exchange anticipates would result from the proposed LP2 delay mechanism.

<sup>110</sup> 15 U.S.C. 78f(b)(5).

currently experienced between the Chicago Mercantile Exchange (“CME”) data center in Aurora, IL and the Exchange’s primary data center in Secaucus, NJ with the apparent assumption, unsupported by analysis or evidence, that opportunistic trading firms use the latest microwave connections and EDGA liquidity providers use traditional fiber connections. The Exchange, however, fails to demonstrate why it is appropriate to apply the 4 millisecond delay to incoming executable orders that would remove liquidity from the EDGA Book for all equities securities traded on the Exchange instead of limiting the application of the delay to incoming, executable orders for those securities that have a futures counterpart, or other relationship to trading on the CME, and generate opportunities for latency arbitrage from that venue. In addition, the Exchange has not demonstrated the extent to which latency arbitrage is a problem on its market or how the proposal is tailored to the problem by, for instance, providing an estimate of the percentage of trading activity on the Exchange (for example, orders, trades, share volume, or dollar volume) affected by signals from the futures markets.

The limited empirical information provided by the Exchange does not adequately demonstrate either the extent of the problem of latency arbitrage that the Exchange seeks to address or that the proposal would be sufficiently tailored to address the identified problem. As noted above, the Exchange provided markout data to (1) establish the extent of the latency arbitrage issue on EDGA, (2) explain how the LP2 delay mechanism would resolve the latency arbitrage issue without permitting unfair discrimination, and (3) demonstrate that 4 milliseconds was an appropriate duration for the LP2 delay mechanism. The charts provided by the Exchange showed trading activity for three ETFs that are often traded in relation to an actively traded futures contract (SPY, TLT, and GLD) and three common stocks included in the S&P 500 index (CCI, MSFT, and UTX). The Exchange concluded that trades were likely executed at a stale

price where prices immediately moved against the resting order in the milliseconds following the trade on EDGA (i.e., the Exchange contends that the missed cancel analysis illustrates the impact of trades where the liquidity provider understands that it is quoting a stale price but is unable to revise its published bid or offer before its quotation is accessed by a faster market participant). However, because the Exchange did not (1) explain why it chose these six symbols, (2) explain why these symbols are representative of equities securities that are traded on the Exchange for which the LP2 delay mechanism would apply, or (3) provide data on the relative sizes of the two groups of orders in its analysis, it is not possible to fully analyze the charts or to independently verify the Exchange's conclusions. Accordingly, the EDGA markout analysis does not provide a sufficient basis to support an affirmative finding that the proposed rule change is consistent with the Act.<sup>111</sup>

The Exchange stated that the results of the Canadian studies related to the TSX Alpha speedbump could be instructive with regard to demonstrating the value of introducing innovative market structure solutions similar to the instant proposal to the U.S. equities markets. However, the Commission believes that because the delay on TSX Alpha is a shorter, randomized delay of 1-3 milliseconds, and there are material differences between the Canadian and U.S. equities markets, the effects of the intentional delay on TSX Alpha in the Canadian equities market are not wholly relevant to assess the potential impact of this proposed rule change on the U.S. equities markets, in general, and market quality (e.g., width, displayed size, and effective spreads during different periods of market volatility) in particular. Accordingly, given the failure of the Exchange to demonstrate why the differences between the fixed LP2 delay mechanism and the

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<sup>111</sup> See 17 CFR 201.700(b)(3).

randomized TSX Alpha delay mechanism are immaterial, the Commission does not believe that the findings and conclusions of the various TSX Alpha studies provide a sufficient basis to support an affirmative finding that this proposed rule change is consistent with the Act.<sup>112</sup>

The Exchange and supporting commenters assert that the proposal will bolster EDGA market quality and reduce the existing problem of latency arbitrage and argue that therefore the proposal would not permit unfair discrimination. However, such assertions do not demonstrate that the proposal would not permit unfair discrimination. Specifically, as noted above, the Commission does not believe that the EDGA markout analysis or the TSX Alpha studies can be relied upon to determine that the proposed rule change is consistent with the Act.<sup>113</sup>

