

To: Professor Howell E. Jackson
From: Christian Fernandez-Andes
Re: Cboe Speed Bump
Date: March 27, 2020

On February 21, 2020, the Securities and Exchange Commission (“SEC”) rejected a proposal by Cboe Global Markets, Inc. (“Cboe”) that would introduce a split-second delay, or “speed bump,” to “EDGA, the smallest of the four equities exchanges it runs.”¹ Specifically, the speed bump would operate such that “liquidity-taking orders sent to [Cboe’s] EDGA exchange [would] have to wait four-milliseconds before trading with resting orders in the order book.”² Cboe’s intention was that the speed bump would “provide market makers with sufficient time to re-price their resting orders before ‘opportunistic’ or high frequency traders can trade with them at old prices.”³ This would have been “the first-ever delay mechanism in the U.S. equities market that would be asymmetric to protect liquidity providers.”⁴ Unsurprisingly, the speed bump proposed by Cboe “was opposed by some of the markets most active participants, including Citadel Securities, BlackRock, T.Rowe Price and industry lobby groups representing mutual funds, hedge funds and high frequency traders.”⁵ The SEC ultimately stated in its order that Cboe did not sufficiently demonstrate that the speed bump was not unfairly discriminatory, nor did it prove that the proposed change was sufficiently tailored to its stated purpose.⁶ This is not where the issue begins or ends, however, as speed bumps have been implemented by exchanges and debated by investors for years.

Speed bumps are undoubtedly a response to high-frequency trading (“HFT”) firms, or more specifically, the developments in technology—which these firms have invested heavily in and now utilize—that have allowed for bids and offers to be posted and withdrawn at previously inconceivable speeds. It is undeniable that “differential speed is valuable to participants,

¹ Alexander Osipovich, *SEC Rejects Controversial ‘Speed Bump’ Proposal*, The Wall Street Journal (Feb. 21, 2020), https://www.wsj.com/articles/sec-poised-to-rule-on-controversial-speed-bump-proposal-11582290004?emailToken=4c607b37547b88f13cfae2ec3b62cb94LRqbfmNhoBpnzveVk4Go2ys9wpWyKg88mGQ8uDVkS6K2aPGxTS/tHAW1Xx9L81tAfVg04assn5cq5UAX4jyM1p9CoeNNI67o2fc8U/YP0j/2AfYCqIYhf2+bbVnGEDFx&reflink=article_email_share.

² Joe Parsons, *SEC denies Cboe stock exchange speed bump proposal*, THE TRADE (Feb. 24, 2020), <https://www.thetradenews.com/sec-denies-cboe-stock-exchange-speed-bump-proposal/>.

³ *Id.*

⁴ Hazel Bradford, *Cboe speed bump proposal gets mixed reviews*, PENSIONS & INVESTMENTS (July 17, 2019), <https://www.pionline.com/trading/cboe-speed-bump-proposal-gets-mixed-reviews>.

⁵ Parsons, *supra* note 2.

⁶ *See generally* SECURITIES AND EXCHANGE COMMISSION, ORDER DISAPPROVING PROPOSED RULE CHANGE TO INTRODUCE A LIQUIDITY PROVIDER PROTECTION DELAY MECHANISM ON EDGA (Feb. 21, 2020), https://www.sec.gov/rules/sro/cboeedga/2020/34-88261.pdf?mod=article_inline (“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.”).

particularly in circumstances where they are able to react to the actions of other traders.”⁷ These developments in the speed at which information is processed and sent by computers has led to a “perpetual arms race[,]” between trading firms who are constantly vying to profit from latency arbitrage—the opportunity to reallocate value based on (just barely) outdated prices of securities.⁸ Matt Levine deftly explains the harm of latency arbitrage (when market makers are profiting from the latency, however) by pointing to the issue of “phantom liquidity”;⁹ this occurs when “[h]igh-frequency trading firms [see an] order execute on one exchange, and immediately race[] ahead of [the buyer] to raise the prices on all the other exchanges.”¹⁰

As expected, the public reception to HFT firms profiting from latency arbitrage has been generally negative, which is especially unsurprising when considering the aggregate amount of value reallocated to HFT firms at the expense of main street investors.¹¹ Given these realities, many have come to believe that the answer lies, in part, in speed bumps as “it has become easier to slow participants in order to speed others up.”¹²

