March 31, 2023

Submitted electronically

Ms. Vanessa Countryman
Secretary
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090

Re: U.S. Equity Market Structure Rulemakings, Securities Exchange Act Release Nos. 96494 (S7-30-22) (Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders); 96495 (S7-31-22) (Order Competition Rule)

Dear Ms. Countryman:

MEMX LLC ("MEMX")[1] appreciates the opportunity to provide comments to the U.S. Securities and Exchange Commission ("Commission") on the above-referenced proposed rule changes (the "proposals"), which were simultaneously released by the Commission for public comment on December 14, 2022, along with two other market structure rulemakings.[2] Together, the proposals would dramatically reshape the U.S. equity market by either amending or introducing several significant Commission rules governing equity trading, including: (1) Rule 600(b)(82)

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1 MEMX was founded by leading market participants with the common goal of improving equity markets for investors and challenging the status quo in the exchange space. Specifically, MEMX's mission is to increase competition, reduce the fixed costs of trading, and simplify the execution of equity trading in the United States.

2 See Securities Exchange Act Release Nos. 96494 (December 14, 2022), 87 FR 80266 (December 29, 2022) (S7-30-22) (Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders); 96495 (December 14, 2022), 88 FR 128 (January 3, 2023) (S7-31-22) (Order Competition Rule); see also Securities Exchange Act Release Nos. 96493 (December 14, 2022), 88 FR 3786 (January 20, 2023) (S7-29-22) (Disclosure of Order Execution Information); 96496 (December 14, 2022), 88 FR 5440 (January 27, 2023) (S7-32-22) (Regulation Best Execution).

(Round lot definition); (2) Rule 603 (Distribution, consolidation, dissemination, and display of information with respect to quotations for and transactions in NMS stocks) (3) Rule 610(c) (Access Fee Cap); (5) Rule 612 (Sub-Penny Rule); (6) Proposed Rule 615 (Order Competition Rule).

Some of the proposed changes, including the acceleration of round lot reform and the enhancement of order execution quality statistics, will serve to improve investor outcomes and enjoy significant support. Others may come with costs that have not been fully assessed and should be modified to ensure that our capital markets continue to meet the needs of investors. Given the complex and interconnected nature of the U.S. equity market and the difficulty in predicting how any proposed rule changes will reverberate through the market, we urge the Commission to carefully consider: (1) the potential unintended consequences of the proposals, both individually and collectively, on the market; and (2) how the Commission can mitigate any negative consequences on investors, including retail investors as the intended beneficiaries of the proposals and institutional investors that manage the majority of money invested by the American public.

We recommend the Commission do the following in line with these goals:

1. "Expedite" round-lot reform and require that the exclusive securities information processors ("SIPs") disseminate the best odd lot order;[3]

2. Reduce the minimum increment to $0.005 in tick constrained NMS stocks with a Time Weighted Average Quoted Spread ("TWAQS") of $0.011 or less to narrow spreads,

[3] We use the word "expedite" in quotation marks as we expect that these reforms will be implemented much later than originally contemplated by the Commission even with the proposed changes to the infrastructure rule implementation timetable.

and increase the minimum increment to $0.02 for NMS stocks with a TWAQS of $0.06 or more to improve liquidity at the national best bid and offer ("NBBO");

3. Lower the access fee cap in tick constrained NMS Stocks to $0.0015 to maintain the proportionality of access fees and tick sizes, and include auction fees within the scope of the rule to prevent competitive distortions that would otherwise result if listing exchanges were permitted to use auction fees to avoid a lower fee cap;

4. Abandon the overly-prescriptive Order Competition Rule, which would mandate the use of an untested market mechanism of the Commission's own design with wide-ranging and unknown implications for execution quality, in favor of reforms that would promote innovation and competition in the U.S. equity market, such as the approval of MEMX's retail midpoint liquidity program and generally allowing exchanges, alternative trading systems ("ATSs"), and other venues to accept, rank, display, and trade orders in segmented retail programs in a minimum increment of $0.001; and

5. Define "success," including positive criteria such as improving spreads and negative criteria such as reducing liquidity, and phase in changes in a manner that allows the Commission to determine the impact that each change has had on market quality, with a process for undoing changes that do not meet the specified success criteria.

I. THE COMMISSION SHOULD EXPEDITE ROUND-LOT REFORM AND REQUIRE THAT THE EXCLUSIVE SIPS DISSEMINATE THE BEST ODD LOT ORDER

The Commission has proposed to amend several key pieces of the regulatory infrastructure at the heart of the U.S. equity market. At the same time, the Commission's last important market

structure rulemaking, the market data infrastructure rule ("infrastructure rule"),[4] remains unimplemented many years after it was adopted. That rule was the result of significant back-and-forth with market participants, and enjoys substantial industry support. MEMX supports the acceleration of round lot and odd lot reforms on the exclusive SIPs, as well as the Commission's broader efforts at market data reform. However, the Commission should limit the proposal to the dissemination of the best odd lot order, rather all odd-lot quotations at or better than the NBBO, and clarify that an exchange can meet its obligation to provide all data necessary to generate odd-lot quotation information using the same means as permitted under the infrastructure rule.

Expediting Round Lot Reform Will Reduce Investor Transaction Costs and is Necessary Given the Delays in Implementation of the Market Data Infrastructure Rule

MEMX has been a strong proponent of expediting round lot reform. Given the appreciation in stock prices over the years, a reduction in the number of stock splits effectuated by issuers, and other factors, a uniform 100-share round lot no longer serves the needs of investors. In addition to harming market transparency, MEMX's data analysis, which is included in the Appendix and incorporated herein by reference, shows that: (1) quoted spreads are wider in high-priced NMS stocks that would benefit from a smaller round lot under the infrastructure rule; and (2) transaction costs, as illustrated by effective spreads paid by investors, are higher in these securities, with the delayed implementation of these reforms costing investors as much as ~$2 billion annually.[5]

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4 See Securities Exchange Act Release No. 90610 (December 9, 2020), 86 FR 18596 (April 9, 2021) (S7-03-20) (Market Data Infrastructure).

5 See *Why we should change round lots now*, Adrian Griffiths, Head of Market Structure, MEMX, *available at* https://memx.com/wp-content/uploads/MEMX_Round-Lots_white-paper.pdf (June 2021); *Was Amazon too expensive? – What recent S&P500 stock splits*

Nevertheless, the implementation of these important reforms has been significantly delayed. This delay comes primarily from two sources: (1) the Commission's decision in the infrastructure rule to implement round lot reform at the very end of the infrastructure rule's implementation schedule, i.e., after the cessation of the exclusive SIPs; and (2) failure of the self-regulatory organizations responsible for the NMS plans governing the dissemination of consolidated market data to successfully complete the first phase of infrastructure rule implementation by filing fees for the data content to be made available under the infrastructure rule that meet the Exchange Act standards applicable to such fees.[6] If the Commission were not to act to accelerate round lot reform, the ultimate implementation of this rule may be many years away and significantly later than the Commission intended when the rule was adopted.

Knowing the importance of this issue to investors, MEMX requested that the primary listing exchanges expedite these reforms using current authority to set the round lot applicable to their listed securities.[7] However, those discussions have not led to any changes by the listing exchanges and investors are still paying for this inaction in the form of higher transaction costs. As a result, we believe that the time has come for the Commission to accelerate these reforms on

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teach us about the need to reform the round lot, Adrian Griffiths, Head of Market Structure, MEMX, *available at* https://memx.com/wp-content/uploads/MEMX_Round-Lot_Reform.pdf (November 2022).

6 See Securities Exchange Act Release Nos. 95848 (September 21, 2022), 87 FR 58544 (September 27, 2022); 95849 (September 21, 2022), 87 FR 58592 (September 27, 2022); 95850 (September 21, 2022), 87 FR 58560 (September 27, 2022); 95851 (September 21, 2022), 87 FR 58613 (September 27, 2022); see also Letter from Adrian Griffiths, Head of Market Structure, MEMX, to Vanessa Countryman, Secretary, Commission, dated November 8, 2021, *available at* https://memx.com/wp-content/uploads/MEMX-Comment-Letter-Proposed-SIP-Fees.pdf.

7 See supra note 5. There are currently twelve securities listed by the New York Stock Exchange ("NYSE") that trade with a round lot size of less than 100 shares.

its own. Indeed, we recommended this action in a letter to the Commissioners last year,[8] and we commend the Commission for seeking to expedite these important changes, which will improve market efficiency and execution outcomes for investors in high-priced NMS stocks.

Odd-Lot Quotation Information is Valuable To Investors But The Commission Should Limit the Proposal to the Dissemination of the Best Odd Lot Order and Clarify that an Exchange Can Meet Its Obligation To Provide All Data Necessary To Generate Odd-Lot Quotation Information Using the Same Means as Permitted Under the Infrastructure Rule.

Similarly, odd-lot quotation information, which will become even more valuable following some of the other proposed market structure changes, should be made available on the exclusive SIPs. The inclusion of odd-lot quotation information in consolidated market data is scheduled to occur with the introduction of competing consolidators, well before the implementation of round lot changes. However, this information is nonetheless also significantly delayed, and MEMX therefore supports including this data on the exclusive SIPs until such time as competing consolidators take over this role. At the same time, the Commission should also address questions related to: (1) the specific types of odd-lot quotation information that would be made available on the exclusive SIPs; and (2) the manner in which the underlying data used to generate this information would be made available to the exclusive SIPs by national securities exchanges.

First, the proposal would require that the exclusive SIPs disseminate odd-lot quotation information, as defined in the infrastructure rule, and additional information on the best odd lot order, which is effectively an odd-lot NBBO. Importantly, odd-lot quotation information is defined

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[8] See Letter from Adrian Griffiths, Head of Market Structure, MEMX dated March 30, 2022, *available at* https://memx.com/wp-content/uploads/Market-Structure-Proposal.pdf.

in the infrastructure rule to include "[o]dd lots at a price greater than or equal to the national best bid and less than or equal to the national best offer, aggregated at each price level at each national securities exchange and national securities association."[9] Although odd-lot quotation information should be made available on the exclusive SIPs given the significant delays in implementing competing consolidators, the Commission should consider whether it is feasible to provide the full set of odd-lot quotation information on the exclusive SIPs in a materially compressed timeline.

Based on the practical challenges associated with the exclusive SIPs disseminating full odd-lot quotation information at all prices at or within the NBBO, the real time-to-market of such a change is likely to be considerably longer than the 90 days the Commission has allocated for this exercise.[10] And, rushing out these changes in a compressed timeframe would come with significant operational risks for both the processors and data consumers. We therefore recommend that the Commission amend the proposal to instead require that the exclusive SIPs disseminate only the best odd lot order, subject to an implementation timetable that considers the time necessary for such changes to be developed and tested with the industry before being introduced into a production trading environment. In addition, we encourage the Commission to take further action to ensure the infrastructure rule is implemented in as timely a manner as possible, including necessary changes to SIP governance that would support such implementation.

Second, under the infrastructure rule each exchange that transacts in NMS stocks must make available to competing consolidators and self-aggregators "all data necessary to generate

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9 See Rule 600(b)(59)(ii).

10 See Letter from Robert Books, Chair, SIP Operating Committee to Vanessa Countryman, Secretary, Commission, dated March 28, 2023, *available at* https://www.sec.gov/comments/s7-30-22/s73022-20161925-330764.pdf.

consolidated market data."[11] The release further states that this requirement can be met using "existing proprietary data feeds, a combination of proprietary data feeds, or a newly developed consolidated market data feed."[12] The proposal contains similar language referencing an obligation for exchanges to make available to a plan processor "all data necessary to generate odd-lot information."[13] MEMX interprets this statement to provide the same flexibility provided under similar language from the infrastructure rule, i.e., allowing exchanges to provide existing proprietary data feeds to satisfy these requirements, and the Commission's economic analysis appears to assume that the implementation would be similar under both rules. MEMX requests that the Commission affirm our understanding of this requirement, which would serve to ensure consistent implementation, reduce wasted development work, and provide consistency with the future dissemination of odd-lot quotation information under a decentralized consolidation model.

II. THE COMMISSION SHOULD TAKE A MORE MEASURED APPROACH TO TICK SIZE CHANGES THAT ACCOUNTS FOR THE IMPACT OF THOSE CHANGES ON LIQUIDITY AND INSTITUTIONAL INVESTOR TRANSACTION COSTS

MEMX has been the standard-bearer for sensible, data-driven tick size reform. As discussed in the request for exemptive relief that we filed with the Commission last year,[14] NMS stocks accounting for half of U.S. equities volume are "tick constrained." Quoted spreads in these securities are generally wider than they would be absent a uniform penny increment, resulting in

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11 See Rule 603(b).

12 See Market Data Infrastructure Rule, supra note 4, at 18653.

13 See Proposed Rule 603(b)(3).

14 See Letter from Adrian Griffiths, Head of Market Structure, MEMX to Vanessa Countryman, Secretary, Commission, dated August 4, 2022, *available at* https://memx.com/wp-content/uploads/Tick-Size-Exemption-Request.pdf; see also Letter from Adrian Griffiths, Head of Market Structure, MEMX to Vanessa Countryman, Secretary, Commission, dated August 30, 2021, *available at* https://memx.com/wp-content/uploads/Request-for-Exemptive-Relief.pdf.

significantly increased transaction costs for investors. In addition, these securities generally have longer queues and trade with outsized notional liquidity at the NBBO, meaning that institutional investors would continue to be able to trade efficiently in a market where both spreads and liquidity decrease. Indeed, our data shows that NMS stocks that are tick constrained trade with liquidity at the NBBO that is around 5x to 8x higher in the case of corporate securities and 9x to 59x higher for exchange traded products ("ETPs").[15] MEMX's exemption request, which accounts for both the need to reduce spreads and the need to ensure that there is ample liquidity available in the market, was that the Commission reduce the minimum increment to $0.005 in tick constrained securities, defined as NMS stocks that trade with an average quoted spread of $0.011 or less.

The proposal would instead reduce the minimum increment across NMS stocks that trade with a TWAQS of $0.04 or less, including: (1) "tick constrained" NMS stocks that would qualify for a narrower minimum increment under our request for exemptive relief; (2) "near constrained" NMS stocks, which the Commission defines as NMS stocks with a TWAQS of more than $0.011 and less than $0.02; and (3) a number of other NMS stocks that are neither tick constrained nor near constrained. In addition to impacting a broader range of NMS stocks, the proposal would also implement significantly narrower minimum increments, with securities in these three buckets trading in a minimum increment that ranges from $0.001 to $0.005 depending on its TWAQS.

15 Id.

The Proposal, as Designed, may Harm Market Quality Measures that are Important to Institutional and Other Investors in a Wide Range of NMS Stocks

MEMX supports the Commission's goal of improving market quality in NMS stocks that currently trade with spreads that reflect regulatory constraints rather than market participant supply and demand. However, any analysis of market quality must include an analysis of the impact of these changes on depth and related institutional trading costs in addition to spreads. In fact, while quoted spreads can be a decent measure of market quality for retail investors, many of whom trade in smaller sizes, institutional investors that need to trade in size are generally more concerned with the amount of liquidity available and the costs associated with accessing that liquidity. Yet, the Commission's economic analysis does not address how institutional trading costs would be impacted by these changes. This is a significant omission. It's also puzzling given the fact that the Order Competition Rule would specify a lower $0.001 minimum increment for segmented orders traded in qualified auctions on behalf of retail investors, whereas institutional trading would generally take place in the minimum increments specified in the amended Sub-Penny Rule.

The Commission must ensure that any changes serve not only retail investors that participate directly in our capital markets, but also the millions of Americans that participate indirectly through money contributed to a 401(k), individual retirement account ("IRA"), pension plan, mutual fund, or other investment vehicle managed by institutional asset managers. Indeed, these are often the very same people, using different vehicles to invest in their financial futures. If the Commission were to consider the impact of proposed changes to the minimum increment on institutional trading costs, its own economic analysis shows that the proposed rule is untenable.

The proposed changes would impact just under 3,800 NMS stocks, or 37% of the full symbol universe, accounting for approximately 73% of volume and 54% of notional value traded in the U.S. equity market. But the Commission itself has shed doubt on whether all of those securities would actually benefit from the proposed minimum increments. For example, the Commission's economic analysis suggests that both tick constrained and near constrained NMS stocks may benefit from some improvement in quoted spreads at the expense of liquidity.[16] However, according to this same analysis, NMS stocks that are neither tick constrained nor near constrained – a group that accounts for roughly half of all securities that would be subject to narrower increments under the proposal – may not see any meaningful spread improvement.[17]

As a result, the Commission itself admits that its economic analysis "does not provide clear predictions regarding the effect of the tick size reduction on transaction costs"[18] for NMS stocks that would receive a $0.005 minimum increment under the proposal, i.e., those with a TWAQS of $0.016 to $0.04. Rather, the Commission explains that based on the results of its economic analysis "the effect of the proposal is less certain"[19] for these securities. This alone should be enough for the Commission to refrain from making such broad changes. Indeed, it is axiomatic that the

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16 See Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders, supra note 2, at 80320. Metrics discussed in this paragraph are shown in Table 9 – Effects of a Reduction in Tick Size on Quoting and Trading Outcomes. Bin definitions are discussed in fn. 554. According to those definitions, bin 1 contains tick constrained NMS stocks, bin 2 contains near constrained NMS stocks, and bins 3 and 4 contain NMS stocks that are neither tick constrained nor near constrained.

17 Id.

18 Id at 80317.

19 Id.

Commission should only impose changes where supported by evidence. An absence of evidence does not give the Commission carte blanche to make potentially harmful changes.

Moreover, spreads are not the only relevant measure of market quality. On other measures, the impact is more certain and suggests that market quality would actually diminish. For example, the Commission's economic analysis suggests that these securities would still suffer from a decrease in notional liquidity at the NBBO and a corresponding increase in the cost of trading larger order sizes. Our research shows that displayed sizes and queue length tend to be large in tick-constrained NMS stocks, but liquidity provision at the NBBO declines sharply as spreads widen and become unconstrained. Simply put, exchanging something of value (liquidity) for nothing (no spread improvement) is a bad trade. The Commission has not adequately explained why reducing depth and increasing costs associated with trading larger orders, including many orders submitted on behalf of institutional investors, is consistent with the protection of investors.

Similarly, while the Commission's analysis indicates that tick constrained and near constrained securities may benefit from some improvement in quoted spreads, a more fulsome analysis of the tradeoffs between spread reduction and liquidity is needed to properly assess those changes. As the Commission explains, "[a] risk of a smaller tick is that it spreads liquidity over more price levels, which may potentially create adverse effects – particularly for larger orders."[20] The Commission's economic analysis must therefore consider not only whether a reduction in spread is possible, but also how much reduction in spread, and whether any benefits associated with reduced spreads exceeds the costs that would be imposed due to a reduction in liquidity.

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[20] Id at 80317.

Here, the only metric the Commission evaluates that incorporates both spreads and liquidity is the round-trip cost to trade ten round lots.[21] According to that metric, transaction costs decreased for tick constrained stocks at the end of the Tick Size Pilot when tick sizes reverted to $0.01.[22] For near constrained stocks, the Commission's analysis shows that transaction costs following the conclusion of the pilot were either constant or increased.[23] And, for all other stocks, i.e., those that were neither tick constrained or near constrained, transaction costs increased.[24] This sheds further doubt on the Commission's desire to decrease the minimum increment in non-constrained stocks as any improvement in spreads may be outweighed by liquidity concerns.

Notably, a minimum increment of $0.001 or $0.002 reflects a dramatic 10x or 5x reduction that is likely to have a more significant impact on liquidity at the NBBO and transaction costs associated with trading larger orders, particularly when combined with a significant decline in liquidity-adding rebates due to the proposed reduction in the access fee cap across all NMS stocks by two-thirds or more. Such a change is also likely to materially impact message traffic. This would increase costs of securities market infrastructure, including trading costs, costs related to reporting to the Consolidated Audit Trail ("CAT"), and other similar costs that will likely be passed on to investors. A smaller reduction in the minimum increment could mitigate these concerns while still enabling a significant reduction in quoted spreads in these securities.

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21 Id at 80320.

22 Id.

23 Id.

24 Id.

A More Measured Approach to Tick Size Reform, as Described in MEMX's Request for Exemptive Relief, Would Allow for a Reduction in Spreads While Maintaining Liquidity that is Vital for Institutional Participation in the U.S. Equity Market

The Commission's economic analysis starts with a disclaimer that the analysis includes quantified estimates of the potential economic impact of the proposals only "where feasible" and that certain economic effects either cannot be quantified or would be impracticable to be quantified.[25] The Commission is undoubtedly correct that there will be difficulties in estimating the economic impact of these proposed rules given both the breadth and interconnectedness of the proposals themselves and the complexity of the U.S. equity market. However, admitted difficulties in assessing the costs and benefits of a proposed regulation is not a get out of jail free card.

The D.C. Circuit has repeatedly found that the Commission has a "statutory obligation to determine as best it can the economic implications of [a proposed] rule."[26] The Commission also has an obligation to take the limitations of its economic analysis seriously. Although changes to the existing tick size regime are warranted, such changes – both on their own and in combination with a significantly lower access fee cap – would have a profound impact on the U.S. equity market. The Commission must therefore carefully tailor any changes to address potential

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25 For example, the Commission explains that it "does not have, and in certain cases does not believe it can reasonably obtain, data that may inform the Commission on certain economic effects" and "even in cases where the Commission has data, it is not practicable to quantify certain economic effects due to the number and type of assumptions necessary, which render any such quantification unreliable." See Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders, supra note 2, at 80303; see also Order Competition Rule, supra note 2, at 179.

26 See Chamber of Commerce of U.S. v. SEC, 412 F.3d 133, 143 (D.C. Cir. 2005); see also Bus. Roundtable v. SEC, 647 F.3d 1144, 1148 (D.C. Cir. 2011).

unintended consequences. Although we have raised several concerns with the proposal, and in particular, the potential for it to increase institutional trading costs, there is a better way.

MEMX's exemption request asked the Commission to introduce a half penny increment ($0.005) in tick constrained NMS stocks. As discussed, this recommendation is based on two important observations backed by substantial data analysis: (1) tick constrained NMS stocks trade with spreads that are artificially wide due to the imposition of a uniform penny increment; and (2) these securities also generally trade with significantly enhanced notional liquidity at the NBBO, which reflects an opportunity for spreads to narrow if the artificial tick size constraints are eliminated while maintaining liquidity that is necessary for institutions trading in larger sizes.

As discussed in our request for exemptive relief, the Commission acknowledged when it adopted the Sub-Penny Rule that the "balance of costs and benefits"[27] that animated this regulation "could shift in a limited number of cases or as the market continues to evolve."[28] The Commission is now poised to consider changes to these rules. However, the need to balance costs and benefits is as important as ever. It is clear from MEMX's data analysis, which has been shared publicly and with the Commission, that tick constrained NMS stocks would generally trade more efficiently with a half penny increment. By contrast, an increment that is as much as ten times lower in some securities may create additional issues – including an impact on both liquidity and message traffic – that the Commission has not fully assessed and that would in fact be difficult to assess in the absence of additional data that the Commission admits it does not have at this time. Similarly, a lower minimum increment in stocks that are not tick constrained is likely to have a much more

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27 See Securities Exchange Act Release No. 51808 (June 9, 2005), 70 FR 37496, 37553 (June 29, 2005) ("Regulation NMS Adopting Release").

28 Id.

muted impact on spreads, if any, while also raising similar concerns for institutional trading. This is why a prudent regulator must act with caution. Implementing a half penny increment in tick constrained NMS stocks, as we previously recommended to the Commission, would materially improve market quality in NMS stocks that account for half of all U.S. equities volume,[29] and it would do so while "balanc[ing] the costs and benefits"[30] of such a change.