## 2. Discrimination Between Liquidity Takers and Liquidity Providers

Commenters supporting the proposal believed that the intentional 4 millisecond delay was a “reasonable”<sup>114</sup> or “appropriate”<sup>115</sup> length because the time correlates to the transmission of data between data centers located in the New York-New Jersey metro area and those located in the Chicago area.<sup>116</sup> One of these commenters indicated that latencies related to matching engines occur naturally during the course of normal operation for “many... exchanges”, and these natural latencies could exceed the duration of the LP2 delay mechanism by several orders of magnitude.<sup>117</sup> A commenter opposing the proposal indicated that the proposed 4 millisecond

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<sup>112</sup> See id.

<sup>113</sup> See id.

<sup>114</sup> See CTC Letter II at 4.

<sup>115</sup> See XTX Letter III at 5.

<sup>116</sup> See CTC Letter I at 3; XTX Letter I at 5.

<sup>117</sup> See CTC Letter II at 5.

delay did not appear to exceed the stated transmission time from Illinois to New Jersey, and on that basis questioned how the proposal could achieve its stated objective.<sup>118</sup> This commenter did not believe that the proposed rule change should be tied to the use and operation of current technology and questioned whether the length of the delay would need to be modified as technology and the time required to transmit data evolves.<sup>119</sup>

The Exchange restated its belief that an intentional delay of four milliseconds is an appropriate duration in order to negate the advantages that opportunistic trading firms using the latest microwave connections have over liquidity providers using traditional fiber connections.<sup>120</sup> In response to whether the proposal would successfully protect liquidity providing orders on the EDGA book given that the length of the delay is shorter than the transmission time from Illinois to New Jersey, the Exchange stated that a four millisecond delay is appropriate because the respective transmission times over fiber and high speed microwave connections is approximately 7.75 milliseconds and 4.005 milliseconds, and opportunistic trading firms with microwave connections use the resulting 3.745 millisecond “advantage” to “race to the equities market and trade at potentially stale prices” before EDGA liquidity providers can update their quotations.<sup>121</sup>

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<sup>118</sup> See Healthy Markets Letter II at 3 n.6. In the Notice, the Exchange stated that the proposed delay would negate the advantages that “opportunistic trading firms that use the latest microwave connections have over liquidity providers using traditional fiber connections.” Notice at 30284. The Exchange stated that Quincy Data advertised a latency of 4.005 milliseconds for its high speed microwave connection, or about half the 7.75 milliseconds of latency experienced over a fiber connection provided by ICE Global Network. See Notice, 84 FR at 30284 n.10.

<sup>119</sup> See Healthy Markets Letter II at 4.

<sup>120</sup> See Exchange Response Letter II at 8.

<sup>121</sup> See id. at 9.

The Exchange also stated that its own analysis suggested that a four millisecond delay would not be material for investors with long term investment horizons because these investors would not be sensitive to millisecond level price changes.<sup>122</sup> The Exchange stated that such investors should have the ability to make tradeoffs in the public markets similar to those that are available in OTC markets, where a number of broker-dealers offer conditional orders that are only executable after a firm-up period that can range between 500 milliseconds and two seconds depending on the firm.<sup>123</sup> The Exchange stated that market participants that choose to use this functionality in OTC markets have decided that the value of the execution provided by such orders outweighs the time it may take to receive that execution (i.e., they value the quality of the execution over its immediacy).<sup>124</sup> The Exchange also stated that broker-dealers often make tradeoffs between the speed of an execution and other factors, such as price improvement and liquidity, and noted that NASDAQ introduced a midpoint extended life order that contains a built-in speedbump of 500 milliseconds.<sup>125</sup>

Commenters supporting the proposal asserted that the proposed rule change is not unfairly discriminatory toward any particular type of market participant.<sup>126</sup> Specifically, one of these commenters stated that the LP2 delay mechanism is a targeted response to a known problem (i.e., latency arbitrage) and that the mechanism would reduce costs for most market participants, enhance market quality in the form of better displayed prices and larger size, and

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<sup>122</sup> See id.