These issues have come to the fore relatively recently. In 2015, a new exchange with a built in speed bump—TSX Alpha Exchange—launched in Canada. The feature was touted as giving “a leg up to so-called natural investors.”¹³ The speed bump, which utilized “a *randomized* order processing delay of between 1 and 3 milliseconds imposed on all orders that have the potential to take liquidity—[] caused some early consternation,”¹⁴ however. TSX’s speed bump has a glaring exception to the rule: the exchange “provides the option to pay a higher fee to enter and cancel limit orders without experiencing the delay.”¹⁵ A recent study found that this system of a speed bump with a “pay to play” exception ultimately lead to disrupted order flow and increased total transaction costs with a simultaneous reduction in liquidity.¹⁶ Additionally, that same study found that “the introduction of the randomized speed bump enables fast liquidity suppliers to ‘fade’ away from orders which consume liquidity across multiple venues, allowing them to profit from the information contained in the order flow itself.”¹⁷

⁷ Haoming Chen et al., *The Value of a Millisecond: Harnessing Information in Fast, Fragmented Markets 2* (Nov. 18, 2017) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2860359

⁸ *Id.* at 5.

⁹ Matt Levine, *Speed Bumps Are the Hot New Thing for Exchanges*, BLOOMBERG OPINION (Aug. 31, 2016), <https://www.bloomberg.com/opinion/articles/2016-08-31/speed-bumps-are-the-hot-new-thing-for-exchanges>.

¹⁰ *Id.*

¹¹ Michael Sheetz, *High-speed traders cost regular investors almost \$5 billion a year, study says*, CNBC (Jan. 27, 2020), <https://www.cnbc.com/2020/01/27/latency-arbitrage-trading-costs-investors-5-billion-a-year-study.html>.

¹² *Id.*

¹³ Terry Flanagan, *Canadian Traders Adjust to TSX Alpha*, MARKETS MEDIA (Nov. 4, 2015), <https://www.marketsmedia.com/canadian-traders-adjust-to-tsx-alpha/>.

¹⁴ *Id.* (emphasis added).

¹⁵ Chen et al., *supra* note 7, at 2.

¹⁶ *Id.*

¹⁷ *Id.*

Speed bumps became a headline in the U.S. in 2016, when the SEC—in the process of approving Investors Exchange (“IEX”) as a national exchange—consented to IEX’s 350 microsecond speed bump, while also reinterpreting regulation NMS to now provide that “any inbound or outbound delay less than one millisecond (1,000 microseconds) to be ‘de minimis’ — or irrelevant and not harmful to investors.”¹⁸ IEX’s speed bump, while touted by most as symmetric (applied to all orders), has been claimed by some to be asymmetric in application.¹⁹ A study by Edwin Hu of the Securities and Exchange Commission’s Division of Economic and Risk Analysis, however, found that after IEX’s approval led to “a small reduction in latency-sensitive trading strategies[,]” as well as a decrease in “[t]rading costs, as measured by quoted and effective spreads, . . . by an average of 1–2 basis points, which is approximately a 2–3% relative decrease in spreads.”²⁰ Thus, Hu concluded that “while the speed bump only exists on IEX, it affects market-wide trading activity.”²¹ “Another study found that “upon the introduction of IEX’s speed bump in the world of lit exchanges, there is a significant reduction in reaction time to order book events, indicating that the speed bump indeed was a binding constraint on some fast trading strategies. . . . Meanwhile, overall market quality improved with decreases in quoted spread, quote-to-trade ratio, and order imbalance, and increases in quoted depth and quote life.”²²

While the larger exchanges initially shunned speed bumps, they eventually came around to the idea after IEX was approved and the new model was met with fanfare.²³ NYSE did a complete about face and adopted a speed bump of its own on the AMEX exchange.²⁴ NYSE’s speed bump closely resembled that of IEX, with a 350 microsecond symmetrical delay, however, the NYSE model had an exception; it provided for “electronic market makers with obligations to ease the trading of NYSE American-listed stocks.”²⁵ In an ironic twist of fate, NYSE decided to pull the plug on the speed bump just two years later,²⁶ claiming that “[t]rading conditions for NYSE American-listed securities . . . worsened with the August 2017 introduction of the speed bump, the

¹⁸ Holly A. Bell, *Who Benefits From Market Speed Bumps? The Exchanges*, THE NEW YORK TIMES (Dec. 26, 2016), <https://www.nytimes.com/2016/12/23/business/dealbook/who-benefits-from-market-speed-bumps-the-exchanges.html>.