While we acknowledge the Commission's desire to make broader changes to the tick size regime, the data the Commission has offered in support of the proposal does not justify making such large-scale changes at this time. Rather, the Commission should take an iterative approach. After addressing the issues discussed for tick constrained NMS stocks, the Commission could use any data that it collects to assess whether further changes should be considered. For example, if many securities remain tick constrained at a half penny increment that may be good evidence that further narrowing the increment could be beneficial. It would also allow the Commission to investigate potential tradeoffs between spreads and liquidity that may factor into other choices, such as potentially expanding the universe of NMS stocks that qualify for a smaller increment.

A decade and a half after the Sub-Penny Rule was first implemented, now is an opportune time for change. However, in an effort to make up for lost time, the Commission should not rush through changes without adequate supporting data. Although the Commission has not attempted to quantify the potential savings that investors could enjoy under different tick size regimes, it is clear that most of the potential benefits associated with tick size reform would come in tick

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29 Given the monthly variability in the number of securities that would be categorized as tick constrained, we also recommend the measurement period used to calculate the TWAQS be the entire prior quarter rather than the last month of the prior quarter.

30 See Regulation NMS Adopting Release, supra note 27, at 37553.

constrained NMS stocks, both due to the amount of volume traded in those securities and the demonstrated impact that the current tick size regime has had on how those securities trade today.

Consider the following: the thousand or so tick constrained securities account for only a quarter (26%) of the NMS stocks that would be subject to smaller minimum increment under the Commission's proposal but as much as two-thirds (65%) of the volume and a little less than half (42%) of the notional value that would be subject to the proposed increments. While there is ample evidence that these securities could trade with significantly reduced spreads, many other NMS stocks that would be subject to the proposed reforms are unlikely to see any significant spread improvement. For example, NMS stocks with a TWAQS of $0.02 to $0.04 account for half (50%) of the total number of securities that would be subject to smaller minimum increment – i.e., twice the number of tick constrained securities – and even the Commission has cast doubt on whether these securities would see any improvement in spreads. Meanwhile, the remaining near constrained securities accounting for the final quarter (24%) of applicable securities may see some spread reduction. However, there is little evidence that such reduction would be significant.

Although the Commission is responsible for quantifying the costs and benefits of the proposal in the first instance, the available evidence suggests that the vast majority of any benefits that the Commission may hope to achieve through tick size reform are likely to flow from a reduction in the minimum increment for tick constrained securities that both account for more volume and are more likely to see a material improvement in spreads. Other securities are not likely to meaningfully contribute to investor savings but may well account for significant investors costs, particularly in securities that trade with less liquidity at the NBBO today. This makes changing the increment in tick constrained securities a good place for the Commission to start.

Additional reductions should be approached only after the Commission has collected data that clearly establishes that the potential benefits of such changes outweigh any costs. And, as we have said before, in balancing the costs and benefits of any future changes, the Commission should be cognizant of costs imposed on both retail and institutional investors. The Commission should not jeopardize tangible investor benefits in tick constrained NMS stocks by chasing further spread reductions in additional securities that is not supported by its own economic analysis.

Instead of "Harmonizing" Quoting and Trading Increments, Which Would Impose Significant Costs on Institutional and Other Investors, the Commission Should Adopt Uniform Rules that Apply Specifically to Trading of Segmented Retail Orders

The smaller minimum increments proposed as well as the larger number of NMS stocks that would be subject to those increments appear to be driven largely by the Commission's decision to expand the Sub-Penny Rule to trading in addition to quoting. For example, the Commission explains that "[o]ne reason the Commission chose the particular tick size cutoffs in this proposal was to have sufficient tick-intra-spread to preserve meaningful price improvement."[31] In turn, the Commission explains that "harmonization of the minimum pricing increment for the quoting and trading across venues would promote competition and innovation, while preserving most meaningful price improvement opportunities."[32] That is, harmonization is designed to ensure that the playing field is level between exchanges and off-exchange venues, particularly as it relates to competition for segmented retail order flow, which is often executed at sub-penny prices today.

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31 See Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders, supra note 2, at 80341.

32 Id at 80283.

Harmonizing quoting and trading increments undoubtedly requires a narrower increment to allow continued price improvement opportunities within the spread. It also presumably requires that more NMS stocks receive a narrower minimum increment to lessen the impact of tick size harmonization on available price improvement opportunities. However, the Commission's economic analysis must also evaluate: (1) whether the benefits of harmonization justify the costs associated with imposing an increment that is too narrow; and (2) whether the Commission's stated goals of reducing regulatory disparities and facilitating competition between exchange and off-exchange markets can be achieved without harmonizing quoting and trading increments.

As the Commission explains in the Order Competition Rule, segmented orders for retail investors are not typically executed on exchange continuous order books where they would not be able to benefit from segmentation. And the Order Competition Rule itself is premised on continuing the benefits of segmentation and therefore would not change this paradigm. In fact, the Order Competition Rule enforces continued segmentation of retail orders in qualified auctions where those orders would be subject to a narrower minimum increment of $0.001. Therefore, broader tick size changes to support the trading of retail orders on exchange order books are unlikely to meaningfully impact the execution of this order flow, which would continue to be executed on other segmented venues, potentially including qualified auctions that would be subject to a different set of minimum increments. At the same time, these changes would impose costs on institutional investors for whom exchange order books are a critical source of liquidity.

A better solution is to give exchanges, ATSs, and other venues more flexibility in the minimum increments used when trading segmented retail orders. Rather than attempting to shoehorn quoting and trading increments into the same rigid regulatory structure, the Commission should adopt a different standardized minimum increment (e.g., $0.001) that applies equally to

segmented retail programs on both exchange and off-exchange venues, i.e., all market centers could accept, rank display, or trade in this standardized minimum increment.[33] This change would reduce barriers to competition between exchange and off-exchange venues for retail order flow while accounting for the important distinction between quoting and trading increments. It would also limit disruptions that may occur if the quoting increment is too small, including potential reduction in market depth and increase in institutional trading costs and message traffic.

The Commission Should Also Consider Implementing a Larger Minimum Increment in NMS Stocks with a Wider TWAQS

The proposal contemplates lowering the minimum increment in a wide swath of NMS stocks with a narrower spreads, and no change to the current tick size regime for securities with wider spreads. However, the Commission's economic analysis suggests that NMS stocks with wider spreads would actually benefit from a larger minimum increment.[34] For example, the Commission's analysis of Tick Size Pilot data suggests that NMS stocks quoted with more ticks within the spread generally saw improvements to both spreads and liquidity during the pilot when a larger tick size was imposed. Although addressing tick constraints is a somewhat more pressing issue, introducing a larger minimum increment in NMS stocks with wider spreads is likely to improve market quality in those securities. Specifically, implementing a larger minimum

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33 Since retail liquidity programs are, by definition, counterparty restricted MEMX anticipates that any relevant information on available liquidity would be disseminated via direct feeds instead of being comingled with generally accessible SIP quotations. However, such display would allow for greater competition or retail order flow.

34 "This alternative could potentially improve the trading environment for stocks with wider spreads by minimizing the costs associated with having too many ticks intra-spread." See Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders, supra note 2, at 80344.

increment in these securities would serve to consolidate liquidity at the NBBO, incentivize additional use of displayed orders due to increased expense associated with "pennying," and generally improve spreads and reduce transaction costs, particularly for institutional investors.

Although the Commission does not explain why it has chosen not to propose larger minimum increments despite the fact that its economic analysis appears to support them for some NMS stocks, this may be a byproduct of harmonizing quoting and trading increment – i.e., the Commission may be reluctant to further reduce pricing granularity for retail orders receiving price improvement in these securities. We certainly agree that it would be difficult to reconcile a larger minimum increment with a world where quoting and trading increments are harmonized. However, this only reinforces our recommendation to focus harmonization on segmented retail programs, which could be accomplished alongside other beneficial changes for a range of NMS stocks.

At the same time, we recognize there are still many questions to be resolved with respect to implementing wider minimum increments, particularly given the diversity of NMS stocks relative to the small cross section of small cap securities that were included in the Tick Size Pilot. Therefore, similar to our recommendation for reducing the minimum increment in tick constrained NMS stocks, we recommend that the Commission approach widening the minimum increment as an iterative process where the Commission makes a smaller change and then evaluates whether additional changes would be beneficial. For example, the Commission may wish to start with a minimum increment that is not significantly wider than the current minimum increment, e.g., a $0.02 minimum increment for NMS stocks with a TWAQS of $0.06 or more. MEMX's data shows that these stocks trade with a national size at the NBBO that is around 80% lower than tick constrained NMS stocks (excluding ETPs), and they may therefore be a sensible place for the

Commission to start as it assesses the potential to widen the minimum increment. Further changes should only be made after the Commission assesses the impact of any initial change on the market.

III. THE COMMISSION SHOULD MAINTAIN THE PROPORTIONALITY OF ACCESS FEES AND TICK SIZES AND INCLUDE AUCTION FEES WITHIN THE SCOPE OF THE RULE TO PREVENT COMPETITIVE DISTORTIONS THAT WOULD OTHERWISE RESULT IF LISTING EXCHANGES WERE PERMITTED TO USE AUCTION FEES TO AVOID A LOWER FEE CAP

The Commission has also proposed significant reductions to the access fee cap. Reducing access fees in some or all NMS stocks would result in significant take fee savings, and would benefit a diverse set of market participants, including banks and agency brokers that route order flow on behalf of buy-side institutions. Nevertheless, there are many factors that go into the selection of an appropriate fee cap. This includes potential cost savings, the ability to incentivize liquidity provision, and fee structures available on other venues, including ATSs.

Moreover, as discussed in our tick size exemption request, the access fee cap and the minimum increment are intertwined. MEMX recommends that the Commission amend the proposal to: (1) maintain the proportionality of access fees and tick sizes, i.e., the access fee cap should be a consistent percentage of the tick size across all NMS stocks; (2) collect data and evaluate the impact of any changes made; and (3) ensure that listing exchanges cannot use auction fees, which are not subject to the access fee cap today, to avoid the proposed lower fee cap.

The Commission Should Maintain Proportionality of Access Fees and Tick Sizes, and Collect and Evaluate the Impact of any Changes Made to these Rules

As commenters to the Commission's proposed transaction fee pilot explained, access fees and tick sizes are inherently linked. Most U.S. equities exchanges operate using a maker/taker fee

structure where orders that take liquidity are charged a fee and orders that remove liquidity are paid a rebate. This allows exchanges to incentivize liquidity provision, leading to narrower spreads. However, the value of these incentives is not consistent across all securities and tick sizes. For example, a rebate of $0.0030 per share represents a significant proportion of the spread in a tick constrained NMS stock that would qualify for a half penny increment pursuant to our recommended tick size regime. However, that same $0.0030 per share rebate would represent a much less meaningful incentive in an NMS stock that trades with wider spreads and that would therefore qualify for a larger minimum increment pursuant to our recommended reforms.

Given the impact of the access fee cap on liquidity provision, establishing a consistent access fee cap across a number of different tick size buckets may: (1) result in incentives that are not properly aligned with the needs of the market; and (2) create incentives or disincentives for investors to trade particular securities, harming issuers of NMS stocks that are subject to a lower relative access fee cap whose securities may be less attractive to trade than those of their competitors. We therefore recommend that the Commission amend the proposal to ensure that the access fee cap remains proportional to the tick size in connection with any changes to these rules.

In our request for exemptive relief, we asked the Commission to lower the access fee cap to $0.0015 per share for tick constrained NMS stocks traded in a minimum increment of $0.005. This would ensure that access fees for all NMS stocks remain proportional to the tick size. In addition, it would produce invaluable data that can be used to evaluate whether any further reductions to the access fee cap is beneficial for investors. As the Commission is undoubtedly aware – and indeed discusses at length in the context of the Transaction Fee Pilot – there is limited existing data to examine the tradeoff that lowering the access fee cap poses in terms of reduced

incentives to provide liquidity.[35] Although MEMX is not opposed to having a robust debate on access fees, such debate must be informed by meaningful data and economic analysis that considers not only the potential benefit of such changes but also the potential costs.

A proportional decrease in the access fee cap for NMS stocks that trade in a half penny increment would give the Commission and the public meaningful information to inform any future policy initiatives. Similarly, if the Commission moves forward with our recommendation to implement a larger minimum increment in NMS stocks quoted with wider spreads it should consider a higher access fee cap for those securities to further incentivize liquidity provision.

The Commission Should Ensure that Listing Exchanges Cannot use Auction Fees, Which are not Subject to the Access Fee Cap Today, to Avoid the Access Fee Cap

The closing price is commonly used as a benchmark for a variety of important purposes relevant to both retail and institutional investors, such as calculating index and portfolio performance as well as valuing securities, including mutual funds, ETPs, and derivatives. As a result, significant volume is currently concentrated in the closing auction where listing exchanges enjoy a virtual monopoly and charge higher fees that are not constrained by competition. Indeed, we estimate that the blended average net revenue capture in closing auctions conducted by the

35 See e.g., Securities Exchange Act Release No. 84875 (Dec. 19, 2018), 84 FR 5202, 5244 (Feb. 20, 2019) (S7-05-18) (Transaction Fee Pilot for NMS Stocks). ("[T]he Commission cannot determine from existing empirical evidence the impact, if any, of exchange transaction fee models on… market and execution quality.")

listing exchanges may be as much as seven to fourteen times higher than the Commission's estimated net revenue capture for intraday trading where competition is "fierce."[36]

Generally, the access fee cap imposes a limit on transaction fees that a U.S. equities exchange can charge for the execution of an incoming order against its protected quotations. Although the proposal would lower the access fee cap, it would not change the scope of transactions subject to the cap. This has the potential to cause significant competitive distortions as listing exchanges would be able to avoid the lower access fee cap by inflating the cost of transaction services that are not subject to the cap – such as fees for trading in a listing exchange's opening and closing auctions – and then offering "discounts" on those inflated fees that are tied to continuous trading. Indeed, the Commission acknowledged precisely this possibility when it previously sought to amend the access fee cap pursuant to the Transaction Fee Pilot.[37]

There, in responding to a commenter that suggested that the Commission extend the prohibition on "linked pricing" in Test Group 3 to auction fees, the Commission explained that "[e]xchanges will not be permitted to consider make (take) volume during intraday trading when calculating auction fees, as such an arrangement would perpetuate potential distortions associated with fee-and-rebate pricing models including the cross-subsidization of fees."[38] Although that

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36 See NetCoalition v. SEC, 615 F.3d 525, 539 (D.C. Cir. 2010) (quoting Securities Exchange Act Release No. 59039 (December 2, 2008), 73 FR 74770, 74782-83 (December 9, 2008) (SR-NYSE-2006-21)). Our estimates of net revenue capture for auctions are calculated using the Commission's estimated net revenue capture of $0.0002 for continuous trading volume to back into net revenue capture for auctions based on NYSE and Nasdaq reported volumes and overall net revenue capture for Q4 2022. The range represents higher auction fees charged by Nasdaq as compared to NYSE.

37 See Transaction Fee Pilot for NMS Stocks, supra note 35.

38 Id at 5222.

prohibition applied only to Test Group 3, which was intended to assess an explicit prohibition on rebates and linked pricing, the potential for cross-subsidization to distort exchange pricing models applies in any case where fees are compressed due to the imposition of a lower fee cap.

This concern is not theoretical. The close is an important event for institutional investors and the major listing exchanges currently tie closing auction fees to members' intraday volumes. This allows those exchanges to use virtual monopoly power over closing auction fees to secure competitive advantages during continuous trading. The Nasdaq Stock Market LLC ("Nasdaq"), for example, charges closing auction fees that range from $0.0008 to $0.0016 per share on each side of the trade for the execution of market-on-close ("MOC") or limit-on-close ("LOC"), with lower fees charged to members that execute higher volumes during the regular trading on Nasdaq's continuous order book.[39] NYSE also has a similar fee structure in place for MOC/LOC orders executed in its closing auction.[40] A "discount" of as much as $0.0008 per share in closing auction fees based on a member's continuous trading volume – something that is economically equivalent to an enhanced rebate or credit – can easily be used to avoid a lower access fee cap.

Consider the market for Nasdaq listed securities. In 2022, Nasdaq executed a total of 483 billion shares, including 408 billion shares in continuous trading, 65 billion shares in Nasdaq's closing auction, and 10 billion shares in Nasdaq's opening auction. Let's assume Nasdaq were to amend its fee schedule such that it charges a taker fee of $0.0005 or $0.0010 per share and provides a maker rebate of $0.0003 or $0.0008 per share to be in line with the proposed access fee cap while

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39 See Nasdaq Rules, Equity 7, Pricing Schedule, Rule 118(d).

40 See NYSE, Price List, Executions at the Close Equity Per Share Charge.

retaining the Commission's estimated $0.0002 per share net revenue capture.[41] This would result in an annual total rebate of $225 to $327 million, depending on the proportion of volume subject to a $0.0005 or $0.0010 fee cap.[42] Let's further assume that Nasdaq keeps its current closing auction fees in place since those fees are not subject to the lower access fee cap. The collective value of a fully discounted auction fee for all buyers and sellers would be $105 million.[43] This is 32% - 47% of the total value of explicit rebates offered, again dependent on the volume associated with each access fee cap bucket, or the equivalent of a $0.00026 per share additional rebate for orders that provide liquidity on Nasdaq.[44] And, while the example assumes that all closing auction volume qualifies for the fully discounted rate of $0.0008, which is admittedly unlikely to be the case, nothing prevents an exchange from raising its auction fees further in order to provide steeper discounts to members that execute large volumes of orders during intraday continuous trading.

Again, the risk here is not merely theoretical. NYSE did exactly this when it amended its auction fees last year, simultaneously raising auction fees and then "discounting" that higher price

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41 For purposes of this illustration, we use the Commission's proposed access fee cap of $0.0005 to $0.0010 per share. These numbers would be different if the Commission adopts our proposed amendments to the access fee cap. However, this example nevertheless highlights the impact of excluding these fees from the proposed caps, regardless of the specific changes that the Commission implements.

42 Total annual rebate = Nasdaq's continuous trading volume (408 billion shares) multiplied by the per share rebate. As proposed, most NMS stocks would be subject to an access fee cap of $0.0010, with NMS stocks with a TWAQS of $0.008 or less subject to a lower access fee cap of $0.0005. The lower number presented assumes that all tick constrained NMS stocks, which account for about half of U.S. equity volume, would be subject to this lower fee cap. The higher number assumes that no NMS Stocks fall into this bucket.

43 The value of a fully discounted closing auction fee = Nasdaq's closing auction volume (65 billion shares) multiplied by the the discount ($0.0016 - $0.0008 per share) times two to account for the fact that Nasdaq charges fees to both buyers and sellers.

44 Calculated by taking the value of a fully discounted closing auction fee ($105 million) and dividing by Nasdaq's continuous trading volume (408 billion shares).

based on participation on the exchange during regular trading.[45] Allowing a small number of listing exchanges to avoid the proposed access fee cap by offering discounts to inflated closing auction fees would degrade the competition that fuels the U.S. equity market. We therefore recommend that the Commission further amend Rule 610 to: (1) prohibit "auction linked pricing," defined as a discount or incentive offered by the primary listing exchange on auction (continuous order book) pricing based on continuous order book (auction) volume; and/or (2) extend the scope of the access fee cap to include orders executed in an auction on the primary listing exchange.[46]

In connection with including auction fees within the scope of the access fee cap, the Commission should also consider whether a lower cap is appropriate for such fees. Despite efforts from exchange competitors, the listing exchanges face limited auction competition because institutional investors often need to trade at the closing auction price for benchmark purposes.[47] Assuming an exchange was allowed to charge $0.0005 on both sides, for total net revenue capture of $0.0010 per share, that is five times higher than average capture of $0.0002 for continuous trading. A lower cap on auctions that are not subject to significant competition today would: (1) reduce trading costs imposed on the industry and promote a more level playing field and fair

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45 See Securities Exchange Act Release No. 94223 (February 9, 2022), 87 FR 8891 (February 10, 2022) (SR-NYSE-2022-07); see also Letter from Adrian Griffiths, Head of Market Structure, MEMX to Vanessa Countryman, Secretary, Commission dated February 17, 2022 available at https://memx.com/wp-content/uploads/MEMX-Comment-Letter-NYSE-MOC-Fees.pdf.

46 For purposes of these rules an "auction" would be defined as an opening, closing, or halt auction executed on the primary listing exchange.

47 Additional information on the limited competition for listing exchange auctions is included in our comment letter on NYSE MOC fees, attached in the Appendix.

competition among broker-dealers; and (2) encourage robust competition among exchanges by limiting cross-subsidization by the listing markets in ways that are detrimental to such competition.

IV. THE COMMISSION SHOULD ABANDON THE OVERLY-PRESCRIPTIVE ORDER COMPETITION RULE IN FAVOR OF TICK SIZE AND OTHER REFORMS DESIGNED TO PROMOTE INNOVATION AND COMPETITION IN THE U.S. EQUITY MARKET

The Order Competition Rule would generally require that segmented orders entered on behalf of most retail investors be exposed to competition in qualified auctions operated by an exchange or an ATS that meets the proposed definition of an open competition trading center, unless an exception applies. Although MEMX is well situated to be able to offer a qualified auction, and therefore may be a beneficiary of this proposal if adopted by the Commission, we believe the U.S. equity market would be better served by enabling competition by all market centers instead of introducing highly-prescriptive requirements that: (1) generally require broker-dealers to route segmented orders to a qualified auction; and (2) detail the mechanism that exchanges and/or ATSs would be required to use to execute qualified auctions.

The Commission's auction proposal would introduce significant market complexity and there is a lot of unpredictability in how this experiment may eventually play out in a live trading environment. MEMX has concerns about the impact of the proposal on small-cap liquidity, potential for information leakage, and the practical challenges of incorporating frequent retail auctions into existing market participant workflows. Moreover, since qualified auctions are actually prohibited under current Commission rules, any assumptions about the impact that they may ultimately have on execution quality are speculative at best. In fact, while the Commission purports to analyze the costs and benefits of its auction proposal, nothing in its economic analysis

addresses the impact of the auction model the Commission is actually proposing. Instead of fabricating a market mechanism from whole cloth, and mandating that brokers and venues utilize that mechanism, the Commission should focus on broader reforms that data shows can enhance market quality for all investors while enabling further innovation and competition in the market.

The Commission Should Promote Innovation and Competition Instead of Designing Qualified Auctions and Requiring Broker-Dealers to Route Segmented Orders to Them

The U.S. equity market has evolved over time to address demonstrated client needs as exchanges, ATSs, market makers, and other broker-dealers compete to offer trading services to customers. The market for retail order execution has not been immune to this evolution, and the result is a robust market where retail investors have unprecedented market access at no cost. Whatever secondary goals it may hope to achieve, preserving the ability for millions of new and diverse investors to participate in our capital markets must be a primary goal of the Commission. The last several years, though marked by geopolitical turmoil and market volatility, have seen a significant influx of retail investors into the U.S. equity market. The Commission should not squander these gains to chase a speculative market design of its own making that is backed by similarly theoretical assumptions about how such a model would perform in the real world.

Although current Commission rules have impeded on-exchange trading of retail order flow, the appropriate solution to this problem is to remove those impediments, not to impose new impediments on other market centers that would degrade the experience of retail investors that look to our capital markets to secure their financial futures. Simply put, instead of erecting an entirely new, unproven market structure to replace the current, well-functioning market for retail order execution, the Commission should focus on allowing exchanges to meaningfully contribute

to this market by bringing down regulatory barriers that impede competition. This would facilitate additional competition without stifling innovation or eliminating the opportunities that the current market structure provides for retail investors to obtain quality executions.

The Commission's stated rationale for the Order Competition Rule is based on its belief that: (1) the current market for retail order execution, while providing enhanced execution opportunities for retail investors, does not fully compensate those retail investors for the lower adverse selection costs that their orders impose on liquidity providers; and (2) qualified auctions, which have yet to be tested in the market, would produce meaningfully better outcomes for those retail investors than the current market structure. Others will surely comment on the economic analysis that the Commission has presented to support these two points. However, for our purposes, we will simply point out that if the Commission is correct on both points, then a mandate for brokers to use qualified auctions is superfluous in light of their best execution obligations.

