**James G. Ongena**
Executive Vice President
General Counsel

March 24, 2017

Eduardo A. Aleman
Assistant Secretary
U.S. Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549

**Re: File No. SR-CHX-2017-04; Self-Regulatory Organizations; Chicago Stock Exchange, Inc.; Notice of Filing of Proposed Rule Change to Adopt the CHX Liquidity Enhancing Access Delay (Release No. 34-80041; File No. SR-CHX-2017-04)**

Dear Mr. Aleman:

The Chicago Stock Exchange, Inc. (the "Exchange" or "CHX") submits this response to certain comment letters[1] critical of the Exchange's proposed rule change[2] ("Proposal") to adopt the CHX Liquidity Enhancing Access Delay ("LEAD"). LEAD is designed to enhance displayed liquidity and price discovery by minimizing the effectiveness of latency arbitrage[3] strategies. Specifically, LEAD will require all new incoming orders, cancel and cancel/replace messages to be subject to a 350-microsecond intentional access delay; provided, however, that (1) new incoming orders submitted by LEAD Market Makers ("LEAD MM"), a new class of CHX Market Maker with heightened quoting and trading obligations ("Minimum Performance Standards"), that would immediately be ranked on the CHX book without executing against any resting orders on the CHX book and (2) certain cancel messages related to resting orders that were submitted by LEAD MMs, will not be delayed.

The Exchange welcomes constructive dialogue regarding its proposals. The comments with which the Exchange disagree fall into the following categories: (1) LEAD will harm retail and

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1 See Letter to United States Securities and Exchange Commission ("SEC" or "Commission") from Ryan Hitch, Head of Equities Trading, XR Securities LLC (February 24, 2017) ("XR Letter"); see also letter to Brent J. Fields, Secretary, Commission, from Joanna Mallers, Secretary, FIA Principal Traders Group (March 13, 2017) ("FIA Letter"); see also letter to Brent J. Fields, Secretary, Commission, from Adam Nunes, Head of Business Development, Hudson River Trading LLC (March 13, 2017) ("HRT Letter"); see also letter to Brent J. Fields, Secretary, Commission, from R.T. Leuchtkafer (March 14, 2017) ("Leuchtkafer Letter"); see also letter to Eduardo A. Aleman, Assistant Secretary, Commission, from Stephen John Berger, Managing Director, Government and Regulatory Policy, Citadel Securities (March 14, 2017) ("Citadel Letter"); see also Letter to Brent J. Fields, Secretary, Commission, from Elizabeth K. King, General Counsel and Corporate Secretary, New York Stock Exchange (March 20, 2017) ("NYSE Letter"). All comment letters on the Proposal may be found at https://www.sec.gov/comments/sr-chx-2017-04/chx201704.htm

2 See Securities Act Release No. 80041 (February 14, 2017), 82 FR 11252 (February 21, 2017) (SR-CHX-2017-04) ("Notice").

3 "Latency arbitrage" means the practice of exploiting disparities in the price of a security or related securities that are being traded in different markets by taking advantage of the time it takes to access and respond to symmetric public information. See Notice, supra note 2, at 11253. At CHX, latency arbitrage is effected by low-latency market participants that leverage microsecond speed advantages to take resting liquidity at stale prices from the CHX limit order book. See id.

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institutional investors; (2) the benefits afforded to LEAD MM are disproportionate to the Minimum Performance Standards; (3) LEAD will upset the existing risk/reward dynamics for liquidity provision; (4) an academic study[4] of the impact of the TSX Alpha asymmetric delay ("TSX Alpha Delay") suggests that LEAD will not enhance displayed liquidity; (5) software-based access delays will provide LEAD MMs with an impermissible advantage beyond 350 microseconds; (6) LEAD will permit LEAD MMs to exploit the CHX Market Data Revenue Rebates Program;[5] and (7) LEAD is inconsistent with Section 6(b)(5) of the Securities Exchange Act of 1934[6] ("Act"), Rule 602(b) under the Act[7] ("Firm Quote Rule") and Rule 611[8] and Rule 600(b)(3)[9] under the Act ("Order Protection Rule").

## I. Background

CHX is a U.S. national securities exchange and self-regulatory organization ("SRO") that was founded in 1882. As an SRO, the Exchange regulates and operates its market in a manner consistent with the Act and the rules and regulations thereunder, including Regulation NMS. One of the principal goals of Regulation NMS is to enhance displayed liquidity and price discovery,[10] which is achieved by way of protected quotations currently displayed only on the national securities exchanges. While market quality has increased by many measures in recent years,[11] the average size of a trade has decreased and trading volume has increasingly migrated away from the lit markets, which can be attributed in large part to the proliferation of less-than-transparent alternative trading systems, broker internalizers fueled by payment for order flow schemes that have a vested interest in degrading the quality of, or abolishing, protected quotations, and low-latency market participants that have extracted rents so high from shortcomings in market design[12] to cause well-established liquidity providers to withdraw from the market.[13] This reality has hindered competition among orders and trading centers, which has impaired price discovery to the detriment of the investing public.

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[4] See Chen, Haoming and Foley, Sean and Goldstein, Michael A. and Ruf, Thomas, The Value of a Millisecond: Harnessing Information in Fast, Fragmented Markets (January 18, 2017) ("Chen Paper"). Available at SSRN: https://ssrn.com/abstract=2860359

[5] See Section P of the CHX Fee Schedule.