<sup>123</sup> See id. at 10.

<sup>124</sup> See Exchange Response Letter II at 10.

<sup>125</sup> See id. at 9.

<sup>126</sup> See CTC Letter II at 3; XTX Letter III at 3.

lower the barrier to entry for new market making firms.<sup>127</sup> This commenter also stated that the proposed delay mechanism: (1) targets the particular trading activity of latency arbitrage as opposed to a type of market participant, and (2) protects all liquidity adding orders as opposed to orders from a subset of market participants.<sup>128</sup> In addition, the commenter stated that market participants that engage in latency arbitrage may not be readily defined or grouped by one aspect of their overall trading activity, and will typically adapt their businesses and activities to accommodate the specific market structure of each product and market.<sup>129</sup> The other commenter argued that the proposal was not unfairly discriminatory because all market participants who send limit orders would be treated “equally and therefore fairly,” since all limit orders from all of these market participants would be eligible for protection by the LP2 delay mechanism.<sup>130</sup> This commenter also stated that the proposal was not unfairly discriminatory because liquidity providers may be picked off by participants with speed advantages related to exchange connectivity or market data processing and therefore incur greater risks than liquidity takers.<sup>131</sup> The commenter stated that reducing the degree of an existing disparity (i.e., reducing the magnitude of the risk being assumed by liquidity providers) could not constitute unfair discrimination.<sup>132</sup> This commenter further stated that as long as the orders of liquidity takers are not correlated with microsecond-level price dislocations, they should expect to receive the same

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<sup>127</sup> See XTX Letter III at 3.

<sup>128</sup> See id.

<sup>129</sup> See XTX Letter III at 3.

<sup>130</sup> See CTC Letter II at 3.

<sup>131</sup> See id.

<sup>132</sup> See id.

fill rate under the proposal as they receive today.<sup>133</sup> The commenter stated that the likelihood of a market maker backing away during the delay would be small because the “natural liquidity demands” of investors and end users are uncorrelated with microsecond or millisecond level price dislocations.<sup>134</sup>

In contrast, other commenters raised concerns that the proposed rule change would permit unfair discrimination against liquidity takers because EDGA liquidity providers could use the 4 millisecond delay to observe executions on other venues, and then cancel their displayed quotes in anticipation of a similar order being routed to EDGA.<sup>135</sup> Several of these commenters expressed concern that EDGA liquidity providers would be able to modify or cancel their displayed quotes while an executable, incoming order was being subjected to the LP2 delay mechanism, indicating that this capability would allow liquidity providers to back away from their quotes while creating uncertainty for liquidity takers, including many retail and institutional investors, in terms of their ability to access publicly displayed orders, which could serve to degrade quote quality on EDGA.<sup>136</sup> Another commenter asserted that the proposed LP2 delay mechanism “essentially provides all market participants with resting orders a free option to modify or cancel their orders before execution,” and thus “[s]ometimes a liquidity taking order

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<sup>133</sup> See id. at 4.

<sup>134</sup> See id. at 2.

<sup>135</sup> See ACS Letter at 2; Citadel Letter II at 6, 10; Letter from Ray Ross, Chief Technology Officer, Clearpool, dated Oct. 21, 2019 (“Clearpool Letter II”) at 3; FIA Letter II at 2; Healthy Markets Letter II at 3; ICI Letter at 1; Leuchtkafer Letter IV at 1-2; MFA Letter II at 1-2.

<sup>136</sup> See ACS Letter at 2; Citadel Letter II at 2; ICI Letter at 2; MFA Letter II at 3; STA Letter at 3.