That is, if the Commission is confident that qualified auctions would produce the greatest price improvement opportunities for retail investors, then it need only permit market centers to operate them – something that is prohibited under current Commission rules – and the duty of best execution will do the rest. Replacing brokers' best execution obligations with a broad and inflexible requirement to use a mechanism of the regulator's own design will predictably force brokers to make order handling decisions that are inconsistent with the needs of their customers.

Importantly, even if qualified auctions are able to produce good execution outcomes for some segment of retail order flow, e.g., small orders in high volume stocks where there is meaningful institutional participation, they may produce inferior results in other segments. The Commission implicitly acknowledges this by providing certain exclusions from both the proposed

definition of segmented order and the requirement for brokers to route segmented orders to qualified auctions. However, while these exclusions apply to certain orders that the Commission believes may not be handled well in a qualified auction, such as larger orders or orders for more active retail traders, the exclusions certainly do not cover the full universe of orders that may be negatively impacted, such as orders in less liquid securities, nor do they account for all market conditions where routing to an auction may not be desirable. This is why flexibility is king.

In Regulation Best Execution, the Commission discusses at length the need for brokers to obtain and assess information relevant to the execution of customer orders and use that information to determine which venues may provide best execution. Here's one of many statements that the Commission makes in that proposal about the need for broker-dealer practices to evolve over time using relevant data to make assessments of how to best handle customer orders:

> "Over the years, the Commission has stated the need for broker-dealers to continue to modernize their best execution practices. For example, the Commission has stated that broker-dealer practices for achieving best execution, including the data, technology, and types of markets they access, must constantly be updated as markets evolve."[48]

This is completely antithetical to the approach that the Commission has proposed to mandate in the context of the Order Competition Rule, where broker-dealer routing decisions would be governed by strict rules about where and how to route orders that have no basis in existing data and would not be subject to change as markets continue to evolve. We see no reason why the flexibility the Commission concedes is necessary for best execution generally should be taken

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[48] See Regulation Best Execution, supra note 2, at 5443.

away when routing segmented orders, particularly when no existing data could possibly allow the Commission to assume that unproven qualified auctions would produce better execution outcomes than existing or future venues across a wide range of orders and market conditions.

MEMX is also concerned that the proposal would negate the ability of market centers to innovate by hard-coding an inflexible design into the proposed regulatory structure without a full and fair assessment of: (1) whether a superior design may be available now or may become available in the future; (2) whether the U.S. equity market would be better served by allowing venues to differentiate their product offerings; and (3) the impact on competition if all qualified auctions are homogenous as a matter of regulatory design, including heightened risks of concentration in one or more venues, contrary to the Commission's goal of increasing competition.

Market centers, including exchanges, ATSs, market makers, and other venues compete on multiple dimensions. This includes technology, pricing, functionality, and unique liquidity. The Order Competition Rule would reduce or eliminate competition on many of these dimensions, resulting in homogeneous offerings and a significant risk of market concentration that has the potential to undermine any competitive benefits that the Commission seeks to achieve.

Indeed, qualified auctions would generally not provide unique liquidity, as market participants can respond to an auction initiated by any open competition trading center, and pricing and functionality would have to follow the Commission's strict design limitations on: (1) the content of the auction message (symbol, side, size, limit price, and identity of the originating broker with a limited exception); (2) publication of the auction message in consolidated market data (i.e., SIP); (3) the duration of the auction (100 to 300 milliseconds); (4) the minimum pricing increment ($0.001); (5) detailed pricing rules capping or otherwise limiting fees charged or rebates

provided (e.g., no fee for segmented orders, $0.0005 cap for fees/rebates); (6) no less than five separate rules governing priority of orders; and (7) a requirement to operate a continuous order book and incorporate orders on that order book into auction executions. These prescriptive requirements leave little room for the innovation that allows our capital markets to thrive, and amount to market micromanaging that is without precedent from any U.S. financial regulator.

The Commission has an important role to play in the U.S. equity market. Pursuant to its tripartite mission it is responsible for protecting investors, maintaining a fair, orderly, and efficient market, and facilitating capital formation. However, the Commission's role is ultimately to ensure investor protection, not to design the mechanisms that venues use to execute customer orders, or to choose whether or how to route customer orders to those venues. Designing venues and choosing how to use them is the role of market participants, and it is important that the Commission maintain the boundary between its role as a regulator and the role that regulated parties play in the market.

A quick thought experiment shows how important it can be to maintain the boundaries between these roles. Imagine if in 1934, after President Roosevelt signed the Exchange Act into law, the Commission looked at the U.S. equity market as it existed and hard coded that structure – or any structure that it could conceive of at the time – into its regulations. Would we have the securities market infrastructure that the Commission now wishes to put to use to create qualified auctions? Would we have electronic exchanges, ATSs, and market markers? Would retail investors be able to quickly buy or sell a fractional share of stock from their smartphones? Or would we still have a manual market where order flow is concentrated on the floor of the listing exchange?

The Commission has long acknowledged the need to promote innovation in the U.S. equity market. Consider Regulation ATS, which laid the groundwork for the creation of dozens of new

venues, including lit and dark order books, conditional orders, trajectory crosses, and many other innovations that have improved the execution opportunities available to investors over the last two decades. When the Commission adopted Regulation ATS in 1998, its executive summary began:

> "The final rules seek to establish a regulatory framework that makes sense both for current and future securities markets. This regulatory framework should encourage market innovation while ensuring basic investor protections."[49]

The current Commission must ensure that it too is establishing a regulatory framework that "makes sense both for current and future securities markets"[50] and that "encourages market innovation while ensuring basic investor protections."[51] While the Commission may have grand designs, a simple plan is often more enduring. We urge the Commission not to make the mistake of hard-coding its own unsubstantiated views on optimal market design into regulation and thereby limiting the ability for market participants of all kinds to continue to innovate and compete.

As is often the case, the simpler solution is the better one: rather than creating new barriers to competition, the Commission should remove existing barriers that limit the ability of exchanges and other venues to compete for retail order flow. This could include allowing exchanges to operate qualified auctions, but need not be limited to any particular mechanism(s). For example, MEMX's proposed retail midpoint liquidity program, which was disapproved by the Staff of the Division of

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49 See Securities Exchange Act Release No. 40760 (December 8, 1998), 63 FR 70844, 70846 (December 22, 1998) ("Regulation ATS Adopting Release")

50 Id.

51 Id.

Trading and Markets ("Staff"),[52] and is now pending Commission review,[53] could provide the very sort of coordination mechanism that the Commission laments is unavailable to bring retail investors together with latent midpoint liquidity resting hidden on various venues today. And, through broader changes to the Sub-Penny Rule, such as changes to allow display of sub-penny orders that provide liquidity to retail investors, the Commission could allow all sorts of new mechanisms to be created. The success or failure of those mechanisms would not be based on regulatory fiat, but rather on the actual execution opportunities they present to investors.

MEMX's Proposed Retail Midpoint Liquidity Program is a Free-Market Solution to Facilitate Price Improvement Opportunities for Retail Investors on a Public Exchange

As discussed, the Commission should look to enable innovation and competition in the market for retail order execution instead of seeking to prescribe where and how such orders are traded. This can be accomplished through relaxing regulatory barriers that currently limit the ability for venues to launch new mechanisms. It also means taking a serious look at how the Staff exercises its delegated authority to review exchange rule filings. The Staff's disapproval of MEMX's retail midpoint liquidity program provides an unfortunate but helpful illustration.

As the Commission explains in the Order Competition Rule, there is an inherent coordination problem that prevents retail investors from interacting with more non-displayed

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52 See Securities Exchange Act Release No. 94866 (May 6, 2022), 87 FR 29193 (May 12, 2022) (SR-MEMX-2021-10) (Order Disapproving a Proposed Rule Change, as Modified by Amendment No. 1, To Establish a Retail Midpoint Liquidity Program).

53 See Securities Exchange Act Release No. 96788. (February 1, 2023), 88 FR 8008 (February 7, 2023) (Order Scheduling Filing of Statements on Review); see also Letter from Assistant Secretary J. Matthew DeLesDernier to Anders Franzon, General Counsel, MEMX, dated May 10, 2022, available at https://www.sec.gov/rules/sro/memx/2022/34-94866-letter-from-assistant-secretary051022.pdf.

liquidity at the midpoint. That is, retail investors may receive executions at prices worse than the midpoint when there is resting midpoint liquidity available due to difficulties in finding and accessing such liquidity. The Commission takes this as evidence that retail orders need to be pushed into auctions, where market participants can respond with midpoint liquidity that may otherwise be difficult to locate among the many exchanges and ATSs that cater to this order flow.

MEMX's retail midpoint liquidity program provides a much simpler answer to this problem. Pursuant to that program, the exchange would disseminate a retail liquidity identifier over the SIPs when there is resting midpoint liquidity entered into the program that is willing to trade with incoming marketable retail order flow. This solves the Commission's coordination problem by providing a mechanism to publicly advertise the availability of midpoint liquidity to brokers that handle retail order flow. Although MEMX would put no restrictions on who can put out this advertisement, our proposed priority rules would give precedence to the order that lights up the indicator ahead of fully non-displayed midpoint peg orders that do not contribute to attracting the other side of the trade, similar to the priority generally offered to displayed orders.

The Staff, however, found this priority regime to be unfairly discriminatory. We have written several comment letters explaining why the Staff is wrong on this point and will not rehash all of those arguments in this forum.[54] Instead, we pose two questions for consideration: First, has the Staff's disapproval helped or harmed the market for retail order execution in light of the

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54 See Letter from Adrian Griffiths, Head of Market Structure, MEMX to Vanessa Countryman, Secretary, Commission dated December 5, 2022, *available at* https://www.sec.gov/comments/sr-memx-2021-10/srmemx202110-20152274-320246.pdf; Letter from Adrian Griffiths, Head of Market Structure, MEMX to Vanessa Countryman, Secretary, Commission dated March 3, 2023, *available at* https://www.sec.gov/comments/sr-memx-2021-10/srmemx202110-20158494-326501.pdf.

coordination problem that the Commission itself has highlighted? Second, if it is unfairly discriminatory for MEMX's retail midpoint liquidity program to provide priority to orders that seek to provide liquidity to retail investors ahead of non-displayed continuous book orders, then how is it not unfairly discriminatory for the Order Competition Rule to require that all open competition trading centers operating qualified auctions similarly provide priority to responses that seek to provide liquidity to retail investors ahead of non-displayed continuous book orders?

Further analysis on both of these questions is included in the MEMX comment letters on the program attached in the Appendix. On the second question, we specifically ask that the Commission explain any relevant differences between the priority rules that it has proposed to require of any open competition trading center that offers a qualified auction and MEMX's proposed free-market solution, which was disapproved by the Staff due to similar priority rules.

Under the Administrative Procedure Act ("APA"), the Commission has an obligation to justify why it has chosen to depart from past precedent. Although we believe that the Staff's disapproval is wrong as a matter of law – and should therefore be reversed – if the Commission chooses to uphold this precedent it must explain why the similar provisions of the Order Competition Rule are not also unfairly discriminatory under the Exchange Act. Given the precedent set by the Staff's deeply-flawed decision and the importance of consistent regulatory treatment, we ask that the Commission respond to each of the arguments detailed in the letters attached in the Appendix, which we hereby incorporate by reference into this comment letter.

Ultimately, programs like our proposed retail midpoint liquidity program can provide a mechanism for facilitating both price improvement opportunities for retail investors and the ability for other market participants, including institutional investors, to interact with this order flow. We

therefore urge the Commission to consider how it can use its regulatory authority not only to amend explicit rules that limit competition but also to address flaws in its approach to oversight of the exchange rule filing process that have unfairly limited the ability for venues like MEMX to innovate, even as the Commission proposes similar requirements to those that resulted in Staff disapproval. A vibrant market requires allowing venues of all kinds to compete. The Commission should ensure that MEMX – and indeed all market centers – have the opportunity to do so.

V. THE COMMISSION SHOULD DEFINE "SUCCESS" AND PHASE IN CHANGES IN A MANNER THAT ALLOWS IT TO DETERMINE THE IMPACT THAT EACH CHANGE HAS HAD ON MARKET QUALITY, WITH A PROCESS FOR UNDOING CHANGES THAT DO NOT MEET THE SPECIFIED SUCCESS CRITERIA

The proposals are indisputably the most significant equity market structure rulemakings in almost two decades. As a result, the Commission should proceed cautiously and have a process for evaluating the real-world impact of these regulations. Starting slow and gathering and evaluating data up-front, e.g., following the implementation of our recommended $0.005 increment in tick constrained NMS stocks, would serve to reduce disruption for investors. However, the Commission should also consider how it can use data to confirm the impact of its regulations, with a robust process for undoing changes that do not have the intended effect.

When the Commission adopted Regulation NMS, it went through an extensive multiyear process that included multiple public hearings and roundtables, an advisory committee, an original proposal, and finally a re-proposal, before final rules were issued. Similarly, the Commission sought to test potential changes to its tick size and access fee regimes through the Tick Size Pilot and Transaction Fee Pilot. It is imperative that the Commission implement similar safeguards with respect to the current proposals. MEMX's recommendations, as discussed herein, would reduce

the risk of unintended consequences that necessarily comes with market structure changes of this magnitude. At the same time, the proposals are all interconnected and unleashing this many changes simultaneously into the complex ecosystem that is the U.S. equity market may introduce significant risks that would be difficult to account for ahead of time. We therefore further encourage the Commission to take steps to reduce the potential for adverse investor outcomes.

Such steps should include: (1) defining key success criteria with industry input, including both positive criteria (e.g., improving spreads) and negative criteria (e.g., some limit on how much liquidity can be sacrificed in exchange for spread improvements) so that the Commission and the public can determine whether each of the changes implemented has improved or harmed market quality;[55] and (2) phasing-in each of the proposed changes over time in a manner that allows the Commission to evaluate whether each discrete change has had the desired impact, instead of implementing too many changes simultaneously, which would increase operational risks and limit the ability to draw firm conclusions from any data collected; and (3) including an explicit and automatic "off-ramp" so that changes that do not have the desired impact, i.e., those that fail to meet the defined success criteria, do not become immutable fixtures of the U.S. equity market.[56]

With any rulemaking it is important to understand what success looks like and to be able to assess any real-world impact and adjust course as necessary. Given the extraordinary potential collective impact of the Commission's equity market structure rulemakings, this is even more

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55 The Commission should identify the success criteria under consideration and give the industry an opportunity to comment thereon given the importance of identifying appropriate criteria and varying impacts across market participants and investors.

56 The full results of any assessment performed by the Commission should be made publicly available so that market participants and investors understand and can comment on both the analysis and the potential need for future changes based on that analysis.

critical. As discussed, the Commission should, in the first instance, make every effort to ensure that it is making the best decisions that it can with imperfect information. Beyond this, the Commission should ensure that it has implemented a robust process for evaluating any changes and making any refinements that are necessary to ensure a fair, orderly, and efficient market.

* * *

MEMX appreciates the opportunity to provide comments to the Commission on the proposals. The proposals would undoubtedly have a significant impact on the U.S. equity market. As a result, the Commission should ensure that any final rules that follow from these proposals are appropriately tailored to mitigate potential adverse investor outcomes. In this letter, we have outlined several alternatives that the Commission could employ to achieve its stated policy objectives while preserving competition and innovation. We sincerely hope that the Commission considers these recommendations as it finalizes its equity market structure rulemakings.

Sincerely

/s/ Adrian Griffiths

Adrian Griffiths
Head of Market Structure

APPENDIX
MEMX WHITE PAPERS ON TICK SIZE AND ROUND LOT REFORM

Tick Constrained Securities

Why GE's basis point spread was four times higher before its reverse split

—and what we should do about it

Adrian Griffiths
Head of Market Structure, MEMX

August 2021

Our recent paper on expediting round lot reform, *Why We Should Change Round Lots Now*, illustrated how the standard 100-share round lot creates artificially wide spreads in high-priced "lot constrained" securities, potentially costing investors billions of dollars in transaction costs. Yet a soaring stock price is not the only way that securities prices can negatively impact spreads and cost investors money. Reviewing spreads in low-priced "tick constrained" securities exposes another casualty of our "one-size-fits-all" market structure, where securities with different trading characteristics are shoehorned into a regulatory scheme that does not account for these differences.

There are almost one thousand securities that are consistently traded with a penny spread for virtually the entire trading day. Many of these securities are actively traded by retail and other investors, and in aggregate they make up about half of all volume and a quarter of trades and notional value executed on a daily basis in the U.S. equity markets. We've analyzed the data around how these securities trade today, and they are often subject to artificially wide basis point spreads due to the limitations of Rule 612 of Regulation NMS (the "Sub-Penny Rule"). The time has come to update the rules that govern how these securities trade to eliminate this inefficiency. That's why we're recommending that the U.S. Securities and Exchange Commission ("SEC"):

1. Establish a minimum increment of half of one cent ($0.005) in tick constrained securities that trade with an average quoted spread of 1.1 cents or less[1]; and
2. Reduce the access fee cap pursuant to Rule 610(c) to $0.0015 for tick constrained securities trading with a $0.005 minimum increment.

1 Today, orders are also permitted to be priced at the midpoint of the national best bid and offer ("NBBO"). We recommend that midpoint orders be permitted in an increment of $0.0025 for any tick constrained security that is quoted in a $0.005 increment.

When it adopted Regulation NMS, the SEC acknowledged that an exemption from the requirements of the Sub-Penny Rule pursuant to Rule 612(c) of Regulation NMS might be appropriate if, among other relevant factors, a security "always trades with a penny spread and there is tremendous liquidity available on both sides of the market." Our data clearly shows that a significant segment of the U.S. equity market always trades with a penny spread, and liquidity at the quote in these securities is much higher, ranging from around 5x to 8x higher for tick constrained corporate securities and around 9x to 59x higher for tick constrained exchange traded products ("ETPs"),[2] as market participants are prevented from posting at more aggressive prices. In addition, coupling our recommended tick size changes with a targeted reduction in the access fee cap from $0.0030 to $0.0015 would both prevent potential market distortions that could occur when fees exceed half the minimum increment and reduce industry take fee costs by an estimated ~$879 million per year. MEMX is therefore submitting a request for exemptive relief pursuant to Rule 612(c) requesting that the SEC permit market participants, including exchanges, alternative trading systems, and other trading venues to operate consistent with the above recommendations. Ultimately, we believe that such changes are needed and would facilitate both the needs of investors and the continued health of the U.S. equity markets.

2 Based on comparing notional at the NBBO for tick constrained securities vs. securities trading with a spread of between $0.02 to $0.03 across various liquidity categories.

I. The Tick Size Problem: Why One Size Doesn't Fit All

Rule 612 of Regulation NMS, known as the "Sub-Penny Rule," prohibits market participants from displaying, ranking, or accepting quotations in NMS stocks that are priced in an increment of less than $0.01, unless the price of the quotation is less than $1.00. The Sub-Penny Rule was designed to address the possibility of stepping ahead of displayed limit orders by economically insignificant amounts. While this is a laudable goal, it rests on an implicit assumption that what constitutes an "economically insignificant amount" is the same for all securities priced above $1.00. But is this really a fair assumption? The data suggests no.

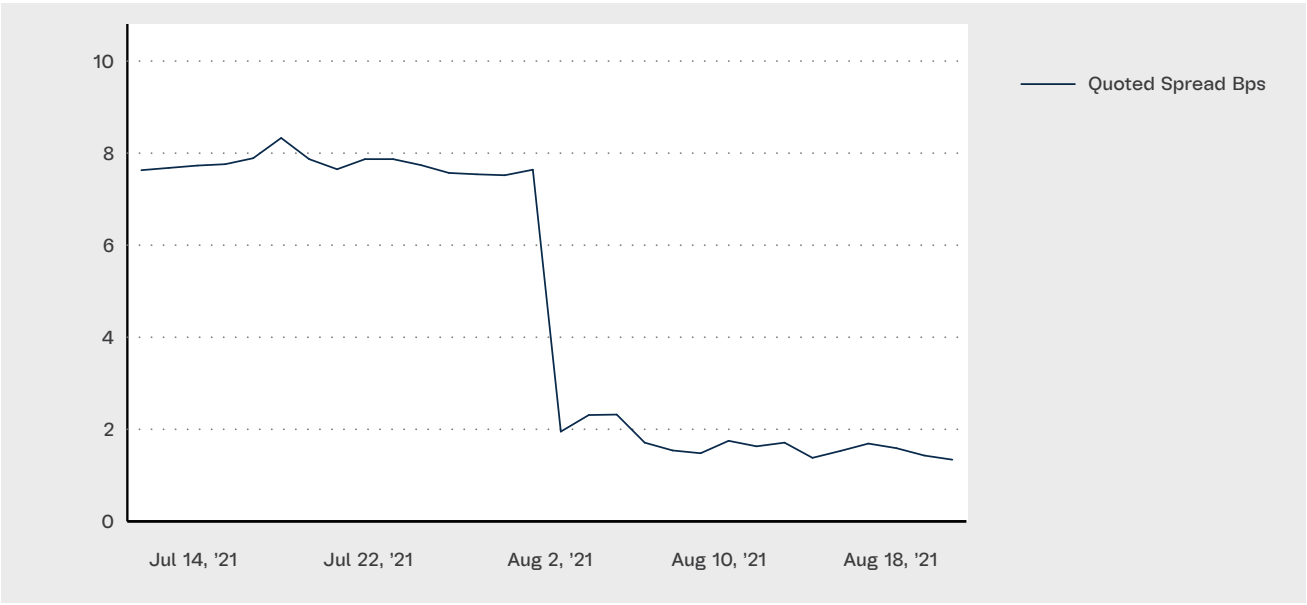
GE recently effectuated a 1-for-8 reverse stock spilt, a rare event for stocks in the S&P 500 Index and a perfect opportunity for us to re-evaluate whether our market structure is facilitating the needs of investors. The reverse stock split reduced the number of GE shares outstanding and consequently increased the price of each share from $12.95 at the close on July 30, 2021 to $104.48 at the open on August 2, 2021. But that's not all that it did. It also dramatically reduced spreads and improved market quality in GE, which like many other, often low-priced, U.S. equity securities, had traded inefficiently under a regulatory structure that applies the same tick size to virtually all symbols regardless of how they trade. And, while the reverse split improved trading in GE, it raises important questions about the costs of our current one-size-fits-all market structure as the tick size constraints that hindered trading in GE persist in many other U.S. equity securities.

The U.S. equity market is composed of thousands of equity securities with different trading characteristics that are nonetheless subject to the same regulatory structure. Good regulation should not be overly complex, but at the same time it needs to account properly for differences in the products and services being regulated. The SEC clearly recognized this when it chose to include round lot reform in its recent rulemaking on market data infrastructure, and that's exactly the approach that we need to address the current tick size problem. The data on spreads is clear. Both high- and low-priced securities are subject to wider spreads due to

outdated rules that govern how these securities trade. Providing market participants with relief from the requirements of the Sub-Penny Rule to allow a minimum increment of half a cent for "tick constrained" securities that almost always trade with a penny spread could reduce quoted spreads and improve trading outcomes for investors across a number of actively traded U.S. equity securities. And, as we discuss later, such a change should also be coupled with a targeted change to the access fee cap pursuant to Rule 610(c) of Regulation NMS, further reducing costs in these securities.

What's the relationship between low security prices and quoted spreads? The answer is simple math. A one cent spread represents a larger proportion of the cost of a share traded in a low-priced security, but due to the Sub-Penny Rule exchanges cannot offer finer pricing increments and liquidity providers cannot compete spreads down further even when that may be the optimal economic outcome. Let's look again at the example of GE. GE is a liquid, blue-chip stock that trades in the region of $1 billion notional each day. As shown in Chart A below, the average quoted spread in GE on July 30, 2021, immediately prior to its reverse stock split, was 7.64 bps, significantly higher than other similarly liquid stocks. On August 2, 2021, after the reverse stock split was effectuated, quoted spreads in GE fell to 1.95 bps. Why was the quoted spread in GE four times higher immediately before its reverse split? In short, it's the tick size. Before its reverse split, GE traded with a one cent spread, the minimum possible under the current tick regime, virtually all day. However, since GE traded around $12.95 at that time, that one cent minimum increment translated to a 7.64 bps spread. Quoting in GE was therefore artificially "constrained" by the tick size before the reverse stock split increased the price of the security.