[6] 15 U.S.C 78.

[7] 17 CFR 242.602(b)

[8] 17 CFR 242.611.

[9] 17 CFR 242.600(b)(3).

[10] The Commission has stated that "increased displayed liquidity [is] a principal goal of the Order Protection Rule." Act Release No. 51808 (June 9, 2005), 70 FR 37496, 37514 (June 29, 2005) ("Regulation NMS Adopting Release").

[11] SEC public statement (May 11, 2015). Retrieved from http://www.sec.gov/news/statement/us-equity-market-structure.html

[12] See generally Eric Budish, Peter Cramton and John Shim. The High-Frequency Trading Arms Race: Frequent Batch Auctions as a Market Design Response. Quarterly Journal of Economics, Vol. 130(4), November 2015 ("Budish Paper").

[13] See e.g., Interactive Brokers LLC. 2017. Interactive Brokers Group Announces Decision to Cease Options Market Making Activities. Retrieved from https://www.interactivebrokers.com/en/index.php?f=24473

Recent declines in displayed liquidity at CHX typify this trend. As described under the Notice,[14] starting in January 2016, the Exchange observed latency arbitrage activity diminish displayed liquidity in several exchange-traded funds, most dramatically in SPY. Notably, CHX market share in SPY as a percentage of total volume decreased from 5.73% in January 2016 to 0.57% in July 2016 and the time-weighted average CHX size in SPY at the National Best Bid and Offer ("NBBO") relative to the total NMS size at the NBBO in SPY decreased from 44.36% in January 2016 to 3.39% in July 2016. During this time frame, control securities did not experience similar declines.[15] The result is that the Exchange's once top liquidity providers have either dramatically reduced their displayed liquidity in SPY or have withdrawn from the market altogether. Given its obligations under Section 6(b)(5) of the Act to maintain rules that, among other things, perfect the mechanisms of a free and open market and do not permit unfair discrimination among its members, the Exchange is compelled to rectify inefficiencies on its market that serve to diminish displayed liquidity.

In response, the Exchange initially proposed the CHX Liquidity Taking Access Delay ("LTAD").[16] LTAD would have required all new liquidity taking orders, as well as certain related cancel messages, to be intentionally delayed for 350 microseconds before the delayed messages would have been processed by the matching system. All other messages, including new liquidity providing orders and cancel messages for resting orders, would have been immediately processed without delay. The Commission received 24 comment letters[17] on the LTAD Proposal, both critical and supportive, including two response letters from the Exchange.[18] While the Exchange disagreed with many of the critical comments regarding the LTAD Proposal,[19] especially those comments speculating the LTAD would have resulted in unreliable displayed liquidity, the Exchange recognized that the LTAD Proposal could be improved to address those concerns, regardless of their validity, by minimizing the possibility of excessive quote fading and order cancellations. Accordingly, the Exchange modified the access delay and replaced LTAD[20] with LEAD.

LEAD is similar to LTAD, except that the Exchange will process without delay only certain liquidity providing orders and cancel/adjust requests for resting orders submitted by LEAD MMs. In return, LEAD MMs will be required to meet the following Minimum Performance Standards in its assigned securities:

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14 See Notice, supra note 2, at 11253.

15 See Notice, supra note 2, Appendices A and B.

16 See Securities Act Release No. 78860 (September 16, 2016), 81 FR 65442 (September 22, 2016) (SR-CHX-2016-16) ("LTAD Notice").

17 All comment letters on the LTAD Proposal may be found at https://www.sec.gov/comments/sr-chx-2016-16/chx201616.shtml.

18 See Letter to Brent J. Fields, Secretary, Commission, from James Ongena, Executive Vice President, General Counsel, CHX (October 28, 2016) ("First CHX LTAD Response"); see also Letter to Brent J. Fields, Secretary, Commission, from James Ongena, Executive Vice President, General Counsel, CHX (February 7, 2017) ("Second CHX LTAD Response").

19 See generally First CHX LTAD Response, id.

20 See Securities Act Release No. 79984 (February 7, 2017), 82 FR 10521 (February 13, 2017).

- Submit bids and offers at or within Designated Percentages half of those applicable to regular CHX Market Makers.[21]
- Maintain a continuous average two-sided quotation at the NBBO of at least 10% over the course of a calendar month ("10% NBBO Requirement").
- A LEAD MM's Qualified Executions[22] in a security must comprise on an equally-weighted daily average at least 2% of all Qualified Executions in the same security over the course of a calendar month ("2% Total Volume Requirement").
- At least 80% of the LEAD MM's Qualified Executions in a security must result from its resting orders over the course of a calendar month ("80% Provide Volume Requirement").

As described in detail under the Notice and below,[23] the Exchange believes that LEAD is consistent with the requirements of the Act and the rules and regulations thereunder. Bolstered by the Minimum Performance Standards and the current CHX Order Cancellation Fee,[24] the Exchange submits that the LEAD will result in enhanced displayed liquidity and price discovery at CHX that is both real and accessible.