would receive an execution, and other times it would not.”<sup>137</sup> Several commenters believed that such quote fading could lead to poor execution outcomes for institutional investors, such as a decline in fill rates,<sup>138</sup> and two commenters indicated that this would negatively impact firms that send orders simultaneously to more than one execution venue in order to obtain the desired size through mechanisms such as intermarket sweep orders.<sup>139</sup> A commenter characterized the 4 millisecond window afforded by the delay as the “economic equivalent of a ‘last look’” since a liquidity provider could use market data to anticipate the timing of incoming orders delayed by the speedbump.<sup>140</sup> A commenter suggested that the differential in the execution prices related to quote fading by liquidity providers would be akin to a fee that is imposed on institutional investors.<sup>141</sup> A commenter stated that EDGA did not provide data to evaluate the proposal’s impact on different types of market participants, for example, the Exchange did not evaluate the frequency with which liquidity providers would reprice or cancel orders as a result of the LP2 delay mechanism, the impact on retail and institutional orders, and the impact on ETF market makers.<sup>142</sup>

In response to comments that the proposal would permit unfair discrimination, the Exchange acknowledged that the instant proposal is different than the Commission-approved delays on IEX and American and stated that the differences associated with the LP2 delay

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<sup>137</sup> See Healthy Markets Letter III at 8.

<sup>138</sup> See Citadel Letter II at 2; Clearpool Letter II at 3; MFA Letter II at 1-2.

<sup>139</sup> See Citadel Letter II at 10; MFA Letter II at 1-2.

<sup>140</sup> See Citadel Letter II at 6.

<sup>141</sup> See MFA Letter II at 2.

<sup>142</sup> See Citadel Letter I at 7.

mechanism would serve to “enhance displayed liquidity and benefit investors.”<sup>143</sup> The Exchange also stated that the commenters “miss[ed] the point” because a “truly symmetric delay would do nothing to protect investors’ orders.”<sup>144</sup> The Exchange noted that the LP2 delay mechanism, like the delays on IEX and American, would protect resting orders, but unlike the IEX and American delays, this proposal would not rely on exchange driven algorithms and would enable liquidity providers to “improve displayed prices.”<sup>145</sup> The Exchange also asserted that the proposal is not unfairly discriminatory because the LP2 delay mechanism would apply to a subset of orders on EDGA (i.e., liquidity taking orders) but not others (i.e., liquidity adding orders), because the relevant differences between such orders, and in particular the “free option” provided by price-setting quotations, justifies protecting orders that provide liquidity to investors (i.e., liquidity adding orders).<sup>146</sup> The Exchange stated that (1) “all market models necessarily involve treating certain orders differently from others in some manner based on one or more identifiable characteristics,” (2) market operators must make certain determinations about what sort of market model would promote the maintenance of fair, orderly, and efficient markets, and (3) competitive forces, measured by order flow and market share, would ultimately dictate the efficacy of the market model.<sup>147</sup> The Exchange also stated that while liquidity providers are most directly impacted by latency arbitrage, “market participants that access ... liquidity on national securities exchanges” are also affected because the “ability for investors to trade with a

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<sup>143</sup> See Exchange Response Letter I at 6.

<sup>144</sup> See id.

<sup>145</sup> See Exchange Response Letter I at 7.

<sup>146</sup> See Exchange Response Letter II at 2-3.

<sup>147</sup> Exchange Response Letter II at 3.

published quotation and obtain a quality execution depends on the ability for liquidity providers to offer their best prices and sizes to the market.”<sup>148</sup> The Exchange stated it was important to protect liquidity providers “given the service that they provide to the market, and the asymmetric risks” they assume.<sup>149</sup> The Exchange stated that the LP2 delay mechanism should largely eliminate adverse selection risks for liquidity providers, who otherwise must price such risks into their posted quotations—and the benefits of this reduced risk would accrue to investors as well as liquidity providers, since liquidity providers would be competing to offer the best quoted prices on the EDGA book.<sup>150</sup> The Exchange stated that reducing the cost of adverse selection for liquidity providers would allow them to improve their quotations and increase available liquidity throughout the trading day.<sup>151</sup>

The Exchange also stated that the crux of the disagreement about whether the proposal was unfairly discriminatory was substantively related to “who would benefit” and “whether the Exchange would ultimately be successful in its goal of improving market quality for investors.”<sup>152</sup> The Exchange asserted that the proposal is “plainly not unfairly discriminatory” because it “would offer strong incentives for liquidity providers to improve quote quality, and hence execution quality for investors, and would do so by offering an innovative solution to

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<sup>148</sup> See Exchange Response Letter I at 7.