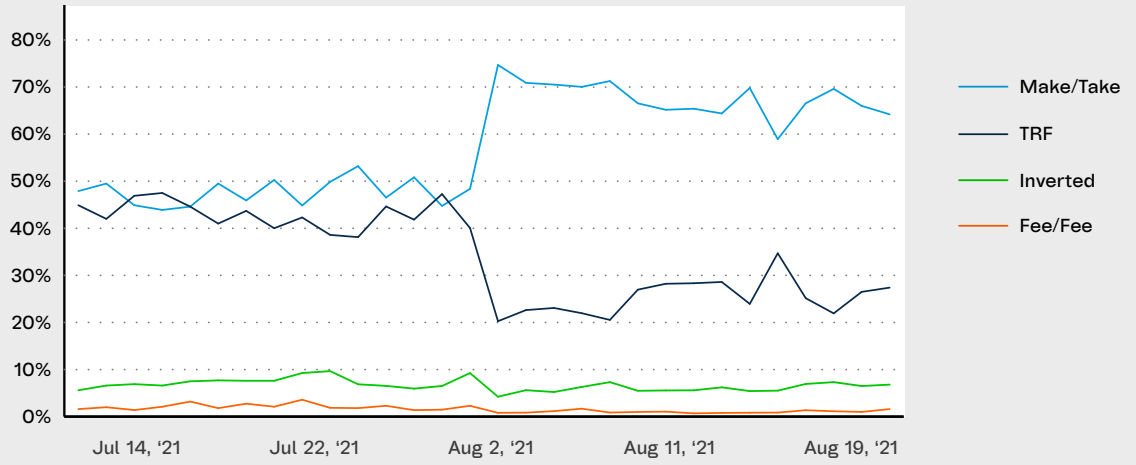
Chart A: Average Quoted Spread in Basis Points in GE



This has a real impact on transaction costs for investors. When investors trade, the spread is an important transaction cost that they must pay to enter into or close out a position. On July 30, 2021, GE traded with an average trade size of 454 shares, equivalent to a notional value of $5,879. With a quoted spread of 7.64 bps, it would have cost an investor that bought on the offer and sold at the bid about $4.49 in spread to enter and exit a position of this size. The very next trading day, with the quoted spread tightening to 1.95, it would instead cost $1.45 to trade an equivalent amount of GE stock. An investor looking to invest in GE would therefore have paid almost four times as much to invest a set dollar amount in GE before its reverse split. This has nothing to do with the company's financials or market conditions and everything to do with tick size restrictions that do not account for a stock's trading characteristics in determining the minimum increment.

It may also be a factor in other broader market structure trends, particularly around where securities trade. As shown in Chart B below, GE's reverse stock split appears to have contributed to a dramatic shift of volume from the TRF to exchange venues, suggesting that tick constraints resulting from the Sub-Penny Rule may also have a significant impact on venue competition.

Chart B: Market Share by Venue Type in GE



And similar inefficiencies continue to be seen across a wide swath of U.S. equity securities that do not trade well under the current one-size-fits-all tick size regime. Chart C below shows how the tick size requirements imposed by the Sub-Penny Rule translate to artificially wide spreads in a number of other U.S. equity securities, particularly in low-priced securities where the current penny increment is more meaningful in relation to the price of the security.

Chart C: Price and Quoted Spreads Bps by Symbol (8/3/2021)

II. Déjà vu Strikes Sixteen Years After the Adoption of Regulation NMS

Interestingly, the SEC seems to have anticipated the possibility that the Sub-Penny Rule could create these kinds of inefficiencies. The Regulation NMS adopting release discusses a comment contending that the tick size may be too wide if a security "always trades with a penny spread and there is tremendous liquidity available on both sides of the market." In response, the SEC stated that this would be a "reasonable consideration" in determining whether to grant an exemption to the Sub-Penny Rule and went on to list several other relevant factors, including: (1) "[w]hether the NMS stock is an ETF or other derivative that can readily be converted into its underlying securities or vice versa, in which case the true value of the security as derived from its underlying components might be at a sub-penny increment;" (2) "[l]arge volume of sub-penny executions in that security due to price improvement;" and (3) "[l]ow price of the security." We've reviewed the data on tick constraints and many of these factors are at play today.[3]

Tick Constraints are Particularly Problematic in Low-Priced Securities & ETPs

A significant portion of the U.S. equity market trades with a consistent penny spread throughout most of the trading day. In fact, during the Q1 – Q2 2021 period that we studied for this tick size analysis, almost one thousand securities trading at or above $1 were "tick constrained," which we define as trading with an average quoted spread of 1.1 cents or less.[4] Unsurprisingly, these include a number of actively traded securities, with tick constrained securities as a group accounting for 47% of volume, 28% of trades, and 25% of notional value executed. Quoted spreads in these securities are limited not by supply and demand, but rather by outdated regulatory constraints that apply the same tick size regime to securities

3 We do not analyze the volume of sub-penny executions as trades in sub-penny increments are likely to be indicative of retail internalization as opposed to market participants seeking to trade within a tick constrained spread.

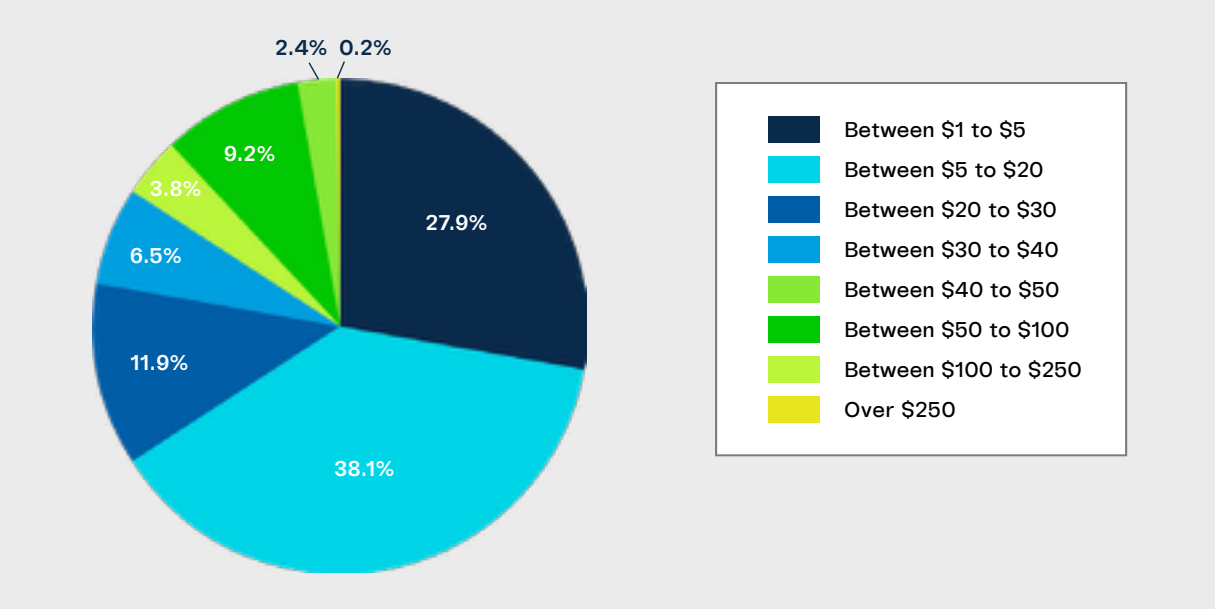
4 There were an average of 998 tick constrained securities during this period.

with different trading characteristics. And as we've seen in the GE example, the unfortunate result is wider spreads and increased transaction costs for investors. It is difficult to estimate the exact cost of tick constraints as some tick constrained securities would naturally trade with a penny spread even if a smaller tick size was permitted. However, given the amount of trading that takes place in these securities, the total cost to investors is likely to be sizeable. But where do tick constraints pose the largest burden to the market? Our analysis shows that the considerations listed by the SEC were prescient as low-priced securities and exchange traded products ("ETPs") are more likely to suffer from tick constraints.

Tick Constraints by Stock Price

First, let's take a quick look at the distribution of tick constrained securities across different price buckets. Our analysis shows that tick constraints are a big problem in low-priced securities where the one cent minimum increment is more "economically significant" relative to the price of a share of stock. In fact, as shown in Chart D, two-thirds (66%) of all tick constrained securities trade in the two lowest price buckets we examined, which include NMS stocks that trade between $1 and $20 per share. As we saw in the GE example, a one cent spread becomes more significant the lower the price of the security. Thus, low-priced securities are more likely to be tick constrained, and the impact of that tick constraint in terms

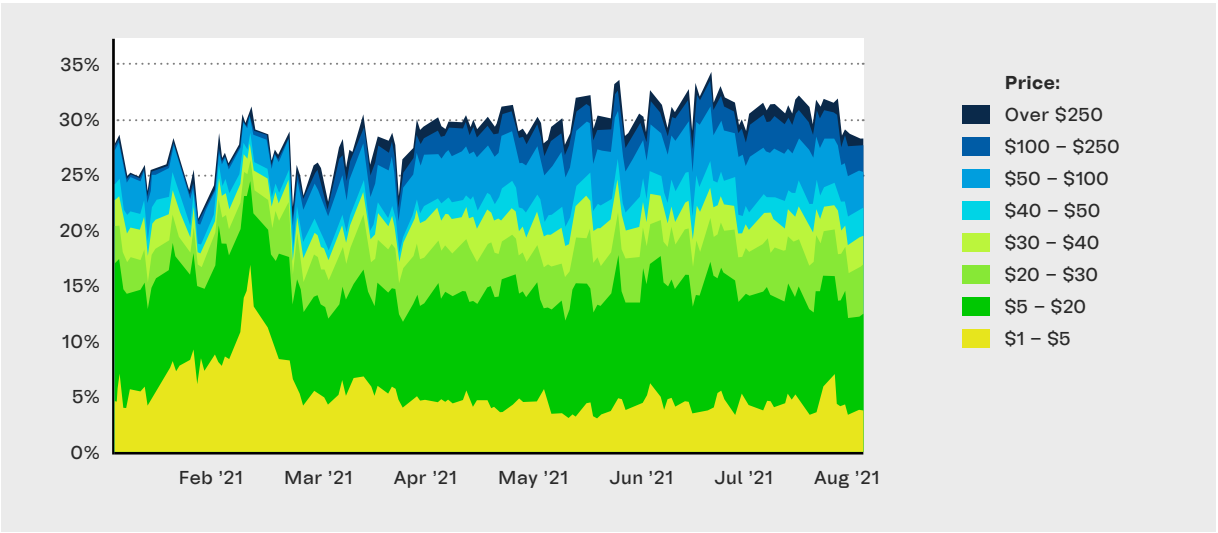
Chart D: Percent of Tick Constrained NMS Stocks



of the basis point spread, which is relevant when measuring the cost of entering into a transaction, is also largest in these securities.[5]

That said, there are tick constrained securities across the price spectrum, including notable examples of high-priced, actively-traded, securities that are also tick constrained, particularly in the case of liquid ETPs, many of which are tick constrained even at much higher prices.[6] In fact, if we look at trading activity in tick constrained securities as a proportion of the overall U.S. equity market, we see that tick constrained securities in the two lowest price buckets account for roughly half of trades and volume (see Charts E and F below). However, on a notional basis a larger proportion of trading actually occurs in tick constrained securities in the higher price buckets (see Chart G below). Thus, while there is a need to address tick constraints in low-priced securities, both due to the number of securities impacted and the larger impact of those tick constraints on spreads,[7] it's important that any regulatory solution to this problem address the full range of NMS stocks, including more actively-traded, high-priced securities that are also tick constrained.

Chart E: Percent of Trades



5 See Chart C *supra*. As shown in Chart C, quoted spreads for tick constrained NMS stocks increase as price decreases since the spread (bps) is a function of the one cent minimum increment divided by the price of the security.

6 The following section shows that daily notional traded and the type of underlying are good predictors of whether an ETP is likely to be tick constrained.

7 Id.

Chart F: Percent of Volume

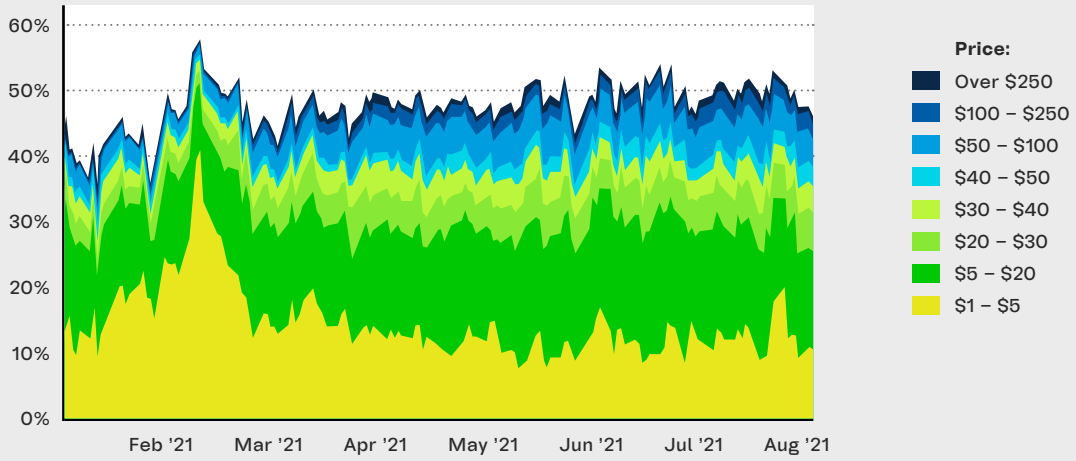
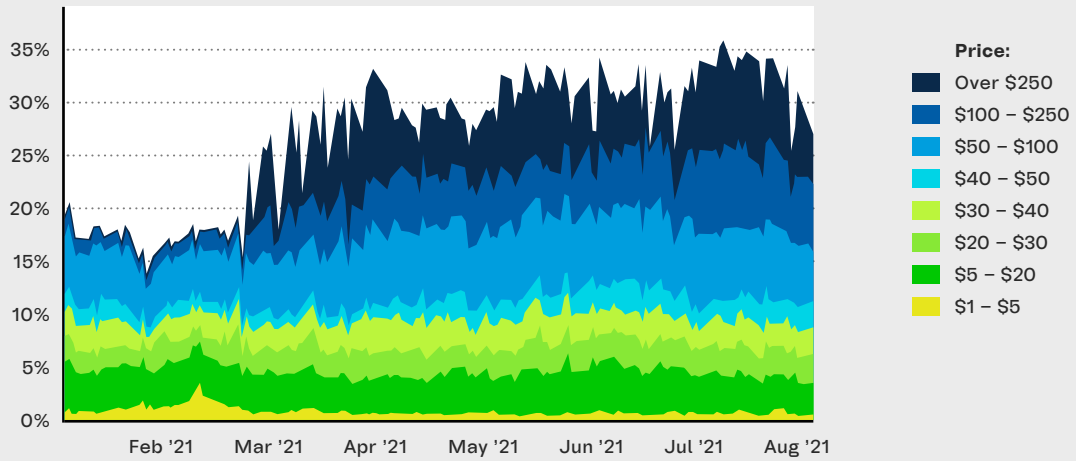


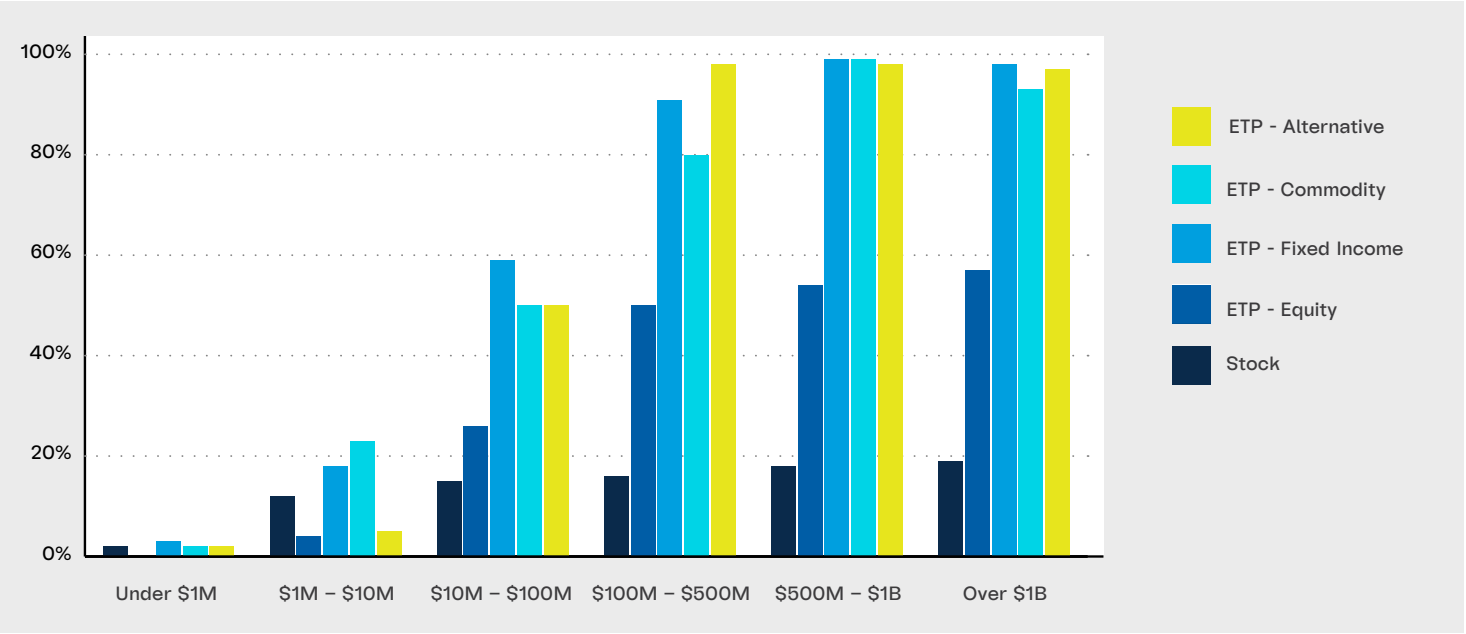
Chart G: Percent of Dollar Volume



Tick Constraints: Corporate Securities vs. ETPs

Second, let's briefly review the prevalence of tick constraints across corporate securities and ETPs. Although tick constraints impact a relatively smaller proportion of both corporate securities and ETPs that are less liquid,[8] when looking at liquid securities trading at least 100 million notional each day, we see a substantially higher percentage of tick constrained ETPs. In fact, as shown in Chart H below, among this group of more liquid U.S. equity securities, more than half of equity ETPs and the vast majority of fixed income, commodity, and other ETPs are tick constrained. By contrast, corporate securities are much less likely to be subject to tick constraints regardless of liquidity, with less than 20% of even the most liquid corporate securities trading over $1 billion in notional daily being subject to tick constraints. This means that actively traded ETPs often suffer from tick constraints that keep spreads artificially wide despite the fact that ETPs can be priced more efficiently due to the ability to accurately derive ETP prices and an effective arbitrage mechanism that keeps ETP prices in line with those of its underlying securities.

Chart H: Percent Tick Constrained by Daily Notional Traded

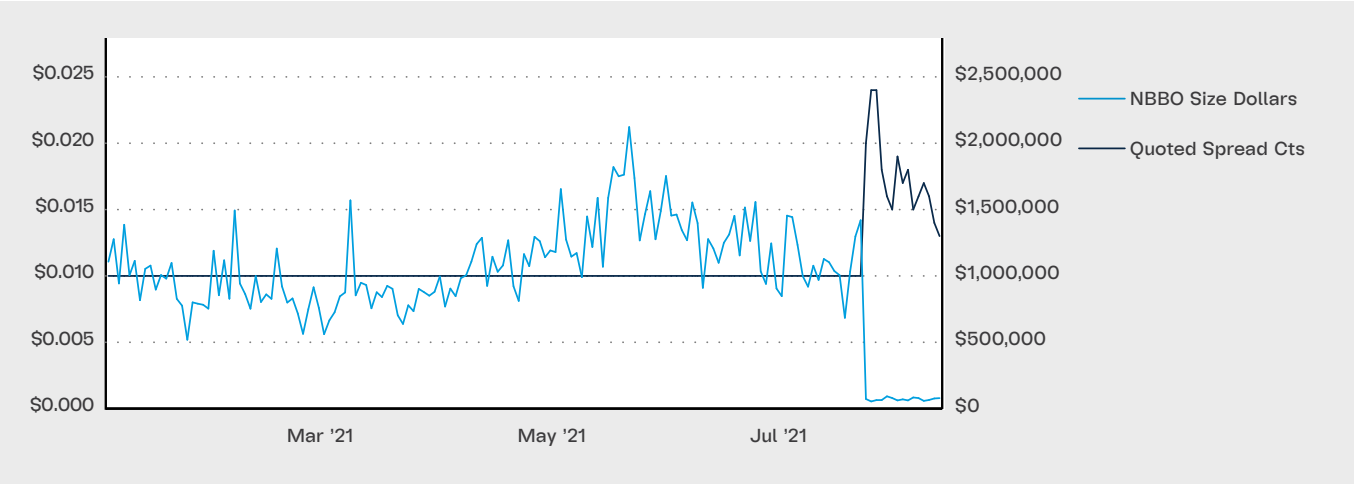


8 Spreads are generally wider in less liquid securities and therefore such securities are less likely to be tick constrained compared to more actively traded securities.

The NBBO is "Crowded" in Tick Constrained Securities

Our analysis also shows that tick constrained securities generally have outsized interest at the NBBO as available liquidity that may naturally want to trade at finer increments is instead forced to cluster at the single price point permitted by regulation. Let's look once again at the example of GE. On July 30, 2021, the last day of trading before its reverse stock split was effectuated, GE traded with $1,422,156 notional available at the NBBO, which ranks it above nine of the ten most actively traded symbols that day by notional value executed despite the fact that GE traded only a fraction of the trading activity seen in those much more active names.[9] This is a tremendous amount of notional at the NBBO and reflects trading interest that is effectively pushed back to the only prices available under the Sub-Penny Rule instead of being spread across multiple better prices as would ordinarily take place if the tick size was optimized for the price of the security. That's why, as shown in Chart I below, notional at the NBBO in GE fell to a much more normal $75,048 on August 2, 2021 after tick constraints were removed due to the reverse split.

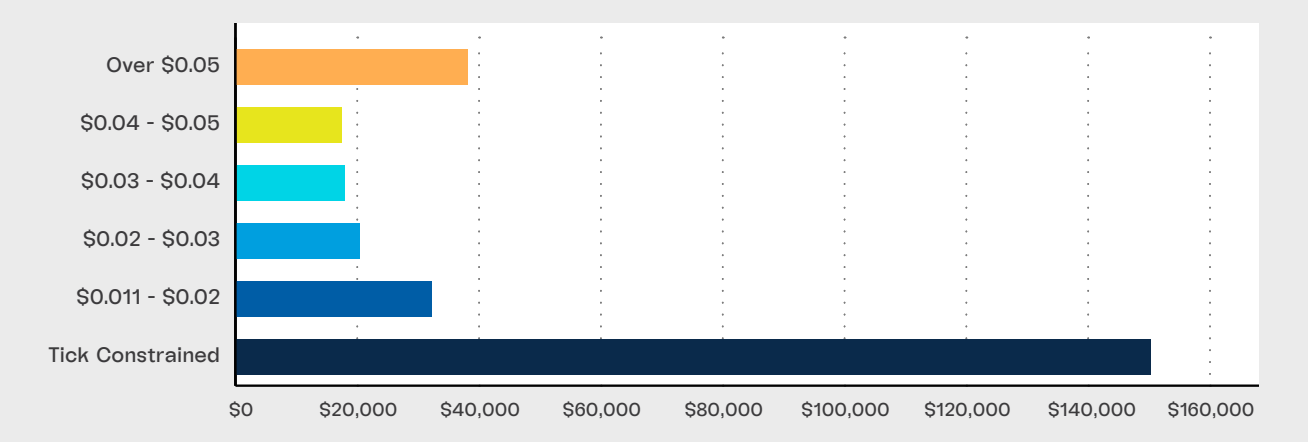
Chart I: Quoted Spread and NBBO Dollar Size in GE



9 QQQ was the only top ten name with more notional available at the NBBO ($1,450,989) and this number is itself likely inflated due to the impact of round lot constraints. The notional available at the NBBO in GE dwarfs many of the other top ten names, particularly those that do not themselves suffer from either lot or tick constraints. For example, AMD, which was the most actively traded security that is not subject to either lot or tick constraints traded with a much smaller $159,604 notional at the NBBO.