II. LEAD Benefits LEAD MMs, Retail and Institutional Investors

Some commenters have claimed that LEAD will not benefit retail and institutional investors and that any enhanced liquidity that would result from LEAD would be inaccessible. One commenter states that LEAD "will only benefit market participants who become LEAD market makers and subscribe to CME's data feeds" and thus, "retail investors […] will never benefit; institutions will never benefit."[25] Similarly, another commenter alleges that the Proposal "fails to protect market participants that primarily act as liquidity takers, such as retail investors"[26] claiming that its own data shows that "typical retail order sending firms route more than 80% of retail investor orders as marketable orders."[27] Other commenters have acknowledged that while LEAD MMs may be able to quote tighter spreads and larger size, but speculated, without support, that any enhanced liquidity at CHX resulting from LEAD would not be real or accessible.[28] The Exchange disagrees.

By minimizing the effectiveness of latency arbitrage, LEAD will reduce the cost of providing liquidity to the LEAD MM, which will in turn permit LEAD MMs to quote tighter spreads and display

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21 CHX Article 16, Rule 4(d) requires, among other things, that a CHX Market Maker maintain a continuous bid no further away from the National Best Bid ("NBB") and a continuous offer no further away from the National Best Offer ("NBO") than the Designated Percentage or Defined Limit, as applicable. For example, the 8% Designated Percentage for securities subject to the CHX Article 20, Rule 2A(c)(1)(A) pursuant to current CHX Article 16, Rule 4(d)(2)(A) and (B) would be 4% for LEAD MMs.

22 "Qualified Executions" means all executed shares at CHX, during all trading sessions, resulting from single-sided orders, excluding any executed shares resulting from auctions. See Notice, supra note 2, at 11254.

23 See Notice, supra note 2, Section II(A)(2).

24 See Section E.8 of the CHX Fee Schedule.

25 Leuchtkafer Letter, supra note 1, at 4.

26 Citadel Letter, supra note 1, at 5-6.

27 Id. at 7.

28 See XR Letter, supra note 1, at 2; see also FIA Letter, supra note 1, at 4; see also Citadel Letter, supra note 1, at 7.

larger size.[29] This will provide valuable liquidity and price discovery to all market participants, particularly retail and institutional investors who rely upon efficient price discovery to evaluate the quality of their executions, regardless of where they occur in the NMS. Contrary to some claims,[30] there is no evidence that suggests that LEAD will result in CHX quotes becoming less accessible to natural buyers and sellers. To the contrary, if LEAD had been implemented at CHX in SPY from May through July 2016, only 20 liquidity taking orders not attributed to latency arbitrage activity out of a total of 18,316 orders executed during that time period would have not received an execution.[31] Notwithstanding, the Exchange is proposing to adopt the Minimum Performance Standards to ensure that CHX displayed liquidity remains reliable and accessible. When coupled with the CHX Order Cancellation Fee, which penalizes excessive order cancellations in the absence of material contributions to CHX volume, the Exchange submits that the benefits conferred upon LEAD MMs will directly flow to retail and institutional investors in the form of enhanced displayed liquidity and price discovery that is both accessible and reliable.

The Exchange notes that while LEAD would obviously diminish the effectiveness of latency arbitrage at CHX, the enhanced displayed liquidity that will result from LEAD will also negatively impact broker internalizers that profit from wider spreads and smaller displayed size. As such, the Exchange submits that market participants that engage in one or both activities would certainly stand to lose from LEAD's success. In light of the benefits to retail and institutional investors afforded by LEAD, the Exchange submits that the trade-off is absolutely appropriate.

One commenter seems to suggest that LEAD in effect confers LEAD MMs with a 350 microsecond exclusive look at the CME and CHX books "ahead of all other participants"[32] in that only LEAD MMs would be able to act upon information gleaned from the books during the 350 microsecond delay at CHX. This is incorrect.

For the avoidance of doubt, the Exchange provides its book feed free of charge to anyone that signs a terms of use agreement and under no circumstances does the Exchange provide preferential access to the CHX book feed to anyone. Simply put, no one, including LEAD MMs, will receive preferential access to the CHX book feed. Also, assuming that LEAD MMs and latency arbitrageurs have equal access to the relevant CME book feed, LEAD is designed to offset a structural bias against liquidity provision which unfairly requires liquidity providers seeking to adjust their quotes to always be faster than the latency arbitrageur when reacting to the same public information. It will not, however, permit a LEAD MM to take liquidity from the CHX book without traversing LEAD nor would it prevent a latency arbitrageur registered as a LEAD MM from adjusting its quotes on equal terms as a non-latency arbitrageur registered as a LEAD MM. That is, regardless of how one describes the advantage afforded to LEAD MMs, "exclusive look" or otherwise, LEAD does not afford a net advantage to the LEAD MM, but rather, serves to offset an unfair advantage enjoyed by latency arbitrageurs built-in to the continuous limit order book.[33]

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[29] See Letter to Robert W. Errett, Deputy Secretary, Commission, from Douglas A. Cifu, Chief Executive Officer, Virtu Financial (February 27, 2017) ("Virtu Letter").

[30] See infra Section V.

[31] See Notice, supra note 2, Appendix C.

[32] See id.

[33] See Budish Paper, supra note 12, at 4-5.

Accordingly, the Exchange submits that LEAD will confer benefits to LEAD MMs, Retail and Institutional Investors.