<sup>149</sup> See id.

<sup>150</sup> See Exchange Response Letter II at 5.

<sup>151</sup> See id. at 4.

<sup>152</sup> See Exchange Response Letter II, supra note 9, at 3; see also Section III.B.1.d supra for further discussion of the impact of the proposal on market quality

investors on a purely voluntary basis.”<sup>153</sup> The Exchange stated that all market participants that are not engaged in the latency arbitrage strategies could benefit from the proposal, “either th[r]ough submitting liquidity providing orders that benefit directly from the LP2 delay mechanism, or through submitting liquidity removing orders that may benefit from improved market quality.”<sup>154</sup> The Exchange also referenced a prior comment letter to convey that although high-frequency liquidity providers may be the immediate beneficiaries of the asymmetric speedbump, benefits are likely to be passed on to investors as well.<sup>155</sup> The Exchange also stated that the proposal is distinguishable from “last look” functionality on the foreign exchange markets because EDGA liquidity providers would not have the opportunity to avoid executions with an incoming marketable order after it has been presented for execution.<sup>156</sup> Rather, the Exchange stated that liquidity providers would continue to set quoted prices based on available market information, and the liquidity taking order would only become known when the order is presented for execution after exiting the delay mechanism.<sup>157</sup>

As expressed by certain concerned commenters, unfair discrimination against liquidity takers could result because EDGA liquidity providers could use the 4 millisecond delay to observe executions on other venues and then cancel or modify their displayed quotes in

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<sup>153</sup> Exchange Response Letter I at 9.

<sup>154</sup> Exchange Response Letter II at 2.

<sup>155</sup> See Exchange Response Letter II at 4 (referencing the letter from Joshua Mollner, Assistant Professor, Kellogg School of Management, Northwestern University, and Markus Baldauf, Assistant Professor, Sauder School of Business, University of British Columbia, dated September 12, 2019 (“Mollner & Baldauf Letter”).

<sup>156</sup> See Exchange Response Letter I at 15.

<sup>157</sup> See id. at 15-16.

anticipation of a similar order being routed to EDGA.<sup>158</sup> The Exchange has identified that it could be problematic for a market participant to observe an execution on one exchange and use such market information in conjunction with its speed advantage to effect an execution against a soon to be stale quotation on another exchange (i.e., latency arbitrage). However, the Exchange has not demonstrated why a 4 millisecond delay, that is designed to mimic the differentials in the geographic latency between data centers located in northern New Jersey and Illinois, is also appropriate to protect against latency arbitrage when the relevant data centers are both located in northern New Jersey and the geographic latency differential would presumably be less than 4 milliseconds.

The Exchange<sup>159</sup> and supporting commenters<sup>160</sup> reason that the LP2 delay mechanism applies equally to all market participants submitting incoming executable orders and therefore the proposal would not permit unfair discrimination. However, the Exchange has not provided specific analysis or demonstrated that the proposed rule change would not permit unfair discrimination against liquidity taking orders that are not related to latency arbitrage as they would be treated in the same manner as orders engaged in latency arbitrage that the Exchange seeks to target in its effort to protect EDGA liquidity providers.<sup>161</sup>

The Exchange and supporting commenters also suggest that the proposal would not permit unfair discrimination because liquidity providers provide a valuable service to the market

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<sup>158</sup> See ACS Letter at 2; Citadel Letter II at 6, 10; FIA Letter II at 2; Healthy Markets Letter II at 3; ICI Letter at 1; Leuchtkafer Letter IV at 1-2; MFA Letter II at 1-2.

<sup>159</sup> See Notice, 84 FR at 30290-1.

<sup>160</sup> See note 123, supra.