This trend is also seen in other tick constrained securities, even when accounting for other relevant factors. Notional at the NBBO is correlated with a handful of security characteristics, such as daily notional traded, as more actively traded securities are often quoted with greater notional at the NBBO, or price, as higher notional values are required to set the NBBO in high-priced securities given today's standard 100-share round lot. To get a sense of whether there is liquidity in tick constrained securities that may otherwise trade at finer increments, we examined the relationship between spreads and notional at the NBBO for both corporate securities and ETPs. If tick constraints are causing liquidity to converge at the limited price points allowed by the Sub-Penny Rule, then we would expect to see more liquidity at the NBBO in those securities, since the size available at that price would reflect trading interest that would otherwise be spread around multiple price levels.[10] This is consistent with what we see in our data. Chart J below shows that quoted spreads have a relatively small correlation with size at the NBBO in corporate securities, with one important and very noticeable exception—*i.e.*, tick constrained securities. Despite the relatively consistent results we found for notional at the NBBO for corporate securities within different ranges of quoted spreads, tick constrained securities had outsized notional at the NBBO, on the order of several times the notional we found for all other spread ranges.

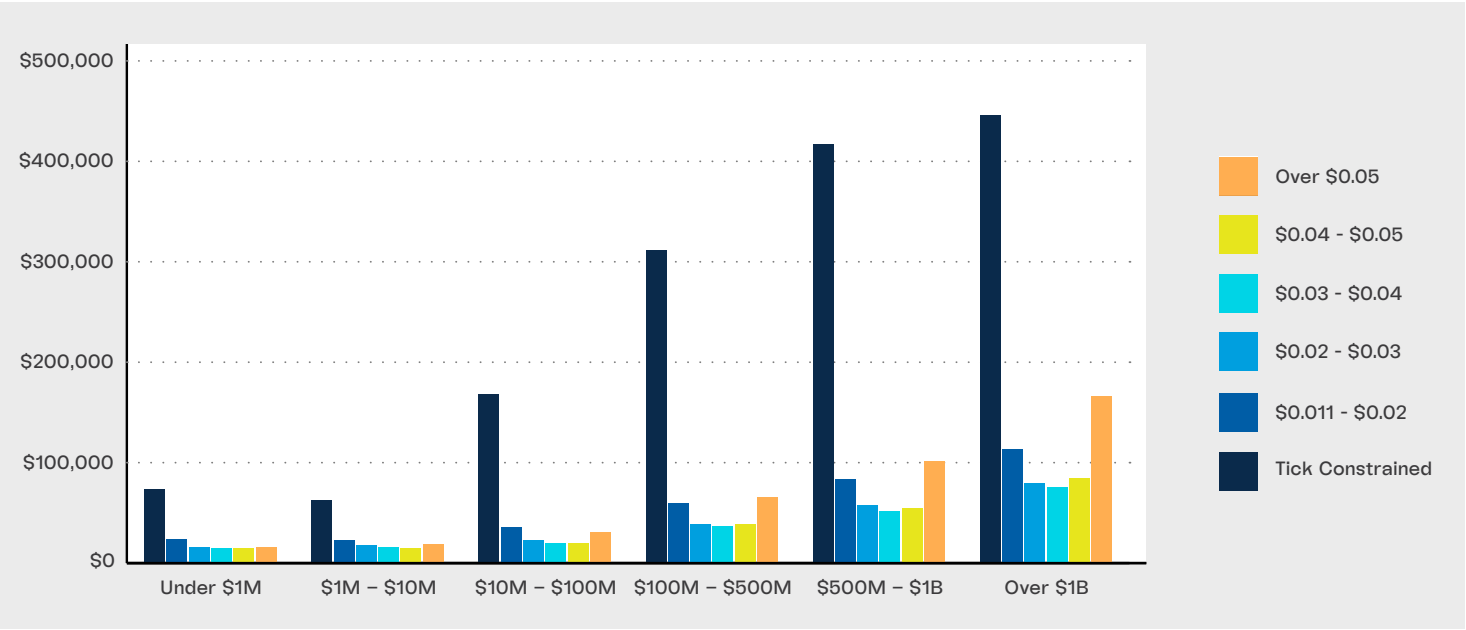
Chart J: Average Notional at the NBBO (Corporate Securities)



10 Similar results were seen with the Tick Size Pilot, which was found to have caused a "clustering of more displayed trading interest at the fewer available price points" as wider minimum increments increased spreads and pushed liquidity to less aggressive prices. See Assessment of the Plan to Implement a Tick Size Pilot Program, *available at* https:// www.sec.gov/files/TICK%20PILOT%20ASSESSMENT%20FINAL%20Aug%202.pdf.

And these results hold across liquidity categories, with tick constrained corporate securities showing a consistently higher notional at the NBBO regardless of notional value traded. As illustrated in Chart K below, more active corporate securities generally trade with greater notional at the NBBO due to increased trading interest looking to participate in the market. However, even with increased interest across the board in those securities, tick constrained corporate securities consistently trade with more notional at the NBBO than securities that are not tick constrained. In fact, all but the most illiquid groupings of tick constrained corporate securities that traded less than $10 million notional daily had more size at the NBBO than even the most liquid grouping of corporate securities that are not tick constrained, despite the difference in overall trading activity. This strongly suggests that the greater notional at the NBBO in tick constrained corporate securities is due to liquidity that is forced to consolidate at the minimum allowed increment.

Chart K: Average Notional at the NBBO by Daily Notional Traded (non-ETP)



We also see similar trends when we examine quoting activity in ETPs. As shown in Chart L below, ETPs trade with more notional at the NBBO than corporate securities.[11] However, like corporate securities, ETPs also tend

11 Notional at the NBBO for ETPs also varies depending on the type of underlying, with fixed income ETPs in particular showing the largest size at the NBBO.

to have relatively stable notional at the NBBO, with a very significant jump in notional at the NBBO for tick constrained ETPs. And, as shown in Chart M, these results similarly hold across liquidity categories, with even the most illiquid grouping of tick constrained ETPs trading with more liquidity at the NBBO than the most liquid non-tick constrained products.[12] Once again, higher notional at the NBBO for tick constrained ETPs seems to indicate that liquidity may be consolidating at the single price point permitted by regulation.

Chart L: Average Notional at the NBBO (ETP)

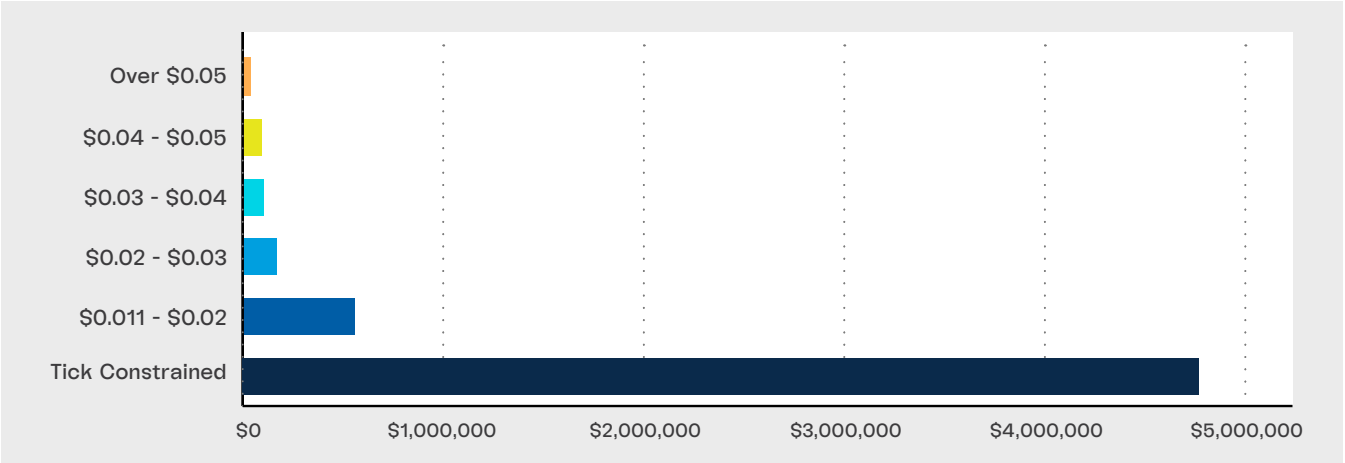
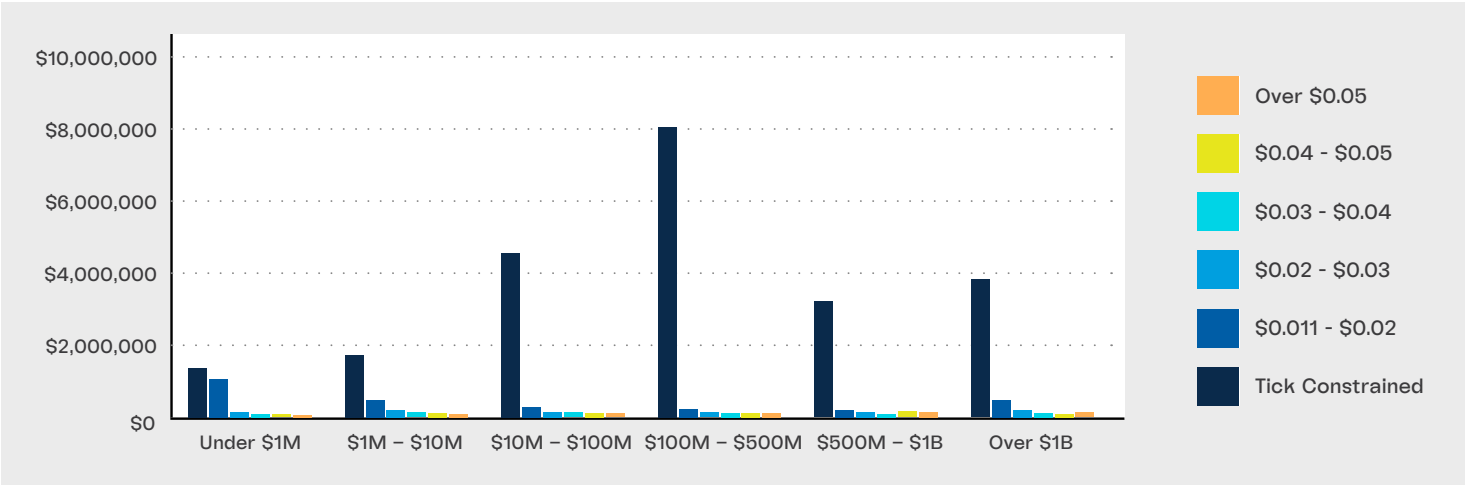


Chart M: Average Notional at the NBBO by Daily Notional (ETP)

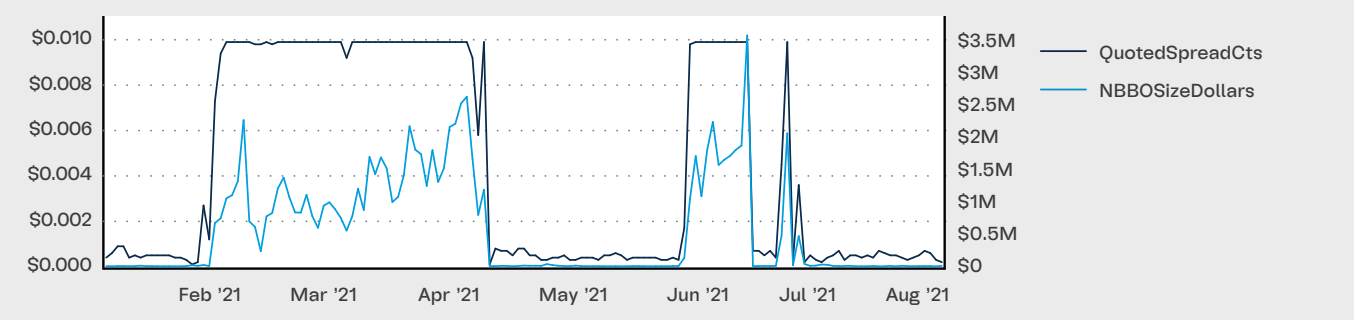


12 Size at the NBBO peaks for ETPs at $100 million to $500 million daily notional traded. This is likely due to the impact of fixed income ETPs in this category, which account for many of the securities with the highest observed notional at the NBBO.

III. Popular Meme Stock Exposes Cracks in Our Market Structure

Our observations are further confirmed by looking at the way that securities trade when their prices fluctuate around $1.00 per share. As discussed, the Sub-Penny Rule establishes a minimum increment of $0.01 for securities trading at or above $1.00. However, securities that trade below $1.00 ("subdollar securities") are allowed to trade with a minimum increment of $0.0001 as this amount is considered to be "economically significant" for securities trading below $1.00, but somewhat confusingly not for securities priced at or just above this price. Similar to our observations in GE, if the higher spreads and notional at the NBBO in tick constrained securities are due to tick constraints, then we'd expect to those numbers to be higher when a security is tick constrained and lower when it is not. This is consistent with our observations looking at securities that trade near the threshold for subdollar securities. Consider the "meme stock" SNDL. SNDL often trades at a price around $1.00 per share. On June 24, 2021, SNDL closed at a price of $1.00. On that day, it had a quoted spread of $0.0099 (99 bps) and traded with about $2,055,523 (2,055,523 shares) at the NBBO. What happened the next day when SNDL closed at $0.97? On June 25, 2021, SNDL was permitted to trade in four decimal places and its quoted spread and notional at the NBBO collapsed to $0.0003 (3.1 bps) and $21,425 (22,088 shares) respectively. Chart N below illustrates how the size at the NBBO in SNDL changes as it moves in and out of the tick constrained bucket due to its price crossing below the $1 threshold where four decimal places are permitted pursuant to the Sub-Penny Rule and then back over again. As clearly shown, size at the NBBO drops precipitously whenever quoting is permitted in a smaller increment.

Chart N: Quoted Spread and NBBO Dollar Size in SNDL



IV. MEMX's Recommendation for Tick Size Reform

The SEC's stated concerns about "stepping ahead" that animated the Sub-Penny Rule simply do not apply to tick constrained securities where the tick size and not market forces currently dictates the spread and market participants that are willing to provide more competitive prices are unable to do so. But how do we go about actually solving the tick size problem? Allowing half penny ticks in securities that are currently tick constrained is a good place to start.[13] Similar to the way the SEC chose to implement round lot reform in the infrastructure rule, it could implement a process whereby securities are evaluated on a monthly basis to determine the applicable tick size, assigning a half cent tick to any securities that traded with an average quoted spread of 1.1 cents or less during the previous calendar month. This would ensure that securities can move in and out of the reduced tick size buckets on a regular basis, while avoiding more frequent changes that could cause workflow issues for market participants and investors.

Rule 612(c) already gives the SEC authority to grant exemptions from the requirements of the Sub-Penny Rule if doing so is the public interest and consistent with the protection of investors. When the SEC adopted the Sub-Penny Rule back in 2005, it acknowledged the possibility that the "balance of costs and benefits" that animated this regulation "could shift in a limited number of cases or as the markets continues to evolve." The data now shows that the balance of costs and benefits has indeed shifted as it relates to tick constrained securities. Granting an exemption that allows half penny increments in tick constrained symbols would facilitate a fair, orderly, and efficient market in U.S. equity securities that are of significant interest to retail and other investors, and that currently suffer from artificially wide spreads. There's a growing consensus within

13 As previously mentioned, MEMX believes that midpoint orders should continue to be permitted at half of the minimum increment, i.e., $0.0025 for tick constrained securities that are permitted to be quoted with a $0.005 minimum increment.

the industry that we should do something about tick sizes and that consensus is backed by our data. Perhaps the time is now ripe for the SEC to consider changes to its tick size regime.

Any reduction to tick sizes in tick constrained securities should also be coupled with a similar reduction to the access fee cap pursuant to Rule 610(c) of Regulation NMS. Today, Rule 610(c) establishes a uniform access fee cap of $0.0030 for securities priced above $1.00, which works to curtail excessive fees for accessing displayed quotations including those that are protected under Rule 611 (the "Order Protection Rule"). However, a lower access fee cap may be necessary if the SEC permits trading in smaller tick sizes as any fee charged for accessing displayed liquidity would make up a commensurately larger proportion of the spread in those securities. MEMX therefore recommends that the SEC limit access fees to $0.0015 for tick constrained securities trading with a half penny minimum increment as a condition of any exemptive relief granted pursuant to Rule 612(c). This would serve dual purposes of: (1) preventing market distortions that may occur in situations where access fees are allowed to exceed half of the minimum trading increment—*i.e.*, by limiting situations where an exchange quoting at the best price may not actually provide the best "all-in" economics when accounting for both fees paid and rebates provided by different venues;[14] and (2) further reducing transaction costs for investors in securities that are likely to be quoted efficiently without additional economic incentives for adding liquidity.[15]

14 Although the access fee cap pursuant to Rule 610(c) does not explicitly limit rebates provided by trading centers, it imposes a practical limitation on rebates as the amount that can be recouped by the trading center is limited by the access fee that it can charge.

15 Based on our estimate of average take fees charged by different exchanges, potential savings may be as much as $879 million annually if each exchange with a take fee of more than $0.0015 were to reduce the take fee to this level in tick constrained securities.

MEMX's Recommendation for Tick Size Reform (continued)

Chair Gensler has indicated a willingness to "freshen up" the SEC's rules to better account for current trading realities. Getting tick sizes right will make trading more efficient in a large number of actively traded securities that currently trade with artificially wide spreads. Along with round lot reform, tick size reform has the opportunity to greatly decrease trading costs for investors and facilitate fair and orderly markets. Granting a targeted exemption from the Sub-Penny Rule pursuant to Rule 612(c) is a practical solution that the SEC itself suggested may be an appropriate means of addressing tick size concerns. And the factors that the SEC indicated may be relevant to its analysis certainly weigh in favor of granting such relief. That's why we're advocating for tick size reform as the SEC undertakes its upcoming review of equities market structure. We look forward to working with both the SEC and the industry on this important issue.

Tick Constrained Securities

The Tick Size Debate, Revisited

Adrian Griffiths
Head of Market Structure, MEMX

January 2022

New data supports our tick reform recommendations

Back in August 2021, MEMX submitted a request for exemptive relief to the Securities and Exchange Commission ("SEC") requesting that the SEC permit "tick constrained" NMS stocks that trade with an average quoted spread of 1.1 cents or less to be quoted in a half penny increment ($0.005), along with a commensurate 50% reduction in the access fee cap ($0.0015) for any securities trading in that smaller increment. Attached to the request was a white paper illustrating the potential benefits of tick reform, which include improved quote quality, lower trading costs, and greater venue competition. Now that we've entered a new year, and consistent with our dedication to data-driven market structure reform, we thought it made sense to quickly revisit the data on tick constrained NMS stocks to see how our recommendations have held up.

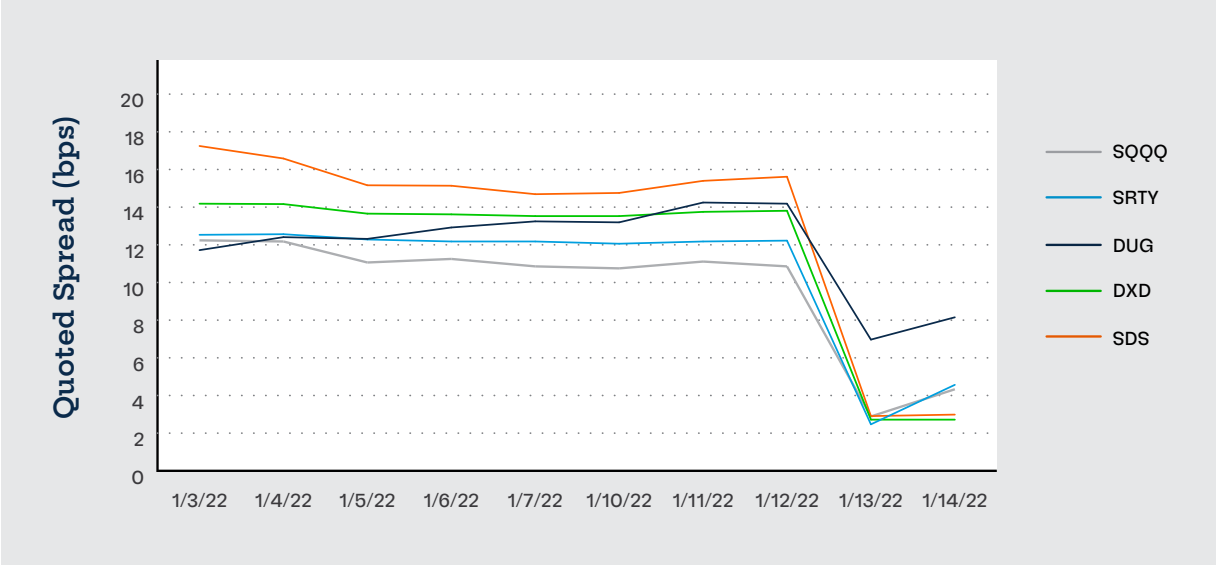
A recent set of reverse splits on certain low-priced ProShares exchange traded products ("ETPs") gives us just this opportunity.[1] As you may recall from our white paper, tick constraints are particularly prevalent among two categories of NMS stocks: 1) low-priced securities where a one cent minimum increment is more "economically significant" relative to the value of the security, and 2) ETPs, which are often able to be priced more efficiently by market participants. Many of the ProShares ETPs fell into both of these buckets and were unsurprisingly subject to tick constraints. At the same time, not all of the reverse splits were carried out in tick constrained products, allowing us to compare the impact of increased pricing granularity on those two groups, i.e., securities that were tick constrained before the reverse split, and those that were not.

Similar to the GE reverse split that we examined in our white paper, we would anticipate significant spread reduction in tick constrained products. The data shows that this intuition is correct. As we've discussed before, tick constraints are both more prevalent and more impactful at lower prices where a one cent spread is more meaningful in relation to the

1 See ProShares Announces ETF Share Splits dated December 22, 2021 available at https://www.proshares.com/press-releases/proshares-announces-etf-share-splits-122021.

price of the security. The tick constrained ETPs included in this sample all traded with significantly lower spreads post reverse split, when the impact of tick constraints was either eliminated or reduced at the new, higher, share price.[2] A similar result can be achieved by amending the tick regime to simply allow more granular prices, without the need to change the price of the security in question.