¹⁹ See Chen et al., *supra* note 7, at 2 n.4 (“IEX’s speed bump is sometimes considered symmetric as it slows down all lit orders, but exempts dark pegged orders. 80 percent of its trading is dark according to a 2017 report.”).

²⁰ Edwin Hu, *Intentional Access Delays, Market Quality, and Price Discovery: Evidence from IEX Becoming an Exchange* (March 15, 2019) (DERA Working Paper), https://www.sec.gov/dera/staff-papers/working-papers/07feb18_hu_iex_becoming_an_exchange.

²¹ *Id.* at 2.

²² Bidisha Chakrabarty et al., *Effects of a Speed Bump on Market Quality and Exchange Competition* (Nov. 8, 2018) (Unpublished Manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3280645.

²³ See generally MICHAEL LEWIS, *FLASH BOYS: A WALL STREET REVOLT* (an example of the praise IEX has recently received; the feat of getting prominently featured in a book by Michael Lewis).

²⁴ John McCrank, *NYSE wins regulatory approval for 'speed bump' exchange*, REUTERS (May 16, 2017), <https://www.reuters.com/article/us-nyse-exchange-speedbump-idUSKCN18C2UC>,

²⁵ *Id.*

²⁶ Declan Harty, *Speed bump on former AMEX exchange made spreads worse, NYSE says*, S&P GLOBAL MARKET INTELLIGENCE (Nov. 4, 2019), https://www.spglobal.com/marketintelligence/en/news-insights/trending/O1_i8QswCPPwWV9HbS-5dw2.

exchange said.”²⁷ According to the exchange “[t]he venue [had] seen lower market share and average daily volume while slippage at market close rose and spreads widened[.]”²⁸ Nasdaq also implemented a speed bump of its own, however, they decided to implement an opt-in speed bump via the Midpoint Extended Life Order (“M-ELO”) program.²⁹ M-ELO orders can only interact with other M-ELO orders, and they are all subject to a half-second delay.³⁰

To summarize, here are my birds-eye level thoughts on the issue: for one, latency arbitrage is not black and white. As a matter of fairness, Matt Levine points out that latency arbitrage “seems mostly to mean fast trading that goes poorly for you, and that can happen to anyone.”³¹ He notes that the debate over increasing equity to market makers, or vice versa, to liquidity takers does not have “any moral valence whatsoever.”³² In his view “[m]arket makers perform a valuable function and should be able to make a living, and investors perform a valuable function and should be able to profit from their own information, and they are locked in a perpetual battle over how to divide up the proceeds, and that is how it should be.”³³ Ultimately, asymmetric speed bump impositions—such as the one Cboe recently proposed—are just about deciding who will profit from latency arbitrage at the expense of others, according to this line of reasoning. On the other hand, some claim that symmetric speed bumps are not discriminatory enough to reduce the harmful effects of HFT. Aequitas NEO Exchange, a Canadian exchange, claimed that symmetric speed bumps do not truly achieve their intended purpose because “if an exchange slows everyone down by the same time interval, traders with a speed advantage will still have that same speed advantage.”³⁴ Whether this argument holds water, given the studies analyzing IEX’s affects, is questionable, however.

It is of course important to note that several studies have shown that IEX has had a net positive impact, however, it is also equally important to acknowledge that studies have found asymmetric speed bumps, or facially symmetric with significant exceptions, to have negative effects. Lastly, it is interesting to note that NYSE first derided speed bumps, then adopted one, and afterwards did away with the restrictions; while they have not quite come full circle, it is worthwhile to note that their position on the issue has changed several times—in significant ways—in just 3 years.

²⁷ *Id.*

²⁸ *Id.* See also John D’Antona Jr., *NYSE American to Eliminate Speed Bump, Restore Floor-Based Trading*, Traders Magazine (Nov. 25, 2019), https://www.tradersmagazine.com/departments/ecns_and_exchanges/nyse-american-to-eliminate-speed-bump-restore-floor-based-trading/.

²⁹ *The Midpoint Extended Life Order (M-ELO): A Story of Continued Growth and Record Volumes*, Nasdaq (Nov. 8, 2019), <https://www.nasdaq.com/articles/the-midpoint-extended-life-order-m-elo%3A-a-story-of-continued-growth-and-record-volumes>.

³⁰ *Id.*

³¹ Levine, *supra* note 7.

³² *Id.*

³³ *Id.*

³⁴ Megan Woodward, *Bumping Up the Competition: The Influence of IEX’s Speed Bump in US Financial Markets* (May 6, 2018) (Unpublished Manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3202843.