<sup>161</sup> See 17 CFR 201.700(b)(3).

and assume disproportionate risks compared to liquidity takers. While the Commission agrees that liquidity providers add value to the markets and assume certain financial risks in providing liquidity, the Commission, for the reasons described above, concludes that the Exchange has not provided sufficiently detailed and specific analysis that demonstrates that the LP2 delay mechanism's benefits to liquidity providers makes the discriminatory impact on liquidity takers not unfair.<sup>162</sup> The Exchange also has not explained why providing a benefit without a corresponding obligation (e.g., quoting or enhanced quoting obligations) to liquidity providers is consistent with the Act when the proposed rule permits discrimination against liquidity takers.

Lastly, the Exchange and supporting commenters state that the proposal would not permit unfair discrimination because liquidity takers would be able to adapt to better use the LP2 delay mechanism. However, a market participant's ability to adapt its business model or alter its trading strategies in response to this proposed rule does not, by itself, demonstrate that the proposal would not permit unfair discrimination, and the Exchange has not provided adequate analysis to support its assertion.<sup>163</sup>

### 3. Discrimination Between Slow and Fast Liquidity Providers

Supporting commenters did not believe that the proposal would increase the risk of adverse selection for market participants unable to update their quotes within the four millisecond delay period.<sup>164</sup> One of these commenters characterized the concern that the

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<sup>162</sup> See id.

<sup>163</sup> See 17 CFR 201.700(b)(3).

<sup>164</sup> See CTC Letter II at 4; XTX Letter III at 4.

proposal favored sophisticated traders and would result in the orders of institutional investors being left to absorb the negative impact of latency arbitrage strategies as “meritless.”<sup>165</sup>

In contrast, several commenters opposing the proposal expressed concern that slower liquidity providers on EDGA could be unfairly discriminated against due to continued exposure to adverse selection risk as a result of the delay.<sup>166</sup> Specifically, any investor with a limit order at the EDGA BBO who does not have the ability to cancel or modify such order within 4 milliseconds would be at risk of receiving an adverse execution because of opportunistic traders.<sup>167</sup> A commenter believed that in order to take advantage of the proposal, liquidity providers would likely need high-speed data feeds from EDGA and the CME, high-speed networks between Chicago and New Jersey, and co-located servers in EDGA’s data center, among other items.<sup>168</sup> This commenter indicated that because retail market participants cannot compete on millisecond timeframes, and “only a very small minority of market participants are certain to directly benefit” from the proposal, the proposal is unfairly discriminatory.<sup>169</sup> A commenter stated that “the facially neutral proposal appears tailored to have a disparate impact on various EDGA liquidity providers” although the proposal ties its benefit to a specific market

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<sup>165</sup> See XTX Letter III at 4.

<sup>166</sup> See ACS Letter at 2; Citadel Letter II at 6-7; Healthy Markets Letter II at 4; ICI Letter at 1-2; Investor Advocate Letter at 4-5; Leuchtkafer Letter IV at 3; MFA Letter II at 2.

<sup>167</sup> See ICI Letter at 2; Investor Advocate Letter at 4.

<sup>168</sup> See Leuchtkafer Letter IV at 2-3.

<sup>169</sup> See Leuchtkafer Letter V at 1. This commenter also distinguished the instant proposal from a recent IEX proposal to add a discretionary limit order type designed to protect liquidity providers from potential adverse selection by latency arbitrage trading strategies, noting that the IEX proposal would be “available to everyone” as opposed to a smaller group of market participants. See *id.* at 3.

behavior (i.e., the ability to react to price movements within 4 milliseconds), rather than limiting the benefit to specified market participants, such as registered market makers.<sup>170</sup> This commenter believed that the proposal intentionally discriminates in favor of liquidity providers that can modify their quotes within 4 milliseconds of a price change, and that the resting orders of all other classes of investors would be left exposed to the “alleged predatory arbitrage behavior.”<sup>171</sup>

In response to commenter concerns that certain liquidity providers would be unable to react to cross-market signals and modify or cancel a quote during the four millisecond delay, the Exchange stated that liquidity providers could submit midpoint peg orders that would automatically reprice during the four millisecond delay and indicated that “a very significant amount of institutional order flow is managed through broker-dealer algorithms that could respond to market information in less than this timeframe.”<sup>172</sup> Two commenters supporting the proposal stated that agency brokers could utilize commercially available passive algorithms that could process market signals to reprice or cancel orders within the four millisecond delay period in order to benefit investors.<sup>173</sup> A commenter stated that various service providers, broker-dealers, and even exchanges (i.e., IEX) could provide such an algorithm to effect cancels in the case of various adverse market signals, including price moves in correlated instruments or “crumbling quotes.”<sup>174</sup> This commenter also stated that under the proposal a broader group (i.e.,

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<sup>170</sup> Investor Advocate Letter at 4-5.