Chart I: Quoted Spread in Basis Points in Tick Constrained ProShares ETPs Before and After 1/13/22 Reverse Split[3]

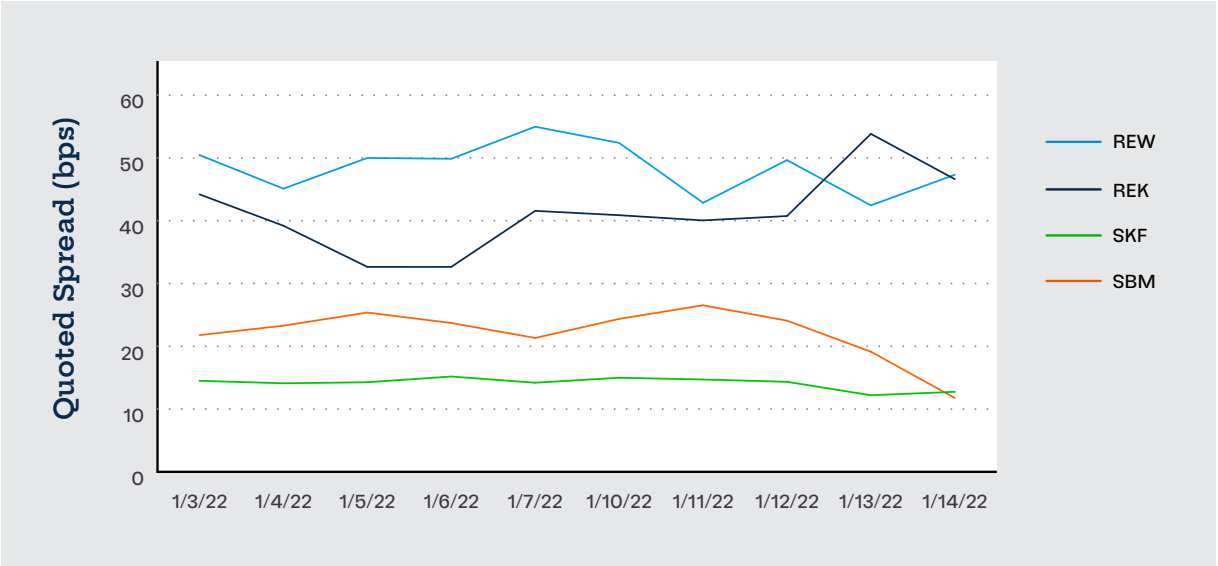


The same is not true for securities that are not limited by tick constraints. We do not expect those securities to benefit from a reduction in spread when the price increases. That's because the one cent minimum increment is already granular enough to allow for market participants to compete down spreads to their natural, i.e., unconstrained, level. That is, securities that are not subject to tick constraints are already quoted at competitive prices set by the market, and increasing pricing granularity should therefore not have a significant impact on market quality. The data we examined following the ProShares reverse splits also aligns with this intuition, showing no specific trend in spread measures for those ETPs that were not tick constrained prior to their reverse split.

2 Some ETPs remained tick constrained after the reverse split. However, increased pricing granularity reduced spreads across all ETPs that were tick constrained prior to the split.

3 Reverse splits effective prior to market open on January 13, 2022.

Chart II: Quoted Spread in Basis Points in Non-Constrained ProShares ETPs Before and After 1/13/22 Reverse Split

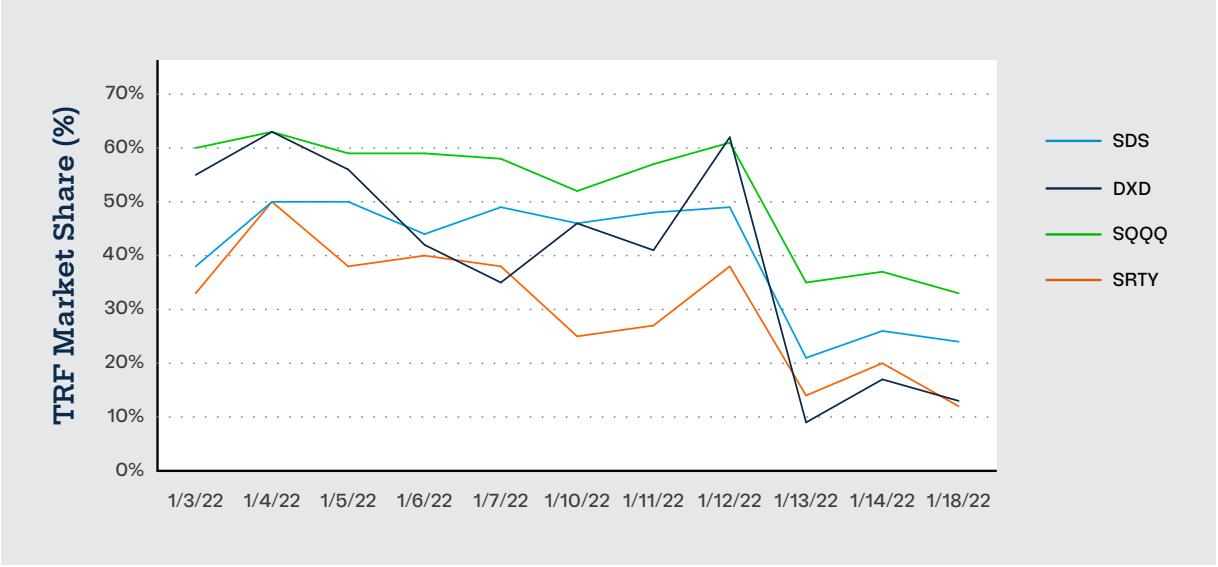


What about venue competition? When we examined the GE reverse split, we noticed that off-exchange volume reported to the trade reporting facilities ("TRFs") after the reverse split was roughly half of what it was beforehand. Although we have been careful not to draw any strong conclusions from a single data point, it makes sense that tick size reform could make exchanges, which are bound by the quoting increment, more competitive. This is an important observation, as one question that has been raised by the SEC in its review of U.S. equity market structure has to do with the appropriate balance between exchange and off-exchange trading. While we believe in a healthy balance between trading done on and off-exchange, regulators should think carefully about how to best achieve that balance. If there are ways to enhance competition by improving the quality of public quotes, either through tick size reform or other measures, such as round lot reform, those measures should be prioritized over regulatory changes that may unduly burden trading on off-exchange venues that provide significant value to the overall U.S. equity ecosystem.

Turning back to the data, would tick size reform enhance venue competition? The data continues to suggest that it would. To get a sense of the impact of tick constraints on venue competition, we examined TRF market share in the tick constrained ProShares ETPs before and after the reverse split. We focused on products that traded at least 100,000

shares during each day of the review period, as very illiquid securities may exhibit much less stable levels of off-exchange trading.[4] Of these securities, all showed a significant shift in market share to public exchanges immediately following the reverse split. While we'd like to continue to explore the question of venue competition with a more robust dataset,[5] the data that we do have suggests that tick reform may be a viable way to address the SEC's concerns. And, importantly, tick reform could enhance competition by exchanges without placing unnecessary new restrictions on other trading venues, and while also benefiting investors through critical improvements in overall market quality.

Chart III: TRF Market Share (%) in Tick Constrained ProShares ETPs Before and After 1/13/2022 Reverse Split



4 A small number of trades can change the daily metrics in very illiquid names. One symbol (DUG) was removed from this analysis based on our volume threshold.

5 The non-constrained products had a wider range of off-exchange trading activity and were excluded from our analysis based on the minimum volume threshold.

So, what does this all mean? While issuers can make pricing in their securities more or less granular through reverse or forward splits, it's not practical for the SEC and the industry to rely on them to do so. In fact, the data that we shared in our original August 2021 white paper shows that approximately half of all U.S. equity volume is transacted in tick constrained NMS stocks in which greater pricing granularity could significantly improve market quality measures and reduce implicit trading costs. The SEC spent much of 2021 discussing possible ways to improve the investor experience in the U.S. equity market. As they proceed through the rulemaking process on various market structure proposals, we hope that tick reform makes the cut. The data shows that this commonsense solution could improve both market quality and competition in securities that are of interest to retail and other investors. That's exactly the kind of reform that the U.S. equity market needs.

Appendix: ProShares Reverse Splits (1/13/2022)

Ticker	ProShares ETF	Split Ratio	Tick Constrained Before Reverse Split	% Spread Change Post Reverse Split
DUG	ProShares UltraShort Oil & Gas	1:5	Yes	-42%
DXD	ProShares UltraShort Dow30	1:5	Yes	-71%
SDS	ProShares UltraShort S&P500	1:5	Yes	-80%
SQQQ	ProShares UltraPro Short QQQ	1:5	Yes	-81%
SRTY	ProShares UltraPro Short Russell2000	1:5	Yes	-68%
			Avg % Spread Change	**-69%**

Ticker	ProShares ETF	Split Ratio	Tick Constrained Before Reverse Split	% Spread Change Post Reverse Split
REK	ProShares Short Real Estate	1:2	No	29%
REW	ProShares UltraShort Technology	1:2	No	-9%
SKF	ProShares UltraShort Financials	1:2	No	-14%
SBM	ProShares Short Basic Materials	1:2	No	-35%
			Avg % Spread Change	**-7%**

Round Lot Implementation

Why we should change round lots now

Adrian Griffiths
Head of Market Structure, MEMX

June 2021

The SEC's "infrastructure rule" was published in the Federal Register on April 7, 2021, starting the clock for its eventual implementation. MEMX supports this critical effort to reform the manner in which U.S. equities market data is disseminated to investors. However, there is a long road ahead before the infrastructure rule's amendments to Regulation NMS will be implemented. In the meantime, there is more that the national securities exchanges can and should do to facilitate the needs of investors. Expediting round lot reform is a good place to start.

There is significant consensus among market participants on round lot reform and implementing these changes now will result in fairer and more efficient markets. Based on our analysis, it should also save investors billions in transaction costs over the next three years. As the saying goes, "time is money" and investors will be left footing the bill if we don't act soon to expedite these changes. That's why we're asking the listing exchanges to work together with us and the industry to get round lot reform implemented ahead of schedule by voluntarily changing round lot sizes in their listed securities to match the infrastructure rule's requirements. This practical solution to our growing odd lot problem could be implemented quickly and without imposing any major implementation costs on the listing venues, SIPs, or the industry as a whole.

Infrastructure Rule Changes to Round Lots

The infrastructure rule adds a new "round lot" definition to Regulation NMS that will base the number of shares that constitutes a round lot on the price of the security.

Avg. Closing Price for Prior Calendar Month	Round Lot Size
$250 or less per share	100 shares
$250.01 to $1,000 per share	40 shares
$1,000.01 to $10,000 per share	10 shares
$10,000.01 or more per share	1 share

Today, all but twelve U.S. equity securities trade with a round lot of 100 shares. If the listing exchanges change the round lot size in additional high-priced securities, we could optimize trading in hundreds of other names without waiting years for implementation of the infrastructure rule.

I. Round Lot Reform & Potential Savings for Investors

U.S. equity markets are subject to a "one-size-fits-all" market structure where securities with different trading characteristics are largely subject to the same rules and regulations. However, the way that each security trades depends on a variety of factors, and in some cases the limitations of our one-size-fits all market structure results in significant inefficiencies. One such inefficiency is seen in high-priced securities, which currently suffer from wider bid/ask spreads, even when measuring those spreads in basis points, *i.e.*, in proportion to the price of the quoted security. The infrastructure rule will eventually help to alleviate this problem by lowering applicable round lot sizes for high-priced securities currently trading with artificially wide spreads. That said, given the significant amount of time before the amendments to Regulation NMS will be implemented, it's important to evaluate just how much the current lot constraint impacts spreads in high-priced securities. The results show that investors may be leaving money on the table under the current regime. And this issue impacts a significant portion of trading. While the number of securities priced above $250 per share fluctuated over the October 2020 through May 2021 period that we analyzed for this round lot study, there are currently almost 200 securities that trade at prices averaging more than $250, as shown in Chart A. While these securities made up just 3% of shares executed and 8% of trades, they accounted for an outsized 29% of dollar value traded.

Implementation Timeline

As planned, the round lot changes are slated to be implemented after competing consolidators become operational and the current exclusive SIPs are decommissioned. Without considering the potential for delay, MEMX estimates round lot changes may not be made until sometime in 2024.

Chart A: Number of Lot Constrained Securities

Round Lot Reform & Potential Savings for Investors (continued)

What's the connection between spreads and the lot size? Under Regulation NMS, only quotations for at least one round lot are considered "bids" and "offers." Therefore, the NBBO disseminated to investors through the SIPs and used for various important purposes, such as trade-through protection, pricing of pegged orders, or market center routing, only includes round lot quotations. Since round lot sizes are not currently tiered based on the price of the security, the notional value required for a quote to set the NBBO can be significantly higher in high-priced securities. The higher notional value that must be risked to establish a round lot translates into wider quoted spreads. In turn, narrowing quoted spreads should reduce transaction costs for investors. Of course, narrowing quoted spreads will not reduce transaction costs one for one as a significant amount of trading volume takes place within the spread, particularly in high-priced securities. That said, it should still meaningfully reduce transaction costs as the NBBO is used as an important reference price for trading on exchanges, ATSs, and other venues.

Notional Value Required to Set NBBO

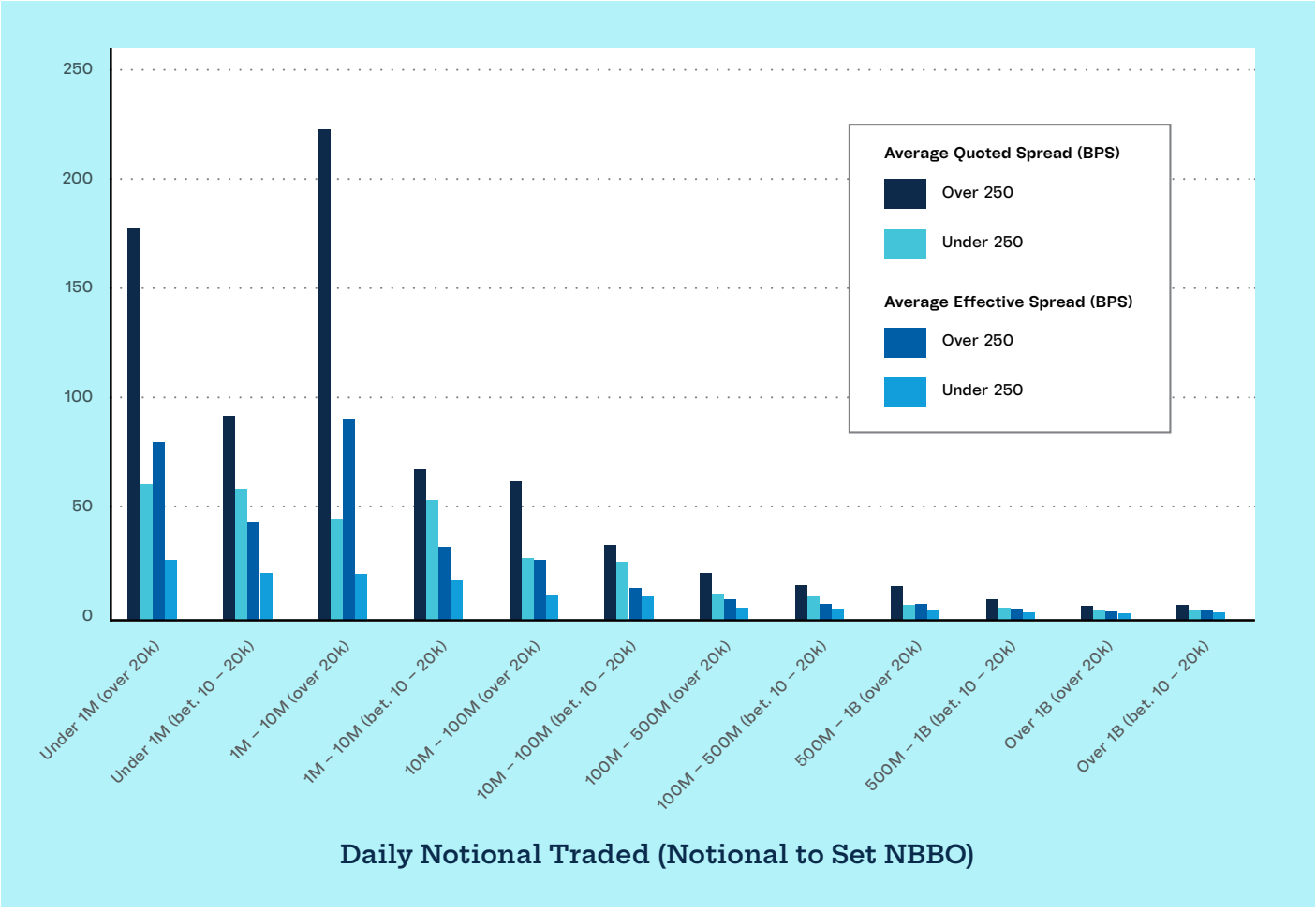
AMZN: $338,387
AAPL: $13,048

To get a sense of the impact of lot constraints on investor outcomes, and the potential effect of the infrastructure rule's round lot amendments on these outcomes, we analyzed quoted and effective spreads for lot constrained and other securities. Chart B below divides the universe of U.S. equity securities into buckets based on a combination of: (1) daily dollar value traded in each security during the period we studied from October 2020 through May 2021; and (2) notional value required to set the NBBO under (A) the infrastructure rule for lot constrained securities, *i.e.*, securities priced above $250 per share that would qualify for a 40, 10, or 1 share round lot under those rules and (B) the current round lot regime for securities priced at $250 per share or less, which would continue to be subject to a 100 share round lot[1]. Since spreads are directly related to both liquidity and the notional value required to set the NBBO, we anticipate that the implementation of round lot reform may result in spreads in the lot constrained groups being reduced to levels that are similar to current spreads observed for securities in the

1 We matched securities into twelve groups based on these criteria. All securities that currently trade with non-standard round lot sizes of less than 100 shares were excluded from our analysis, as were thinly-traded securities with under $50,000 in daily dollar volume traded. In addition, the smallest grouping we use for notional required to set the NBBO is $10k – $20k as the infrastructure rule effectively sets a floor of more than $10k notional for all lot constrained securities subject to the round lot amendments.

comparison groups. As shown below, quoted spreads in lot constrained securities may narrow significantly if we reduce the notional required to set the NBBO in these securities, with quoted spreads in our comparison groups ranging from 21% to 79% lower than the associated lot constrained groups. What's more, these wider quoted spreads are accompanied by wider effective spreads. Similar to our observations for quoted spreads, effective spreads in our comparison groups ranged from 20% to 90% lower than the associated lot constrained groups.

Chart B: Quoted and Effective Spreads



In turn, this gives us a good way to calculate a rough estimate of potential transaction cost savings for investors that can be gained by expediting round lot reform. The effective spread measures the difference between actual trade prices and the midpoint of the NBBO multiplied by two. Higher effective spreads mean that investors pay more for the opportunity to enter into a transaction. If each lot constrained security were to have its current effective spread reduced by the average reduction of 42% shown in Table A, then changing the round lot size in those securities could result in up to $10 million[2] in daily savings for investors as exchanges, broker-dealers, and other market participants trade off of a narrower spread[4]. With about 252 trading days in each year, it could cost investors up to $7.5 billion if the industry is forced to wait three years for these round lot changes to go into effect. In fact, even if we assume only a 20% reduction in effective spread, which corresponds with the lowest effective spread change observed in our analysis, we'd still be looking at up to $5 million per day in potential cost savings, which would translate to $3.7 billion in potential savings over the next three years. With this much at stake, we should act now.

It could cost investors up to $7.5 billion if the industry is forced to wait three years for these round lot changes to go into effect.

Not only would expediting the upcoming round lot changes save investors a significant amount in transaction costs while the industry awaits the implementation of the infrastructure rule, amending round lot sizes now would also improve market efficiency by ensuring that the information disseminated by the SIPs and used by investors to make trading decisions appropriately reflects how high-priced securities trade. Indeed, based on our analysis of lot constrained securities that would qualify for a 40, 10, or 1 share round lot under the infrastructure rule, odd lots currently account for 76% of all trades and 21% of all volume executed in those

3 Potential cost savings was estimated for each lot constrained security on a daily basis by taking the daily dollar volume traded in the security multiplied by the security's effective spread times the average 42% estimated reduction in effective spread and divided by two to account for the fact that effective spread measures round trip costs, i.e., both a buy and a sell transaction. For purposes of calculating potential cost savings, we exclude any cost savings attributable to: (1) any securities that, on a particular day, have an effective spread greater than their quoted spread; and (2) the "meme stock" GME.

4 As discussed, the NBBO is central to trading in U.S. equities markets and including tighter quotations in the NBBO would impact trading in many important ways. For example, pegged orders on exchanges or ATSs would peg off of the new NBBO, potentially increasing liquidity available at better prices within the current spread, while routers would access posted liquidity at the improved NBBO before other interest could trade, and investors could use these tighter quotes to assess best execution.

Table A: Potential Quoted / Effective Spread Change

Dollar Level	Notional Size to Set NBBO	Number of Lot Constrained Securities	Avg. Quoted Speed Change	Avg. Effective Speed Change
Under 1M	Over 20k	2	-65%	-66%
Under 1M	10 – 20k	2	-36%	-52%
1M – 10M	Over 20k	2	-79%	-77%
1M – 10M	10 – 20k	11	-21%	-44%
10M – 100M	Over 20k	6	-55%	-57%
10M – 100M	10 – 20k	35	-22%	-25%
100M – 500M	Over 20k	10	-43%	-40%
100M – 500M	10 – 20k	60	-33%	-28%
500M – 1B	Over 20k	4	-54%	-44%
500M – 1B	10 – 20k	14	-39%	-31%
Over 1B	Over 20k	5	-29%	-20%
Over 1B	10 – 20k	11	-31%	-20%
Average			**42%**	**42%**

names, which suggests that a 100-share round lot size does not capture the actual unit of trading used by investors. In turn, nearly half (43%) of volume in lot constrained securities occurs at prices within the quoted spread. There's been a lot of healthy debate over the past few years about how to solve the odd lot problem in high-priced securities and many different proposed solutions. Getting additional information to investors is critical to a well-functioning market, and the infrastructure rule will also directly address odd lot transparency by allowing competing consolidators to include odd lots better than the NBBO in their market data products. We look forward to the day that this information becomes broadly available in consolidated data. In the interim, right-sizing round lot sizes is a practical and easily implemented solution to the odd lot problem that would simultaneously narrow artificially wide spreads and reduce transaction costs.

TSLA ($617.69) and AMZN ($3,383.87) are two of the most active stocks in the market, including significant retail participation. Odd lots account for 95% of AMZN trades and nearly 87% of TSLA trades.

II. Implementation Costs

We are cognizant that the SEC chose not to require implementation of any of the changes implemented by the infrastructure rule, including the round lot changes, on the current exclusive SIPs to avoid potential implementation costs. Although nothing prevents the exchanges from going beyond the bare requirements for implementation set by the SEC, it's worthwhile to talk about costs. Realistically, any costs associated with implementing the infrastructure rule's round lot changes ahead of the required schedule would pale in comparison to the potential benefits to investors of implementing these changes now. Indeed, we believe the round lot changes could be implemented on the current exclusive SIPs without incurring additional costs.

Non-standard round lot sizes of less than 100 shares are not a new phenomenon in U.S. equity markets. Although only a handful of securities have such smaller round lot sizes today, both the SIPs and market participants already have to support these different round lot sizes. As a result, merely adding additional securities to the list should not cause any significant implementation burden. The main potential costs would therefore flow from the changes made to facilitate the ability for investors to interpret the SIP data. Specifically, the infrastructure rule requires: (1) the dissemination of an indicator that displays the applicable round lot size for the security; and (2) that information disseminated in consolidated market data be represented in actual shares. Of these two changes, the potential implementation burden rests almost entirely with the dissemination of actual shares, which would require systems changes for both the SIPs and downstream users of SIP data whose systems may also need to be coded to the new specifications.

The convention today is for the SIPs to disseminate required size information by displaying the number of round lots as opposed to the number of shares. For example, 200 shares of TSLA would currently be displayed as "2" round lots since each round lot represents 100 shares of the stock. The infrastructure rule amends this convention and requires

that competing consolidators display "200" shares instead. While we support this change, which would provide additional clarity for investors that use SIP data, the move to actual shares can be implemented later based on the SEC's timetable. In the interim, the exclusive SIPs already disseminate the applicable round lot size for different securities at the beginning of each trading day. Sticking with the previous example, the exclusive SIPs could therefore continue to display "5" round lots, with a message at the beginning of the day that indicates that each round lot in TSLA represents 40 shares (5 x 40 = 200 shares). This phased approach would allow investors to reap the benefits of the round lot changes now, while eliminating the need for systems changes to be made to the current exclusive SIPs and giving the industry more time to prepare for the display of actual shares in consolidated market data. As a participant on the SIP operating committee, we certainly appreciate that cost is an important consideration, but we owe it to investors not to forestall needed changes on the basis of cost, particularly when there are practical steps that we can take to minimize those costs.