## III. Minimum Performance Standards are Substantial and Proportionate to the Benefits Conferred

Some commenters have stated that the benefits afforded to LEAD MMs are disproportionate to the Minimum Performance Standards. One commenter claimed that Minimum Performance Standards "appear to be largely immaterial in substance and the envisaged benefit is entirely disproportionate to these obligations."[34] Specifically, the commenter stated that the "proposed requirements for a LEAD MM to maintain quotations at the NBBO for at least 10% of a calendar month and to take part in at least 2% of qualified executions appear to be low thresholds for active liquidity providers."[35] Similarly, another commenter stated that the "the proposed minimum standards would not meaningfully change the amount of accessible displayed liquidity on CHX, yet LEAD MMs would be the only market participant with the ability to cancel resting orders."[36] Another commenter stated that Minimum Performance Standards are insufficient and that LEAD MMs should be subject to additional affirmative and negative obligations above and beyond the Minimum Performance Standards.[37] The Exchange disagrees.

The Minimum Performance Standards are substantial and proportionate to the benefits conferred upon LEAD MMs. In particular, the Exchange notes that the 10% NBBO Requirement is identical to the quoting requirement for NYSE DMMs in securities with an average daily volume of 1,000,000 or more shares[38] and is similar to a requirement for market makers that are Competitive Liquidity Providers ("CLP") on the Bats BZX Exchange, which requires CLPs quote at the NBB or the NBO for 10% to meet its monthly quoting requirement.[39] Above and beyond, LEAD MMs (1) would be subject to tighter Designated Percentage requirements than required of either NYSE DMMs or Bats CLPs and (2) would have to meet the 2% Total Volume Requirement and the 80% Provide Volume Requirement, neither of which are currently required of NYSE DMMs or Bats CLPs. Also, the Minimum Performance Standards will not be applied to non-LEAD MMs. Contrary to the comments, the Minimum Performance Standards would meaningfully contribute to market quality as the quoting requirements are similar if not identical to the most aggressive quoting requirements for market makers on the NYSE and Bats BZX.

Also, the Exchange submits that additional market maker requirements, such as those for NYSE DMMs pursuant to NYSE Rule 103(f)-(h), or more aggressive market maker requirements would not be appropriate. Since LEAD MMs will not receive the financial benefits conferred to NYSE DMMs and Bats CLPs or execution parity rights conferred to NYSE DMMs, the Exchange submits that the benefits conferred to LEAD MMs are proportionate to the Minimum Performance Standards and any additional or more aggressive obligations would not be justified.

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[34] Citadel Letter, supra note 1, at 2.

[35] Id. at 3.

[36] NYSE Letter, supra note 1, at 5.

[37] See Leuchtkafer Letter, supra note 1, at 5.

[38] See NYSE Rule 104(a)(1)(A).

[39] See paragraph .02(i)(1)(B) under BZX Rule 11.8.

The Exchange notes that the 2% Total Volume Requirement was selected due to the negative impact of a higher requirement on the number of possible LEAD MMs assigned to any given security. The LEAD MM program is intended to be a competitive program whereby multiple LEAD MMs in a security would compete on price and size. To this end, the Exchange believes that 2% is sufficiently high to constitute a material portion of CHX volume in the security, but low enough to permit numerous LEAD MMs to be assigned to the security. Given that the Minimum Performance Standards would permit numerous LEAD MMs to be assigned to any one security, the Exchange does not believe that LEAD unfairly discriminates among Participants that are capable of engaging in liquidity provision strategies that would benefit from the access delay. Those Participants that are not latency sensitive or otherwise unconcerned with latency arbitrage activity would have no reason to register as a LEAD MM and would thus be able to effectively engage in liquidity provisions strategies side-by-side with LEAD MMs without the benefit of LEAD.

Accordingly, the Exchange submits that the Minimum Performance Standards are proportionate to the benefits conferred on LEAD MMs.

## IV. LEAD is Designed to Correct the Risk/Reward Dynamic that Currently Discourages Displayed Liquidity

Some commenters have stated that LEAD would negatively impact the risk/reward dynamic inherent to liquidity provision. One commenter states that LEAD "fundamentally alters the risk/reward dynamics for CHX liquidity providers, as they can now avoid unfavorable executions by processing market data before other market participants."[40] Another commenter states that LEAD "affects the entire risk/reward dynamic that all liquidity providers face today when trading on any market" claiming that LEAD "will essentially become a tax on liquidity providers across the market that will ultimately be paid to whomever the lead market makers are that are subjectively chosen by CHX."[41] Another commenter claims that LEAD "compensate market makers for adverse selection by helping them avoid it altogether."[42]

The Exchange acknowledges that LEAD will impact the current risk/reward dynamic for liquidity provision. This is precisely the point of LEAD. Latency arbitrage has increased the risk of displayed liquidity provision to the point that it has driven valuable displayed liquidity and liquidity providers away from lit markets.[43] In other words, the current risk of displaying liquidity on a lit market is disproportionate to the current rewards. As such, LEAD is not designed to eliminate the risk of providing displayed liquidity, but rather, to bring the risk of providing displayed liquidity back to levels commensurate with its rewards. In particular, the 350 microsecond delay will not completely eliminate instances of latency arbitrage at CHX[44] and, as such, a LEAD MM will still be subject to material risk when providing liquidity at CHX.