<sup>171</sup> See id. at 4.

<sup>172</sup> See Exchange Response Letter I at 10.

<sup>173</sup> See CTC Letter II at 4; XTX Letter III at 4.

<sup>174</sup> See CTC Letter II at 4.

everyone able to cancel or modify an order within the 4 millisecond during the LP2 delay), beyond just the fastest firms, would be able to benefit.<sup>175</sup> A commenter also stated that while institutional investors that send an order to sweep the top of book liquidity across multiple exchanges could see a decline in fill rates, these market participants could adapt their routing strategies to attain higher fill rates.<sup>176</sup> The Exchange also stated that, just as in other instances where market participants have adapted in response to a market structure initiative, broker-dealers may need to modify their order handling procedures to make the “best use” of the LP2 delay mechanism by, for instance, accounting for the 4 millisecond delay when routing orders to multiple exchanges the way many broker-dealers currently monitor latency on a real-time basis using heat maps or other strategies to improve order routing outcomes and obtain best execution for clients.<sup>177</sup>

A commenter opposing the proposal contended that, notwithstanding unsupported claims to the contrary (by the Exchange and supporters of the proposal), “substantially all commercially available algorithms are unable to process and respond to cross-asset and cross-market signals within 4 milliseconds the way [supporters of the proposal can],” which would result in retail and

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<sup>175</sup> See id.

<sup>176</sup> See Letter from Eric Swanson, CEO, XTX Markets LLC (Americas), dated July 31, 2019 (“XTX Letter II”) at 3-4; XTX Letter III at 3. Specifically, this commenter suggested that (1) orders could be “staged” into the marketplace to account for the LP2 delay (e.g., route order to EDGA first, wait out the duration of the LP2 delay mechanism, and then route additional orders to other exchanges), or (2) in the absence of staging the sweep, institutional investors could seek to access EDGA liquidity when EDGA could fulfill the size of what previously would have been a market sweep order. See XTX Letter II at 3-4.

<sup>177</sup> See Exchange Response Letter II at 11.

institutional investors being disadvantaged.<sup>178</sup> Another opposing commenter disagreed with a prior commenter that suggested institutional investors modify their routing strategies to mitigate the potential impact of quote fading.<sup>179</sup> This commenter stated that this suggestion asks institutional investors “to assume the risk that the market will move against them while holding back on sending orders to all exchanges other than EDGA” and suggested the proposed workaround would be ineffective, especially if other exchanges were to introduce similar asymmetric speedbumps.<sup>180</sup>

The Commission concludes that the proposal is discriminatory and the Exchange has not demonstrated that the proposal would not be unfair. The Exchange has not demonstrated that the proposal is sufficiently tailored to its stated purpose, which is to improve displayed liquidity on the Exchange by reducing the risk of adverse selection to liquidity providers, thereby potentially enabling liquidity providers to offer tighter quotes and greater size. For instance, as discussed above, the Exchange has not provided support for a fundamental premise of this proposed rule change -- that liquidity takers use the latest microwave connections and EDGA liquidity providers use traditional fiber connections, and liquidity takers are able to use the resulting speed differential to effect latency arbitrage on the Exchange. The Exchange does not differentiate between latency arbitrage and other trading activity such as hedging activity by ETFs or options liquidity providers. Further, the Exchange does not provide specific analysis as to why it is appropriate to apply the 4 millisecond delay to all incoming executable orders that would remove

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<sup>178</sup> See Citadel Letter II at 7.

<sup>179</sup> See MFA Letter II at 2.