At MEMX, one of our core goals is to advocate for market structure changes that benefit the needs of investors and the industry. The U.S. equity market would benefit substantially from making the round lot changes in the infrastructure rule sooner rather than later. While the Commission chose not to make early adoption a requirement that does not mean that we cannot or should not choose to go above and beyond for the investors that rely on the capital markets that we steward. We hope to work with the primary listing exchanges and other national securities exchanges to make round lot changes now so that the industry can reap its benefits without delay.

Round Lot Reform

Was Amazon too expensive?

Adrian Griffiths
Head of Market Structure, MEMX

What recent S&P 500 stock splits teach us about the need to reform the round lot

November 2022

Amazon has been known to investors for its high stock price as much as for its low product prices. However, its recent 20-for-1 stock split can also teach us an important lesson about the need to reform the round lot.

In June 2021, we published a white paper that examined the need to expedite round lot reform under the market data infrastructure rule ("infrastructure rule").[1] While the primary listing exchanges have continued to be resistant to expediting these critical reforms, the timing of round lot reform remains an important issue for market participants.

At the same time, U.S. Securities and Exchange Commission ("SEC") Chair, Gary Gensler, has indicated that the SEC is considering expediting round lot reform itself—which MEMX recommended in a letter to the Commissioners earlier this year.[2]

In support of that effort, we continue to evaluate the impact of a one-size-fits-all round lot regime on the U.S. equity market. This supplemental white paper examines recent stock splits effectuated by Amazon, Alphabet, and Tesla, which illustrate how changing the round lot in high-priced stocks could benefit investors by narrowing spreads and reducing related transaction costs.

1 https://memx.com/wp-content/uploads/MEMX_Round-Lots_white-paper.pdf

2 https://memx.com/wp-content/uploads/Market-Structure-Proposal.pdf

Background

As discussed in our prior white paper, under the current market convention, where a round lot is almost always for 100 shares, the price of a given security has an important impact on quoted prices in the market. That's because different prices equate to different notional requirements for how much a buyer or seller must be willing to purchase or sell in order to set the national best bid and offer ("NBBO").

For a stock like Apple (AAPL), which is currently trading around $140 per share, a 100-share round lot translates into a buyer or seller needing to put up $14,000 of notional value in order to set the NBBO. However, a trader would instead need to put up nearly $190,000 to set the NBBO in Booking Holdings, Inc. (BKNG) at current prices. And, even though high-priced securities see a larger proportion of trading at odd lot prices within the spread, wider quoted spreads are nevertheless accompanied by wider effective spreads, meaning that investors are actually paying higher transaction costs when trading high-priced securities.

Our last white paper estimated the potential transaction cost savings from expediting round lot reform under the infrastructure rule. To do so, we reviewed quoted and effective spreads in high-priced securities that would qualify for a round lot of less than 100 shares under the infrastructure rule, and compared spreads in those securities with spreads in lower-priced securities with similar trading characteristics. The results of that review showed that it costs significantly more for investors to trade high-priced stocks under today's round lot regime.

Indeed, based on that review, we estimated that round lot reform could save investors as much as $2.5 billion per year in reduced transaction costs, or up to $7.5 billion total if these critical market reforms were expedited by just three years. Since then, stock splits have made a bit of a comeback, with big technology companies like Amazon, Alphabet, and Tesla effectuating stock splits this summer. This lets us ask a more direct question: What actually happens when lot constraints are eliminated?

I. Taking Stock of Stock Splits: How eliminating artificial round lot constraints reduces spreads and saves investors money

Reviewing trading data before and after stock splits in high-priced securities allows us to examine the potential impact that eliminating artificial round lot constraints could have in those securities. Similar to changing round lot sizes, stock splits lower the notional value required to set the NBBO, in this case by lowering the price of the security rather than the number of shares of the security that would be considered a round lot. As discussed in our previous white paper, we would expect that such stock splits would reduce spreads. The data confirms our expectations.

Take the example of Amazon (AMZN), which began trading on a split-adjusted basis on June 6, 2022. On June 3, 2022, the last trading day prior to the stock split, AMZN closed at a price of $2,447. At that price, almost $250,000 in notional value is required to set the NBBO, despite the fact that the average trade size was for 15 shares, or a little less than $37,000. How does this impact spreads? On any given day, AMZN is one of the most active securities in terms of notional value traded. June 3, 2022 was no different, with AMZN trading nearly $12 billion in notional value ($11,968,818,999), making it the second most actively traded corporate stock for that day. Yet, with an average quoted spread of 8.6 bps and average effective spread of 4.8 bps, it was much more expensive to trade AMZN on that day than other similarly active names. Three other corporate securities traded more than $10 billion of notional value on June 3, 2022: Apple (AAPL), Advanced Micro Devices (AMD), and Nvidia (NVDA). However, as shown in Figure 1 (see next page), each of these securities traded with significantly tighter quoted and effective spreads.

Figure 1: Spreads in Corporate Stocks > $10 Billion Notional Traded (June 3, 2022)

Security	Closing Price	Notional Value Traded	Average Quoted Spread (bps)	Average Effective Spread (bps)
AAPL	$145.38	$12,915,168,065	0.8	0.9
AMZN	**$2,447.00**	**$11,968,818,999**	**8.6**	**4.8**
AMD	$106.30	$11,814,978,899	1.5	1.2
NVDA	$187.20	$11,296,393,116	2.1	1.6

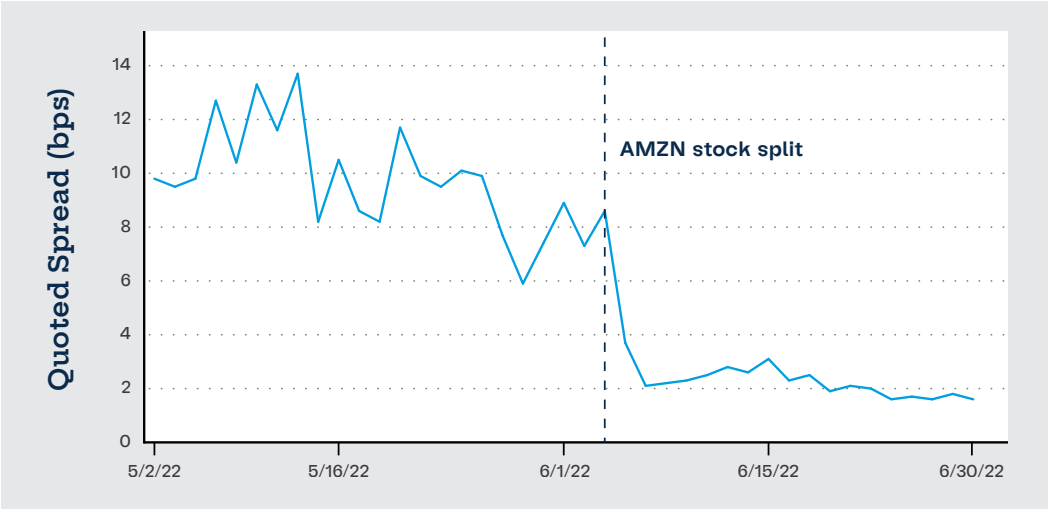
What does this have to do with round lot reform? To answer that question, we only need to examine spreads on the next trading day. As shown in Figure 2, while spreads in AAPL, AMD, and NVDA remained relatively consistent with the prior day, spreads in AMZN were significantly tighter once it began trading on a split-adjusted basis on June 6, 2022. Indeed, with more reasonable notional value requirements to set the NBBO, quoted spreads fell 57% to 3.7 bps and effective spreads fell 40% to 2.9 bps.

Figure 2: Spreads in AAPL, AMZN, AMD, NVDA (June 6, 2022)

Security	Closing Price	Notional Value Traded	Average Quoted Spread (bps)	Average Effective Spread (bps)
AAPL	$146.14	$10,497,394,940	0.8	0.8
AMZN	**$124.79**	**$17,035,899,614**	**3.7**	**2.9**
AMD	$105.65	$10,301,510,497	1.5	1.1
NVDA	$187.86	$7,988,952,811	2.6	2.4

What's more, spreads in AMZN continued to improve following the day of the split as quoting gradually improved on additional markets. Indeed, as shown in Figure 3, spreads in AMZN are now generally in line with those seen for other similarly active securities.

Figure 3: Quoted Spreads Pre- and Post-Split (AMZN)



Similar results were found when examining spreads in Alphabet Inc. (GOOG, GOOGL). Indeed, as illustrated in Figures 4 and 5, spreads in both of these securities narrowed significantly after their respective stock splits, showing how reducing the notional value required to set the NBBO in these securities can reduce investor costs.

Figure 4: Quoted Spreads Pre- and Post-Split (GOOG)

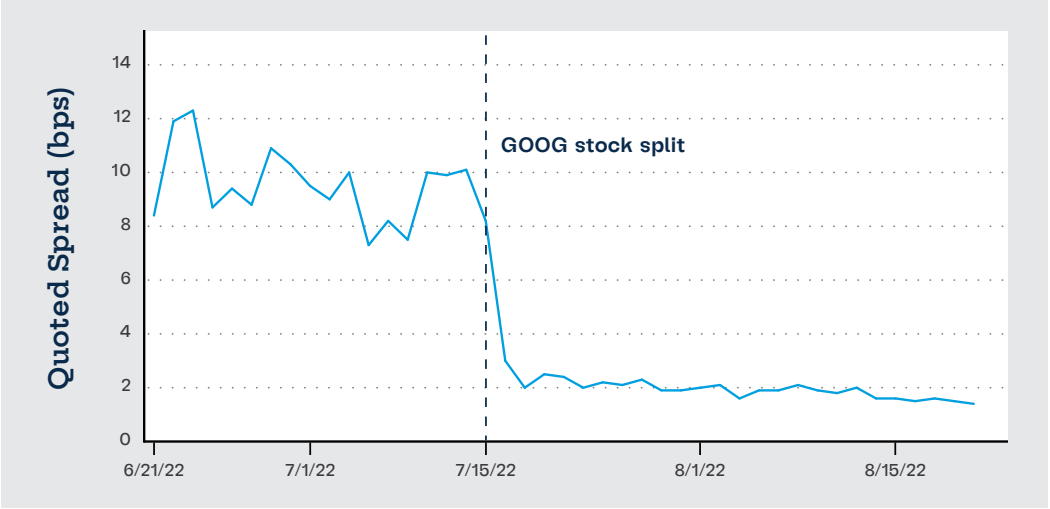
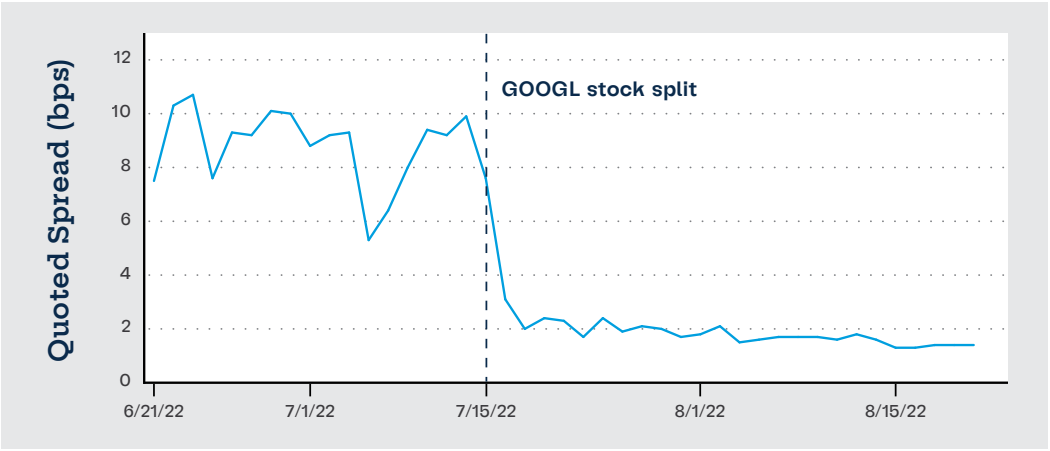
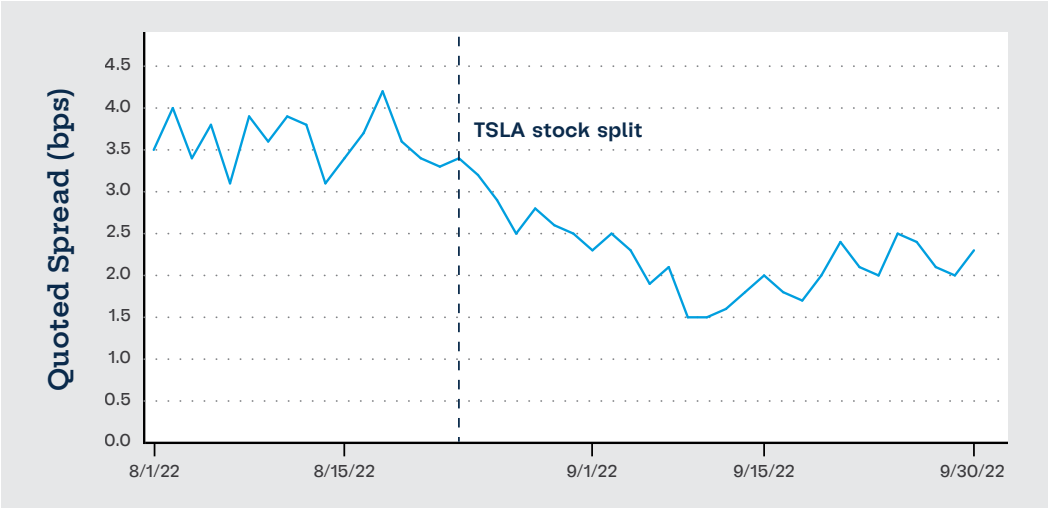


Figure 5: Quoted Spreads Pre- and Post-Split (GOOGL)



Finally, spreads in Tesla Inc. (TSLA) also narrowed, though the amount of narrowing observed for this stock was more subdued than observed in AMZN, GOOG, or GOOGL. This is likely due to the fact that TSLA only implemented a 3-for-1 stock split compared to 20-for-1 stock splits effectuated by the other securities examined in this white paper. With a 3-for-1 stock split, TSLA remained round lot constrained at its new price of $303.75 as of the close on September 15, 2002. We would have expected greater savings if TSLA had implemented a more aggressive split.

Figure 6: Quoted Spreads Pre- and Post-Split (TSLA)



II. Putting Stock Split Data Into Perspective: Effective spread data confirms that investors could save billions

Let's put this into perspective. While quoted spreads reflect the cost for an investor to buy or sell a security at displayed market prices, i.e., the NBBO, effective spreads show the costs incurred based on actual trade prices. Examining effective spreads in addition to quoted spreads is particularly important for lot constrained securities that are often traded at odd lot prices better than the NBBO. As discussed, AMZN is one of the most actively traded U.S. equity securities in terms of dollar value traded. In May 2022, the month before the Amazon stock split, transactions in AMZN totaled $241 billion. With an average effective spread of 6.2 bps, spread costs for that month totaled $77 million.[3] In July, the month after the Amazon stock split, transactions in AMZN totaled $158 billion. With a significantly lower average effective spread of 2.3 bps, spread costs for July were only $19 million for the month. Even accounting for the difference in notional value traded each month, it would have cost $49 million to trade an equivalent dollar volume of AMZN in May, meaning investor savings of $30 million per month.

Similar savings can be seen with GOOG, GOOGL, and TSLA, as shown in Figure 7 (see next page). Over the course of an entire year, investors in these four securities alone could save just shy of a billion dollars in spread costs as a result of improved market quality.[4]

3 Spread costs are calculated each day by taking the average effective spread in the security and multiplying by notional value traded and dividing the result by two since the effective spread measures round trip transaction costs, i.e., both a buy and a sell transaction. Daily costs are summed for the month.

4 The $76.5 million estimated monthly spread cost savings shown in Figure 7 is equivalent to an annualized estimated savings of $918 million.

Figure 7: Pre- and Post-Split Effective Spreads (AMZN, GOOG, GOOGL, TSLA)

	Split Effective Date	Notional Value Traded (July)	Effective Spread (bps) (Month Before Split)	Effective Spread (bps) (Month After Split)	Change	Estimated Spread Cost Savings (Monthly)[5]
AMZN	June 6, 2022	$158,152,181,532	6.2	0.9	63%	$31,116,442
GOOG	July 18, 2022	$72,094,869,897	5.9	4.8	66%	$13,931,625
GOOGL	July 18, 2022	$88,568,369,539	5.8	1.2	68%	$17,670,582
TSLA	August 25, 2022	$438,309,884,047	2.6	1.6	24%	$13,770,236
Summary		**$757,125,305,015**			**55%**	**$76,488,883**

While investors are enjoying these savings today, there are still more than 150 NMS stocks priced over $250 per share that would benefit immensely from round lot reform. In October, these securities collectively traded about $116 billion each day and accounted for 20% of notional value traded in the U.S. equity market. And, without any immediate plans for issuers to split these stocks, investors will continue to experience higher transaction costs. AMZN, GOOG, GOOGL, and TSLA together accounted for 9% of the volume and 23% of the notional value traded in NMS stocks priced over $250 as of May 2022, i.e., before any of their stock splits. Although this is clearly significant, the vast majority of high-priced securities continue to trade inefficiently.

Indeed, we find that spread costs for investors in NMS stocks still priced over $250 totaled $309 million in October.[6] As shown in Figure 7, the average spread cost reduction following splits in AMZN, GOOG, GOOGL, and TSLA was 55%.

5 Savings are calculated by multiplying the notional value traded in each security by the difference in effective spread in the months before and after the split and dividing the result by two to account for the fact that effective spread measures round trip costs.

6 To mute impact of any outliers on this spread cost calculation, on any day where a security has a reported effective spread that is greater than its quoted spread, the amount of any savings is calculated by the narrower quoted spread in that security.

The actual spread reduction in any particular security will depend on a number of factors, including where that security falls within the round lot tiers established under the infrastructure rule. However, if we assume similar spread cost reductions to the securities examined in this white paper, this would represent investor savings of $171 million each month. Annualized, this represents investor savings just north of $2 billion a year in stocks that are still round lot constrained. It's therefore not enough to simply wait and rely on issuers to split their stocks to address the inefficiencies in trading high-priced NMS stocks.

As a national securities exchange built to respect the needs of all market constituents, MEMX believes that it's important that we work towards proactively solving these issues so that investors can enjoy the benefits of a fair, orderly, and efficient market. Unfortunately, since the primary listing exchanges have been reluctant to address these issues—and in fact have sought to delay the overall implementation of these rules—the SEC must act to protect the needs of the investing public. As illustrated by these recent S&P 500 stock splits, the cost of inaction is simply too high.

APPENDIX

COMMENT LETTERS: MEMX RETAIL MIDPOINT LIQUIDITY PROGRAM

December 5, 2022

Submitted electronically

Ms. Vanessa Countryman
Secretary
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090

Re: Securities Exchange Act Release No. 34-94866 (SR-MEMX-2021-10)

Dear Ms. Countryman:

MEMX LLC ("MEMX" or the "Exchange") appreciates the opportunity to provide additional comments to the U.S. Securities and Exchange Commission ("Commission") on the above-referenced proposed rule change (the "Proposal"). The Proposal, which was filed by the Exchange on September 1, 2021,[1] seeks to implement a retail midpoint liquidity program (the "Program") that would provide an opportunity for retail investors to receive substantial price improvement at the midpoint of the national best bid and offer ("NBBO"), while allowing institutional and other investors to interact with retail order flow on a national securities exchange.

[1] See Securities Exchange Act Release No. 92844 (September 1, 2021), 86 FR 50411 (September 8, 2021) (SR-MEMX-2021-10) ("Notice"). The Proposal was further amended by the Exchange on January 27, 2022. See Securities Exchange Act Release No. 94189 (February 8, 2022), 87 FR 8305 (February 14, 2022) ("Amendment No. 1").

On May 6, 2022, the Staff of the Division of Trading and Markets ("Staff") disapproved the Proposal.[2] The Staff's disapproval was based on its analysis of the Program's proposed priority rules, which would give priority to Retail Midpoint Liquidity ("RML") Orders that publicly signal their willingness to trade with incoming retail orders ahead of midpoint peg orders entered on the MEMX order book that are willing to trade with any counterparty (i.e., not only retail investors) but are fully non-displayed. On May 10, 2020, the Commission initiated review of the Staff's decision, which was taken pursuant to delegated authority, and stayed the order.[3] The Exchange writes now to request that the Commission reverse the Staff's disapproval of the Program.

The Staff's disapproval, if left to stand, would deprive retail investors and other market participants of the benefits of the Program and reversal of that decision is appropriate for three reasons: (1) it is not "unfairly discriminatory" under Section 6(b)(5) of the Exchange Act[4] to provide priority to investors that attract retail order flow to the exchange by signaling their willingness to trade with retail orders; (2) MEMX rules and the rules of other exchanges have long provided priority at the midpoint to specific order types, contrary to the implicit requirements the Staff now reads into the Exchange Act for the first time; and (3) the Disapproval Order is at odds with the Commission's stated goals for the U.S. equity market, and has furthered the very problem that the Commission intends to address through upcoming rulemakings on equity market structure that would mandate the execution of retail orders in mechanisms similar to the Program.

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2 See Securities Exchange Act Release No. 94866 (May 6, 2022), 87 FR 29193 (May 12, 2022) (SR-MEMX-2021-10) ("Disapproval Order").

3 See Letter from Assistant Secretary J. Matthew DeLesDernier to Anders Franzon, General Counsel, MEMX, dated May 10, 2022, *available at* https://www.sec.gov/rules/sro/memx/2022/34-94866-letter-from-assistant-secretary-051022.pdf.

4 15 U.S.C. 78f(b)(5).

Background

Change is afoot in the U.S. equity market. Driven, in part, by a narrative pushed by some of our peers that the "playing field is not level," the Commission now seems poised to enact several reforms that would have a significant cumulative impact on equity trading. MEMX has been an active contributor to this debate and has recommended several changes that would eliminate or reduce inefficiencies that we have observed, including, for example, inefficiencies created by current tick size and round lot regimes.[5] These recommendations are backed by substantial data analysis, and we hope to see them reflected in the Commission's upcoming rulemaking efforts.

At the same time, the Commission is also considering more prescriptive rulemaking, particularly around retail order execution. These rules would likely have the effect of pushing more retail order flow onto national securities exchanges in programs similar to this one – effectively substituting the venue competition that exists under the current market structure with order competition – with far-reaching consequences for investors and the entire market ecosystem. While the exact content of this proposal is yet to be seen, it stands to reason that any mandate forcing market participants to use such mechanisms would have to be justified based on some failure of the competitive market to provide mechanisms that meet the Commission's objectives.

As discussed in the sections below, the Staff's disapproval rests on a flawed analysis of the relevant statutory standards to the Program's proposed priority rule, applying those standards in a manner that is inconsistent with their historical application to the rules of both MEMX and other

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5 See Letter from Adrian Griffiths, Head of Market Structure, MEMX to Commissioners, dated March 30, 2022, *available at* https://memx.com/market-reform-recommendations ("MEMX Market Structure Letter").

national securities exchanges. On its own, this would warrant reversal. However, we also urge the Commission to think carefully about how the Proposal – and the disapproval thereof – fits into the debate on competition for retail order execution. Before engaging in broad efforts to reshape the U.S. equity market through its rulemaking authority, we respectfully request that the Commission consider how these same policy objectives can be fulfilled by *permitting* innovation by national securities exchanges rather than *mandating* the use of specific mechanisms by market participants.