One commenter states that "by looking at data such as executions on other venues, a LEAD MM can infer when a marketable order is likely to execute against its quote and has a 350 microsecond speed advantage to determine whether it wishes to remain firm or cancel/modify its

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[40] Citadel Letter, supra note 1, at 3.

[41] XR Letter, supra note 1, at 2.

[42] Leuchtkafer Letter, supra note 1, at 6.

[43] See e.g., Notice, supra note 2, Appendix A; see also, e.g., supra note 14.

[44] See Notice, supra note 2, Appendix C.

quote."[45] The commenter continues by stating that this effect would be exacerbated by the fact that the Exchange will not delay orders that are to be routed away from the Exchange, thereby permitting LEAD MMs to "observe these away executions and respond accordingly before the rest of the order clears the Access Delay." Another commenter claims that "LEAD would frustrate the strategies that involve taking prices across multiple venues […], because it would give extra time to certain favored market participants quoting on CHX to pull their quotes in the middle of a multi-venue order."[46]

The Exchange believes that the sophisticated order routing technologies utilized by many market participants,[47] which consider, among other things, geographic and exchange-specific latencies in its order routing decisions, would minimize any incremental information leakage that may result from LEAD. Moreover, 350 microseconds is much shorter than the time it would actually take for information regarding a CHX routed order that is executed away to be consumed and processed by the LEAD MM. Thus, regardless of the location of the away market relative to CHX, the delayed executable portion will most likely be released before the LEAD MM is able to react to an away execution resulting from the undelayed routed portion. Rather, the Exchange believes that undelayed routing will increase the likelihood that the liquidity taker would receive price improvement, the possibility of which would otherwise be diminished if order routing were delayed.

Accordingly, the Exchange submits that LEAD is designed to correct the risk/reward dynamic that currently discourages displayed liquidity.

## V. LEAD is Not Materially Similar to the TSX Alpha Delay

One commenter posits that LEAD "is similar [to] the model operated by TSX Alpha" and claims that "[a]cademic research suggests that an asymmetric speed bump similar to LEAD has the effect of degrading overall market quality."[48] The Exchange disagrees.

The TSX Alpha Delay is materially different from LEAD and thus the Chen Paper's findings and conclusions cited by the commenter are inapplicable to LEAD. First, the TSX Alpha Delay is a randomized delay of between 1 to 3 milliseconds,[49] whereas the Fixed LEAD Period is exactly 350 microseconds, approximately 3 to 9 times shorter than the TSX Alpha Delay. Moreover, TSX Alpha utilizes an inverted maker/taker model[50] (i.e., payment for order flow),[51] whereby brokers are financially incentivized to send their "uninformed" (e.g., retail) aggressive order flow to TSX Alpha in return for execution rebates that are rarely, if ever, passed on to the ultimate customer. In contrast, the Exchange utilizes a maker/taker model and only attributes rebates to liquidity providing orders, including those submitted by LEAD MMs who trade proprietarily. Finally, TSX Alpha does not require its liquidity providers to meet heightened market quality requirements, whereas LEAD MMs will be

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45 Citadel Letter, supra note 1, at 3.

46 FIA Letter, supra note 1, at 3.

47 See FIA Letter, supra note 1, at 3.

48 HRT Letter, supra note 1, at 2.

49 Chen Paper, supra note 4, at 2.

50 Id. at 7.

51 See letter to Brent J. Fields, Secretary, Commission, from Haoming Chen, Ph.D. Candidate, the University of New South Wales, Australia, and Sean Foley, Ph.D., Lecturer of Finance, the University of Sydney, Australia (February 24, 2016), at 8.

subject to the Minimum Performance Standards, which include quoting requirements comparable to those of NYSE DMMs, as described above.

Accordingly, the Exchange submits that LEAD is not materially similar to the TSX Access Delay and thus the findings of the Chen Paper are inapplicable to LEAD.

## VI. Software-Based Delay Will Not Provide LEAD MMs with an Impermissible Advantage

One commenter has stated that "the SEC should reject speed bumps implemented in software because of the indeterminacies inherent in software-imposed speed bumps" claiming that "any malfunction or delay in the speed bump software will give privileged participants, its newly created LEAD market makers, an even greater time advantage over other participants without, apparently, any recourse."[52] The Exchange disagrees.

Initially, as the Exchange has previously stated,[53] processing delays and message queuing already exist today in every market that utilizes a continuous limit order book to rank and match orders, including those markets that implement an intentional delay via hardware, such as IEX, and other markets that utilize cross-connect cables of an equal length to ensure equal latency for its members.[54] This is an inherent consequence of queuing which results from processing messages for a given security serially. Because such delays and queuing are a function of finite network and processing resources, and consequently exist in every market, the Exchange does not believe they are relevant to the present question.

Moreover, the system processing delays and variable message queuing will not provide LEAD MMs with more than a 350 microsecond window to adjust or cancel its resting orders at CHX. As illustrated in the Examples under the Notice,[55] any message received after the expiration of the Fixed LEAD Period[56] for a delayed message (i.e., the 350 microsecond period after initial timestamp of a delayed message) will be processed after the delayed message has been released and processed. For example, if the Exchange receives a LEAD MM's cancel message for a resting order any time after the expiration of the Fixed LEAD Period for a delayed liquidity taking order, the cancel message will not be processed ahead of the liquidity taking order, regardless of how much time it actually takes for the delayed message to be processed.