<sup>180</sup> See id.

liquidity from the EDGA Book from all market participants as opposed to tailoring a response to target the trading of a relatively small number of market participants who engage in latency arbitrage. In addition, the Exchange has not demonstrated why a 4 millisecond delay is sufficient time to effectively protect a wide range of market participants from the latency arbitrage issue identified by the Exchange as the basis for the proposed rule change.<sup>181</sup>

Finally, certain commenters expressed concern that if certain liquidity providers were unable to cancel or modify their quotes during the 4 millisecond delay but other liquidity providers were able to do so, the slower liquidity providers would continue to face the risk of adverse selection after the implementation of the LP2 delay mechanism. In other words, the proposal could unfairly discriminate against slower liquidity providers because they would be exposed to bear the full brunt of the latency arbitrage problems on the Exchange. While the Exchange, and commenters supporting of the proposal, stated that existing, commercially available algorithms could level the playing field against sophisticated (i.e., fast) liquidity providers, other commenters question the viability of these algorithms. Notably, the Exchange provided no evidence to support its assertion relating to the viability of commercially available algorithms such as, for instance, availability, cost, performance or actual use of these algorithms.<sup>182</sup>

C. Other Comments

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<sup>181</sup> See 17 CFR 201.700(b)(3).

<sup>182</sup> See id.

Other issues have been raised by commenters, including the potential impact of the proposal on competition<sup>183</sup> and broker-dealer obligations related to best execution,<sup>184</sup> whether EDGA's manual, unprotected quotes should be included in the SIP,<sup>185</sup> and whether certain aspects of the proposal would increase the complexity of the national market system.<sup>186</sup> Ultimately, however, additional discussion on these topics is unnecessary, as they do not bear on the basis for the Commission's decision to disapprove the proposal. On the record before us, for the independently sufficient reasons discussed in more detail above, we have concluded that the Exchange has not met its burden to show that approval of the proposed rule change is appropriate. Accordingly, it is not necessary for us to consider either the relevance of such other concerns to our statutory review of this proposed rule change or the merits of the concerns themselves.

#### IV. Conclusion

For the reasons set forth above, the Commission does not find, pursuant to Section 19(b)(2) of the Exchange Act, that the proposed rule change is consistent with the requirements of the Act and the rules and regulations thereunder applicable to a national securities exchange,

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<sup>183</sup> See ACS Letter at 2; Citadel Letter II at 6, 8-10; CTC Letter II at 1-2, 6-7; Exchange Response Letter I at 8-9; ICI Letter at 2; STA Letter at 2, 4; XTX Letter III at 8.

<sup>184</sup> See ACS Letter at 2; Citadel Letter II at 2-3; CTC Letter II at 6; Citadel Letter II at 5, 11; Healthy Markets Letter II at 7; ICI Letter at 1; Leuchtkafer Letter IV at 11; STA Letter *supra* note 8; XTX Letter III at 7.

<sup>185</sup> See ACS Letter at 2; Citadel Letter II at 11; Clearpool Letter II at 1-2; CTC Letter II at 5; Healthy Markets Letter II at 6; Leuchtkafer Letter IV at 9-11; Leuchtkafer Letter V at 2-3; STA Letter at 3; XTX Letter III at 6.

<sup>186</sup> See Clearpool Letter II at 3; Letter from Tom Quaadman, Executive Vice President, Center for Capital Markets Competitiveness, U.S. Chamber of Commerce (dated October 18, 2019) ("CMC Letter"); ICI Letter at 1, 3; Investor Advocate Letter at 6.

and, in particular, with Sections 6(b)(5) of the Act.<sup>187</sup>

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<sup>187</sup> 15 U.S.C. 78f(b)(5).

IT IS THEREFORE ORDERED, pursuant to Section 19(b)(2) of the Act,<sup>188</sup> that the proposed rule change (SR-CboeEDGA-2019-012) be, and hereby is, disapproved.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.<sup>189</sup>

**Jill M. Peterson,**

*Assistant Secretary.*

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<sup>188</sup> 15 U.S.C. 78s(b)(2).

<sup>189</sup> 17 CFR 200.30-3(a)(12).

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