Accordingly, the Exchange submits that a software-based delay will not provide LEAD MMs with an impermissible advantage.

## VII. LEAD MMs Will Not Receive MDR Credits for Quotes Displayed for Less than One Second

Another commenter claimed that, with respect to the CHX MDR Rebates Program, "[p]roviding LEAD MMs with additional time to cancel or modify a resting quotation in response to

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52 Leuchtkafer Letter, supra note 1, at 2.

53 See First CHX LTAD Response, supra note 18, at 15.

54 See Letter to Brent J. Fields, Secretary, SEC, from Sophia Lee, General Counsel, IEX at 3 (November 13, 2015).

55 See Notice, supra note 2, Section II(A)(1)(4).

56 See Notice, supra note 2, at 11256.

current market information could incentivize the display of tighter quotations without ensuring that such quotations are able to be reliably accessed by other market participants."[57] This is incorrect.

As stated under the First CHX LTAD Letter,[58] pursuant to the CHX MDR Rebates Program, the Exchange currently shares MDR received by the Exchange from the Securities Information Processors ("SIPs") with Participants in proportion to their Eligible Quote Activity and Eligible Trade Activity per tape. In attributing Eligible Quote Activity to Participants, the Exchange utilizes a set of calculations similar to those used by the SIPs in allocating MDR to the Exchange.[59] Notably, the Exchange will only credit quotes that remain on the CHX book for at least one second at the NBB or NBO towards MDR rebates.[60] Thus, LEAD will not encourage non-bona fide quote activity as quotes cancelled prior to having been displayed for at least one second at the NBB or NBO will not be eligible for MDR Rebates and the cancellation of such quotes could even result in the CHX Participant being assessed an Order Cancellation Fee. That is, a CHX quote must be subject to substantial execution risk before being credited towards a rebate.

Accordingly, the Exchange submits that not only will a LEAD MM not receive MDR credits for quotes displayed for less than a full second, it may actually be assessed an Order Cancellation Fee if its cancellations are excessive.

## VIII. LEAD is Consistent with Section 6(b)(5), the Firm Quote Rule and the Order Protection Rule

Some commenters have stated that LEAD is inconsistent with the requirements of Section 6(b)(5) of the Act. One commenter states that LEAD would unfairly discriminate between LEAD MMs and "non-LEAD MM liquidity providers, as well as between LEAD MMs and market participants that are primarily liquidity takers.[61] The commenter also suggests that the discrimination would be exacerbated by the Exchange considering "subjective criteria, such as a firm's willingness to promote [CHX] as a marketplace."[62] Another commenter claims that "the old proposal, while discriminating against firms with different trading styles and technological capabilities, was at least theoretically open to any market participant willing to use computer algorithms to place and manage resting orders," whereas "the [Proposal] is explicit in its discrimination."[63] These claims are misplaced.

As described under the Notice,[64] the Proposal is consistent with Section 6(b)(5) of the Act in that it permissibly discriminates between members in furtherance of a principal goal of Regulation NMS and consequently the protection of investors. Regardless of whether a delay is symmetric (e.g., IEX) or asymmetric (e.g., LEAD), any intentional delay designed to address latency arbitrage must

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57 Citadel Letter, supra note 1, at 6.

58 See First CHX LTAD Response, supra note 18, at 10-11.

59 See Exchange Act Release No. 70546 (September 27, 2013), 78 FR 61413 (October 3, 2013) (SR-CHX-2013-18); see e.g., Section 5, Exhibit 1 of the UTP Plan, http://www.utpplan.com/utp_plan.

60 On October 17, 2016, the average time that a quote in SPY that earned quote credits remained on the CHX book was 3.785 seconds and the median time was 2.270 seconds.

61 Citadel Letter, supra note 1, at 4.

62 Id.

63 FIA Letter, supra note 1, at 2.

64 See Notice, supra note 2, Section II(A)(2).

necessarily discriminate among members. That is, correcting asymmetry in the market requires asymmetry in the remedy. For example, while the symmetric delay at IEX ("IEX Delay") delays all incoming messages, the IEX Delay is asymmetric in that it provides processing advantages to non-displayed pegged orders resting on the IEX book, which are not provided to other orders. LEAD would similarly address latency arbitrage by providing a processing advantage to LEAD MMs, which will not be provided to non-LEAD MMs. Moreover, the Exchange submits that any discrimination between LEAD MMs and non-LEAD MMs is permissible under the Act because (1) LEAD is designed to encourage displayed liquidity and price discovery by rectifying a current structural bias against displayed liquidity,[65] without having a materially negative impact on the ability of liquidity takers not engaged in latency arbitrage, such as retail investors, to access displayed liquidity at CHX,[66] and (2) the proposed Minimum Performance Standards, which will not apply to non-LEAD MMs, will help ensure that those goals are achieved, while minimizing the risk of incremental quote fading or other non-bona fide liquidity provision strategies. The Exchange also notes that the Commission has previously approved functionality that permissibly discriminates among members for the purpose enhancing displayed liquidity.[67]

Contrary to the claims of some commenters,[68] the Exchange submits that LEAD would not confer any unfair advantage to LEAD MMs or introduce incremental risk of manipulative activity. While LEAD is long enough to neutralize microsecond speed advantages exploited by latency arbitrageurs, it is too short to provide any actionable incremental advantage to LEAD MMs in reacting to information not already it their possession. For example, quote fading is a risk that a market participant must address today to successfully execute a multi-venue order. In response, many market participants utilize sophisticated order routing logic to minimize this possibility. As the Exchange noted above,[69] such order routing logic could be modified to contemplate a 350-microsecond intentional delay at CHX, thereby eliminating any incremental information leakage. When also considering the heightened market quality requirements of the Minimum Performance Standards and the deterrent effect of the CHX Order Cancellation Fee, the Exchange believes that any discrimination between LEAD MMs and non-LEAD MMs is justified and consistent with the requirements of the Section 6(b)(5) of the Act.

In addition, the Exchange believes that the proposed LEAD MM factors are not unfairly discriminatory.[70] The Proposal permits the Exchange to consider various factors in assessing the ability of an applicant to meaningfully contribute to market quality as a LEAD MM. The Exchange submits that historical factors, such as whether an applicant has demonstrated a willingness to promote the Exchange as a marketplace, are crucial in forecasting how well that applicant would perform as a LEAD MM if approved. Given the importance of market makers in maintaining fair and orderly markets, the Exchange submits that such "subjective" factors are appropriate. The Exchange also notes that the factors described under proposed CHX Article 16, Rule 4(f)(3)(A),[71] including the

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65 See supra Section IV.

66 See Notice, supra note 2, at Appendix C.

67 See Notice, supra note 2, at 11269-11270.

68 See e.g., FIA Letter, supra note 1, at 3.

69 See supra Section IV.

70 See Notice, supra note 2, at 11255.

71 See id.

factor that permits the Exchange to consider an applicant's willingness to promote the Exchange as a marketplace, are virtually identical to those found under Bats BZX rules for its Lead Market Maker program.[72]

Moreover, as noted above,[73] while a Participant would have to register as a LEAD MM to be conferred the benefits of LEAD, the Exchange expects and would encourage numerous LEAD MMs to be assigned to any given security. The Exchange believes that the proposed LEAD MM factors and Minimum Performance Standards are consistent with this objective. Those Participants that are not latency sensitive or otherwise unconcerned with latency arbitrage activity would have no reason to register as a LEAD MM and would thus be able to effectively engage in liquidity provisions strategies side-by-side with LEAD MMs without the benefit of LEAD. Consequently, the Exchange does not believe that the Proposal would unfairly discriminate between LEAD MMs and non-LEAD MMs.

Some commenters have claimed that LEAD is inconsistent with the Firm Quote Rule. One commenter stated that LEAD would permit LEAD MMs to "predictably minimize its obligations under the Quote Rule, and CHX would be enabling this practice by its LEAD MMs."[74] The commenter also stated that while the Exchange's position[75] on LEAD's compliance with the Firm Quote Rule is "technically accurate," it is nevertheless, "inconsistent with the Quote Rule and Section 6(b)(5) […]"[76] Another commenter made similar claims stating that the Exchange's position "elevates form over substance."[77] The Exchange disagrees.

LEAD is consistent with the Firm Quote Rule. The Exchange's position on LEAD's compliance with the Firm Quote Rule is not "form over substance" or merely "technically accurate," but rather, wholly-supported by the plain language of the Firm Quote Rule and Commission guidance. Specifically, a plain reading of Rule 602(b) indicates that the delay of a liquidity taking order pursuant to LEAD would not result in the order being "presented" to the LEAD MM.[78] This is consistent with the Commission's guidance regarding the applicability of the Firm Quote Rule in the context of obsolete Intermarket Trading System ("ITS") commitments.[79] In particular, the Commission stated that "the Firm Quote Rule requires that every exchange specialist or OTC market maker execute any order to buy or sell a security it receives at a price at least as favorable as its published bid or offer in any amount up to its published size, subject to two exceptions."[80] The Commission further stated "that the Firm Quote Rule applies to ITS commitments; where a specialist or market maker fails to honor its quote by refusing to execute an ITS commitment received at its published bid or offer, and neither of the exceptions contained in the Firm Quote Rule apply, the

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72 See Bats BZX Rule 11.8(e)(2).

73 See supra Section III.

74 NYSE Letter, supra note 1, at 3.

75 See Notice, supra note 2, Section II(A)(2).

76 NYSE Letter, supra note 1, at 3.

77 Citadel Letter, supra note 1, at 5.

78 See 17 CFR 242.602(b).

79 See Exchange Act Release No. 40260, 63 FR 40748, 40754 (July 30, 1998).

80 Id (emphasis added).

specialist or market maker is in violation of the Firm Quote Rule."[81] As such, the Commission's guidance clearly suggests that a Rule 602(b) violation occurs when a liquidity provider receives (i.e., is presented) a marketable contra-side order and refuses to honor its quote.[82] When also considering that the Exchange will never notify the contra-parties or the public of the Exchange's receipt of a liquidity taking order subject to LEAD and CHX Rules indicate that a liquidity provider's Rule 602(b) obligation vests only after execution of its order within the Matching System,[83] the Exchange submits that LEAD is consistent with the Firm Quote Rule.

Some commenters have claimed that LEAD is inconsistent with the Order Protection Rule. One commenter stated that LEAD is inconsistent with the Order Protection Rule as LEAD "would allow for 'maybe' quotations" in that LEAD MMs could "adjust protected quotations after CHX has received an order to trade with such displayed orders."[84] Another commenter stated that LEAD "results in asymmetrical application (as it only applies to certain market participants) and denies liquidity takers fair and efficient access to CHX quotations."[85] The Exchange disagrees.

LEAD is consistent with the Order Protection Rule. Rule 600(b)(3) requires that a trading center displaying an automated quotation permit, among other things, an incoming IOC order to immediately and automatically execute against the automated quotation up to its full size; and immediately and automatically cancel any unexecuted portion of the IOC order without routing the order elsewhere.[86] In the context of determining whether a trading center maintains an "automated quotation" for purposes of Rule 611, the Commission does not interpret the term "immediate" used in Rule 600(b)(3) by itself to prohibit a trading center from implementing an intentional access delay that is de minimis (i.e., a delay so short as to not frustrate the purposes of the Order Protection Rule by impairing fair and efficient access to an exchange's quotations).[87] Accordingly, the Commission's

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81 Id (emphasis added).

82 See 17 CFR 242.602(b). A Section 21(a) report from 1996 regarding, among other things, misconduct by certain market makers with respect to its published quotes is illustrative of the type of activity that the Firm Quote Rule is designed to address. See Report Pursuant to Section 21(a) of the Securities Exchange Act of 1934 Regarding the NASD, the Nasdaq Market, and Nasdaq Market Makers, Exchange Act Release No. 37542 (August 8, 1996). Page 32 of the report provides, in pertinent part, as follows:

> Certain market makers at times did not honor their quotation for those with whom they preferred not to trade and "backed away" from their quotes as reprisal for, among other reasons, perceived prior back way by other market makers. Certain market makers also variously refused to trade with order entry firms, certain other market makers, and participants they "dislike," such as options market makers. Market makers at times backed away from their trading obligations to avoid unwanted orders placed when they coordinated their quotations with other market makers.

83 CHX Article 20, Rule 3(a) provides as follows:

> Each order submitted by each Participant is a firm order and each Participant must, upon execution of the order within the Matching System, purchase or sell, as the case may be, at the price, size and conditions identified by the participant at the time it submitted the order. No Participant may submit an order marked for display as a "manual" quotation.

84 NYSE Letter, supra note 1, at 4.

85 Citadel Letter, supra note 1, at 6.

86 See 17 CFR 242.600(b)(3).

87 See Securities Exchange Act Release No. 78102 (June 17, 2016), 81 FR 40785 (June 23, 2016) ("Final Interpretation"). Thus, the Exchange's quotations would continue to be "immediately" accessible and protected

revised interpretation provides that the term “immediate” precludes any coding of automated systems or other type of intentional device that would delay the action taken with respect to a quotation unless such delay is de minimis.[88]

The Exchange believes that LEAD is a de minimis delay so short as to not frustrate the purposes of the Rule 611 by impairing fair and efficient access to the Exchange’s quotations. In particular, all Participants seeking to take liquidity from the CHX book will have fair and efficient access to CHX quotations in that LEAD will apply to all liquidity taking orders. Also, LEAD would not result in “maybe” quotations, as a LEAD MM would never be informed by the Exchange of its receipt of a marketable contra-side order. Alternatively, when considering that any protected quotation today may be cancelled or adjusted prior to execution, LEAD would not render CHX quotes any more “maybe” than they are today. Also, the 350-microsecond delay is so short that it does not provide an incremental advantage to a LEAD MM other than neutralizing a structural bias that permits latency arbitrageurs to profit off of symmetric public information. To the extent a market participant has a better algorithm or better information, LEAD is too short to have a negative impact on such non-latency arbitrage strategies, much less permit a LEAD MM to back away from a quote on a quotation-by-quotation basis.

Accordingly, the Exchange submits that LEAD is consistent with Section 6(b)(5) of the Act, the Firm Quote Rule and the Order Protection Rule.

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pursuant to Rule 611. See 17 CFR 242.600(b)(3) defining “automated quotation”; see also 17 CFR 242.600(b)(58) defining “protected quotation.”

88 See Final Interpretation, id, at 40792.

The Exchange notes that not all market participants would benefit from enhanced displayed liquidity, optimized public price discovery, tighter spreads and de-emphasis on speed as a key to trading success, all of which LEAD is designed to achieve. In fact, certain market participants have greatly profited from the status quo and thus have a clear interest in ensuring that LEAD and other similar innovations are not approved by the Commission, which harms the public investor. The Exchange submits that the Commission should embrace innovations designed to make our markets fairer and more efficient and requests that the Commission be mindful of these considerations when reviewing the Proposal and the persuasiveness of any comments submitted thereto. The Exchange believes that it is has convincingly demonstrated that LEAD is consistent with the requirements of the Act and the rules and regulations thereunder and, accordingly, respectfully requests that the Commission approve the Proposal.

Sincerely,

James G. Ongena