I. IT IS NOT "UNFAIRLY DISCRIMINATORY" UNDER SECTION 6(B)(5) OF THE EXCHANGE ACT TO PROVIDE PRIORITY TO INVESTORS THAT ATTRACT RETAIL ORDER FLOW TO THE EXCHANGE BY SIGNALING THEIR WILLINGNESS TO TRADE WITH RETAIL ORDERS

The Disapproval Order rests on the Staff's analysis of the Program's proposed priority structure under the applicable Exchange Act standards, and in particular Section 6(b)(5) of the Exchange Act, which requires that the rules of a national securities exchange are not designed to permit unfair discrimination between customers, issuers, brokers, or dealers. As discussed in the Proposal, and in a comment letter submitted by the Exchange,[6] RML Orders entered into the Program – i.e., entered with the intent of trading with incoming retail orders – would light up a Retail Liquidity Identifier ("Identifier") in order to attract contra-side retail order flow. This Identifier plays an important role in the Program as market participants that route retail order flow are unlikely to ping an exchange program to source liquidity in the absence of information that there may actually be liquidity available in such programs. In exchange for lighting up the Identifier and assuming related information leakage risks, RML Orders would have priority over midpoint peg orders resting on the MEMX order book, which are fully non-displayed and do not

[6] See Letter from Adrian Griffiths, Head of Market Structure, MEMX, dated January 27, 2022, *available at* https://www.sec.gov/comments/sr-memx-2021-10/srmemx202110-20113077-265641.pdf ("MEMX Comment Letter").

contribute to attracting incoming retail orders to the Program. The Staff determined that this tradeoff was inappropriate under Section 6(b)(5). We disagree. In fact, the Program's proposed priority regime is generally consistent with the price-time priority allocation model used by most U.S. equities exchanges, which prioritize orders that attract contra-side marketable order flow.

Under the standard price-time priority allocation model in place on the Exchange and most other U.S. equities exchanges, orders at the same price are ranked in time priority, with displayed orders prioritized ahead of any non-displayed orders.[7] While RML Orders are not "displayed" in the same manner as displayed limit orders entered onto the MEMX order book, such orders do convey meaningful information to market participants looking to trade. This includes information about the price of the order (the midpoint of the NBBO), side (buy or sell), and size (at least one round lot). The Exchange expects that most market participants that route retail orders to the Program would do so on the basis of this information, which would be disseminated on both the securities information processors ("SIPs") as well as the Exchange's proprietary market data feeds. Similar to the treatment of displayed orders on the MEMX order book, the Exchange would give priority to such RML Orders ahead of fully non-displayed midpoint peg orders, which convey no information to the market and therefore do not contribute to attracting contra-side order flow.

The principal argument raised by the Exchange in support of the proposed priority structure at issue in the Disapproval Order was that the proposal appropriately balances the risks and incentives associated with RML Orders entered into the Program to provide liquidity to contra-side retail order flow. This balancing is necessary as the Program can only be successful if market participants are willing to enter RML Orders that light up the Identifier in order to attract and trade

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7 See e.g. MEMX Rule 11.9, Priority of Orders.

with incoming retail orders. The Staff rejected this argument, concluding instead that entering RML Orders into the Program came with "little risk (if any)"[8] and, in fact, "compounded benefits."[9] However, this conclusion appears to be based on the assumption that the only relevant risks come from "adverse selection"[10] – i.e., the risk that the price of a security will move against the posted order after a trade is consummated. This assumption is misplaced. In fact, neither the Exchange nor commenters discussed adverse selection risks in relation to the Program. Rather, the Exchange argued that "entering RML Orders involves some additional risk for those market participants as the Indicator will *signal whether there is a buyer or seller that is willing to trade with retail investors at the midpoint*."[11] This risk represents the potential for "information leakage," which can increase costs for buy-side institutions that are trading larger parent orders.

The Staff's minute focus on adverse selection risks – rather than the information leakage risks actually identified by the Exchange – appears to originate from an attempt to distinguish the Program's proposed priority structure from ordinary displayed order priority. Specifically, the Staff states that "[r]rewarding displayed orders with priority over non-displayed orders compensates them… for the chance of adverse selection when trading with certain counterparties."[12] By contrast, the Staff suggests that "market participants posting RML Orders would face little risk (if any) from the Retail Liquidity Identifier because RML Orders are uniquely counterparty-restricted whereas displayed orders are not so restricted."[13] Put another way, the Staff

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8 See Disapproval Order, supra note 2, at 29196.

9 Id.

10 Id.

11 See MEMX Comment Letter, supra note 6, at 6 (Emphasis Added).

12 See Disapproval Order, supra note 2, at 29196.

13 Id.

implies that displayed orders deserve priority because they face unique adverse selection risks that are presumably not present for non-displayed orders, which do not receive priority on an exchange, or RML Orders that are counterparty-restricted and only trade with retail orders.

This distinction is dubious. While the Staff is correct that displayed orders posted on an exchange face adverse selection risks, displayed order priority – i.e., priority of displayed orders over non-displayed orders – is not properly construed as compensating them for those risks. In fact, *both* displayed and *non-displayed* orders posted on an exchange face adverse selection risks. Indeed, the Commission itself has relied on the fact that non-displayed orders face adverse selection risks in other contexts. This includes the approval of a Form 1 application for another national securities exchange, Investors Exchange LLC ("IEX"), whose novel "speed bump" was based entirely on mitigating adverse selection risks faced by *non-displayed* pegged orders.[14]

Since, as the Commission itself has found, adverse selection risks affect both displayed and non-displayed orders, it makes little sense to conclude that displayed order priority is designed to compensate such orders for risks that are shared with all orders posted on an exchange. Instead, as the Exchange argued, it is more accurate to describe order priority for displayed orders as addressing the risks associated with *public display* and the benefits this display provides to the

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[14] See Securities Exchange Act Release No. 78101 (June 17, 2016), 81 FR 41141 (June 23, 2016) (File No. 10-222) ("IEX Form 1Approval Order") ("[T]he purpose of IEX's coil is to provide an intentional buffer that slows down incoming orders to allow IEX's matching engine to update the prices of resting "pegged" orders when away prices change to protect resting pegged orders from the possibility of adverse selection when the market moves to a new midpoint price."). As discussed in the IEX Form 1 Approval Order, pegged orders on IEX are all non-displayed. See id at 41152.

overall market, including increased transparency and the ability of such orders to attract the other side of the trade. These characteristics are shared with RML Orders that light up the Identifier.

Tellingly, while the Staff focuses on adverse selection and therefore assumes that entering RML Orders entails no risk to the firm entering such an order, the only commenter that addressed this topic came to the exact *opposite* conclusion.[15] That commenter, a buy-side institution that opposed the proposal, argued that it was not appropriate to force market participants to choose between entering an RML Order that "would leak sensitive order information" or entering a midpoint peg order that would not entail such a risk but would cede priority to RML Orders entered into the Program. In effect, the commenter suggested that the risk associated with lighting up the Identifier and signaling that there is a buyer or seller at the midpoint is *so great* that they would not be able to use the order type at all. While the Exchange disagrees with the commenter's ultimate argument, i.e., that this risk of information leakage negates their ability to use this order

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15 See Letter from Sean Paylor, Acadian Asset Management, dated May 6, 2022, *available at* https://www.sec.gov/comments/sr-memx-2021-10/srmemx202110-20128035-289865.pdf. The Exchange notes that this comment was submitted on the same day that the Staff issued the Disapproval Order. As such, the Exchange never had an opportunity to respond to these comments and the Staff may have had limited opportunity to consider the comments prior to issuing the Disapproval Order. Nevertheless, the stark contrast between the Staff's unsupported conclusions about the risks entailed with entering RML Orders and the views of market participants that would face those risks is instructive, particularly when the commenter was not supportive of the proposal overall.

type,[16] the record clearly does not support the Staff's conclusion that there were no risks to balance or that the Exchange's attempt to balance those risks instead compounded benefits.[17]

When appropriately considering the actual information leakage risks raised by the Exchange, and the clear benefits provided by market participants that are willing to signal their availability to trade with incoming contra-side retail order flow, the Program "appropriately balances the risks and incentives associated with entering RML Orders."[18] Indeed, the Exchange understands that certain firms, including buy-side institutions, are willing to provide liquidity to retail investors at the midpoint of the NBBO. However, similar to the use of displayed orders on an exchange order book, we understand that market participants may not be willing to take on the risk of signaling that there is a willing buyer or seller at the midpoint if they would subsequently lose out on trading with order flow that they attract due to pre-existing non-displayed orders. While the Proposal would provide priority to the market participant whose order attracts the contra-side of the trade ahead of other midpoint peg orders, this is not "unfair" under Section 6 of the Exchange Act as it would establish a sensible balance between risks and benefits associated with each order

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16 The commenter also assumes that RML Orders would primarily be entered by market makers whereas midpoint peg orders may be entered by agency brokers on behalf of buy-side institutions. As a practical matter, this assumption is incorrect as the preponderance of resting midpoint peg orders are in fact entered by market makers. By contrast, the Program is designed to appeal to a broader range of market participants, including buy-side institutions, that generally do not use regular midpoint peg orders today.

17 The risks associated with information leakage are well documented and have been relied on by the Commission in its rulemakings. For example, the Commission explained that its recent rule on disclosure of order handling information would "further encourage broker-dealers to minimize information leakage." See Securities Exchange Act Release No. 84528 (November 2, 2018), 83 FR 58338 (November 19, 2018) (File No. S7-14-16). The Staff cannot simply ignore risks that the Commission has used to justify its own rulemakings when evaluating proposed rules filed by a national securities exchange.

18 See MEMX Comment Letter, supra note 6, at 6.

type in an analogous manner to displayed order priority for trading on an exchange order book. In turn, this would encourage market participants to enter RML Orders, which attract contra-side retail order interest and facilitate significant price improvement opportunities for retail investors.

II. MEMX RULES AND THE RULES OF OTHER EXCHANGES HAVE LONG PROVIDED PRIORITY AT THE MIDPOINT TO SPECIFIC ORDER TYPES, CONTRARY TO THE IMPLICIT REQUIREMENTS THE STAFF NOW READS INTO THE EXCHANGE ACT FOR THE FIRST TIME

In the Staff's telling, the question of whether different order types can have different priorities at the midpoint of the NBBO is a matter of first impression for the Commission. For example, the Disapproval Order states that: "MEMX's proposal does present a novel issue because MEMX seeks to award execution priority to a new type of Midpoint Peg order… over an existing type of Midpoint Peg Order.[19]" However, whether one order type can have priority over another is not a novel question at all. In fact, both MEMX and competing national securities exchanges have rules in place today that differentiate between order types when determining priority at the midpoint of the NBBO. For example, MEMX Rule 11.9(a)(B), states that "[w]here orders to buy (sell) are priced at the midpoint of the NBBO,"[20] orders are ranked within five different priority bands based on the order type used: "(i) Limit Orders to which the Display-Price Sliding instruction has been applied; (ii) Limit Orders with a Non-Displayed instruction; (iii) Orders with a Primary Peg instruction; (iv) Orders with a Midpoint Peg instruction; and (v) Reserve Quantity of Limit Orders."[21] Under this priority structure, midpoint peg orders are already prioritized behind three other order types, including orders entered with a primary peg instruction or non-displayed

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19 See Disapproval Order, supra note 2, at 29196.

20 MEMX Rule 11.9(a)(B). While orders subject to display-price sliding are considered "displayed" the remaining priority bands all reflect non-displayed orders.

21 Id.

limit orders. Similar priority structures have also long been available on the four U.S. equities exchanges operated by Cboe Global Markets Inc. ("Cboe") where orders posted at the midpoint are prioritized in as many as *eight* priority bands that differentiate between different order types offered on those exchanges.[22] The Staff apparently draws the line at RML Orders entered with the goal of facilitating greater price improvement opportunities for retail orders. We fail to see how this abrupt and unexplained change of course benefits retail investors or the broader market.

III. THE DISAPPROVAL ORDER IS AT ODDS WITH THE COMMISSION'S STATED GOALS FOR THE U.S. EQUITY MARKET, AND HAS FURTHERED THE VERY PROBLEM THAT THE COMMISSION INTENDS TO ADDRESS THROUGH UPCOMING RULEMAKINGS ON EQUITY MARKET STRUCTURE THAT WOULD MANDATE THE EXECUTION OF RETAIL ORDERS IN MECHANISMS SIMILAR TO THE PROGRAM

Finally, it's worth re-considering the Disapproval Order in light of the Commission's much-anticipated rulemakings on U.S. equity market structure reform. As discussed in a speech by Chair Gensler in June – just one month after the Staff issued the Disapproval Order – the Commission is currently working on several rulemakings targeted at reforming the U.S. equity market.[23] While MEMX has shared recommendations with the Commission on several of the potential areas of reform being considered, one is particularly relevant to the Program, i.e., an initiative to require that retail orders are executed either: (1) at the midpoint of the NBBO; or (2) in mechanisms that allow for competition on an "order-by-order" basis. With the Commission seeking to use its rulemaking authority to enhance opportunities for retail investors to receive

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22 See e.g. Cboe EDGX Exchange, Inc. ("EDGX") Rule 11.9(a)(2)(B).

23 See "Market Structure and the Retail Investor:" Remarks Before the Piper Sandler Global Exchange Conference, Gary Gensler, Chair, Commission, dated June 8, 2022, *available at* https://www.sec.gov/news/speech/gensler-remarks-piper-sandler-global-exchange-conference-060822.

midpoint executions, and to facilitate more interaction between retail and other investors, one might imagine the Commission would welcome a mechanism designed with those goals in mind.

Presumably the Commission is of the view that the competitive market has not allowed these sorts of mechanisms to flourish, and that rulemaking is needed to fulfill the Commission's investor protection mission. We do not share the Commission's ostensible view that the market has failed retail investors, who today enjoy unprecedented market access, and whose orders are routinely filled with immediacy at improved prices. However, one need not have any particular view about current landscape to share in the irony that the competitive problems that the Commission now seeks to address are, in part, a problem of the Staff's making. Indeed, the Staff and the Commission appear to be working at cross-purposes, with the Staff blocking the very sorts of mechanisms that the Commission now intends to mandate through its rulemaking authority.

MEMX has been a strong proponent of competition in the capital markets. As we stated in a letter to the Commissioners earlier this year, "[c]ompetition is fundamental to financial markets because it incentivizes innovation, reduces costs, and encourages financial intermediaries to continuously improve the quality of the services that they provide to the investing public."[24] Simply put, our capital markets work best when competition is robust. MEMX, as a new competitor in the U.S. equity market and soon-to-be competitor in the U.S. options market, has a role to play in facilitating competition in the markets in which we participate. So too does the Commission. In fact, by Congressional mandate, the Commission is charged with facilitating competition in the capital markets as one of its primary goals and in conjunction with its broad

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[24] See MEMX Market Structure Letter, supra note 5, at 2.

investor protection mission.[25] While the Commission might consider this part of its mission most frequently when engaging in rulemaking, it has other tools that should be used to promote competition, and this includes its role in assessing exchange rule proposals such as this one.[26]

At a time when the Commission is rethinking the very foundations of our market structure, it must consider what tools at its disposal are least disruptive. Expansive regulatory mandates come at a cost and that cost will be borne by investors. The Commission cannot simply use its rulemaking authority to mandate particular kinds of competition when the Staff's decisions prevent such competition from emerging in the free market. When regulation stands in the way of a competitive market, the solution is not more regulation but less. We urge the Commission to consider how it can improve its regulatory framework to allow for greater competition from all market participants.

Sincerely,

/s/ Adrian Griffiths

Adrian Griffiths
Head of Market Structure, MEMX

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25 15 U.S. Code § 78c(f) ("Whenever pursuant to this chapter the Commission is engaged in rulemaking, or in the review of a rule of a self-regulatory organization, and is required to consider or determine whether an action is necessary or appropriate in the public interest, the Commission shall also consider, in addition to the protection of investors, whether the action will promote efficiency, competition, and capital formation.").

26 Id.

March 3, 2023

Submitted electronically

Ms. Vanessa Countryman
Secretary
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090

Re: Release No. 34-96788 (SR-MEMX-2021-10; MEMX Retail Midpoint Liquidity Program)

Dear Ms. Countryman:

MEMX LLC ("MEMX") appreciates the opportunity to provide additional comments to the U.S. Securities and Exchange Commission ("Commission") on the above-referenced proposed rule change to implement a retail midpoint liquidity program (the "Proposal"). The Proposal, which was originally filed on September 1, 2021,[1] was disapproved by the Staff of the Division of Trading and Markets ("Staff") on May 6, 2022 pursuant to delegated authority,[2] and is now pending review by the Commission.[3] On February 1, 2023, the Commission published an order scheduling filing of statements on review.[4] MEMX has filed two comment letters related to its

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1 See Securities Exchange Act Release No. 92844 (September 1, 2021), 86 FR 50411 (September 8, 2021) (SR-MEMX-2021-10) ("Notice"). The Proposal was further amended by the exchange on January 27, 2022. See Securities Exchange Act Release No. 94189 (February 8, 2022), 87 FR 8305 (February 14, 2022) ("Amendment No. 1").

2 See Securities Exchange Act Release No. 94866 (May 6, 2022), 87 FR 29193 (May 12, 2022) (SR-MEMX-2021-10) ("Disapproval Order").

3 See Letter from Assistant Secretary J. Matthew DeLesDernier to Anders Franzon, General Counsel, MEMX, dated May 10, 2022, *available at* https://www.sec.gov/rules/sro/memx/2022/34-94866-letter-from-assistant-secretary-051022.pdf.

4 See Securities Exchange Act Release No. 96788 (February 1, 2023) ("Scheduling Order").

proposed retail midpoint liquidity program, including a December 5, 2022 comment letter that addresses the legal basis for the Proposal in light of the Disapproval Order as well as policy implications related to the Commission's own efforts to reform the market for retail order execution.[5] We incorporate those comments by reference into our current response, which is intended to supplement the existing record based on a recent rulemaking proposal that the Commission published for public comment following the submission of MEMX Comment No. 2.

On December 14, 2022, the Commission published for comment a proposed rule that would generally require that "segmented orders" entered on behalf of most retail investors be exposed to competition in "qualified auctions" operated by an exchange or an alternative trading system ("ATS") that meets the definition of an "open competition trading center," unless an exception applies (the "Order Competition Rule").[6] Among other things, MEMX Comment No. 2 urged the Commission to consider how it could use its oversight of exchange proposed rule filings pursuant to Section 19(b) of the Exchange Act to achieve its stated policy goals without resorting to broad and inflexible regulatory mandates. MEMX will write separately with further comments on the Order Competition Rule. However, we continue to urge the Commission to consider how to facilitate competition and innovation without disrupting the market for retail order execution. We write today to express additional concerns with the Disapproval Order, which was based on the Staff's analysis of the priority requirements for MEMX's proposed retail midpoint liquidity

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5 See Letter from Adrian Griffiths, Head of Market Structure, MEMX, dated December 5, 2022, *available at* https://www.sec.gov/comments/sr-memx-2021-10/srmemx202110-20152274-320246.pdf ("MEMX Comment Letter No. 2"); see also Letter from Adrian Griffiths, Head of Market Structure, MEMX, dated January 27, 2022, *available at* https://www.sec.gov/comments/sr-memx-2021-10/srmemx202110-20113077-265641.pdf ("MEMX Comment Letter No. 1").

6 See Securities Exchange Act Release No. 96495 ("December 14, 2022"), 88 FR 128 ("January 3, 2023") (File No. S7-31-22).

program, in light of substantially similar priority requirements that would be mandated by the Order Competition Rule. As discussed in this supplementary comment letter:

1. The Commission has proposed requirements for qualified auctions under the Order Competition Rule that are substantially similar to requirements the Staff concluded were "unfairly discriminatory" in the context of MEMX's retail midpoint liquidity program;

2. The Commission's stated justification for the priority requirements proposed for qualified auctions under the Order Competition Rule applies with equal force to the Proposal;

3. Any relevant differences between the Proposal and the Order Competition Rule only further reinforce the fact that the Proposal is consistent with the Exchange Act;

4. If the standard expressed in the Disapproval Order is, in fact, the applicable standard under the Exchange Act then the priority requirements of both the Proposal and the Order Competition Rule are inconsistent with that standard; and

5. The Commission has not provided a rational basis under applicable D.C. Circuit precedent for distinguishing the priority requirements at issue in the Disapproval Order and the substantially similar requirements that would be mandated by the Order Competition Rule.

I. THE COMMISSION HAS PROPOSED REQUIREMENTS FOR QUALIFIED AUCTIONS UNDER THE ORDER COMPETITION RULE THAT ARE SUBSTANTIALLY SIMILAR TO REQUIREMENTS THE STAFF CONCLUDED WERE "UNFAIRLY DISCRIMINATORY" IN THE CONTEXT OF MEMX'S RETAIL MIDPOINT LIQUIDITY PROGRAM

At the crux of the Disapproval Order was MEMX's decision to provide priority to Retail Midpoint Liquidity ("RML") Orders that publicly signal their willingness to trade with incoming

retail orders ahead of midpoint peg orders entered on the continuous order book that are willing to trade with any counterparty (i.e., not only retail investors) but are fully non-displayed. Not only is the Staff's decision fundamentally flawed for all the reasons discussed in MEMX Comment No. 2, the rationale given in the Disapproval Order also conflicts with the Commission's own discussion of substantially similar features that would be mandated by the Order Competition Rule.

Specifically, while the Staff found it to be "unfairly discriminatory" for MEMX to give priority to RML Orders entered to provide liquidity to incoming retail orders ahead of non-displayed orders resting on the continuous order book, the Order Competition Rule would mandate that auction orders entered to provide liquidity to incoming retail orders are given priority ahead of non-displayed continuous book orders. Put another way, the Commission has proposed to mandate that any exchange or ATS that wishes to operate a qualified auction under the Order Competition Rule do effectively the same thing that the Staff has stated MEMX cannot do in connection with our retail midpoint liquidity program.

II. THE COMMISSION'S STATED JUSTIFICATION FOR THE PRIORITY REQUIREMENTS PROPOSED FOR QUALIFIED AUCTIONS UNDER THE ORDER COMPETITION RULE APPLIES WITH EQUAL FORCE TO THE PROPOSAL

The Commission's primary rationale for requiring priority for auction responses ahead of continuous book orders under the Order Competition Rule is that "giving priority to auction responses at the same price would encourage participation in qualified auctions, thereby promoting the core order competition objective of [the proposed rule]."[7] That is, the proposed rule is designed

[7] Id 161. The Commission also offers a secondary objective, i.e., to address the "risk of gaming behavior by broker-dealers with knowledge of segmented orders that could undermine competition in qualified auctions." Id. However, as the Commission explains

to encourage market participants to participate in qualified auctions, where they could compete to provide enhanced execution opportunities to retail investors. This justification applies equally to MEMX's proposed retail midpoint liquidity program. Giving priority to orders that attract contra-side retail orders would increase MEMX's ability to attract that order flow to the exchange, where market participants can compete to provide midpoint executions to retail investors.

III. ANY RELEVANT DIFFERENCES BETWEEN THE PROPOSAL AND THE ORDER COMPETITION RULE ONLY FURTHER REINFORCE THE FACT THAT THE PROPOSAL IS CONSISTENT WITH THE EXCHANGE ACT

Incentivizing liquidity providing orders is particularly important under MEMX's proposed retail midpoint liquidity program where there is no regulatory requirement for market participants to utilize specific mechanisms and RML Orders would instead light up a Retail Liquidity Identifier ("Identifier") to attract contra-side retail order flow. Under the Proposal, RML Orders would: (1) attract the other side of the trade through the dissemination of the Identifier in consolidated market data when RML Orders are available to trade with incoming retail orders; and (2) take on additional information leakage risks when contributing to the Identifier.[8] By contrast, an order that is entered in response to an auction message disseminated in consolidated market data cannot reasonably be said to attract the other side of the trade – the opposite is actually true – and necessarily takes on

in its rulemaking release, such potential for gaming is already addressed by an explicit prohibition of such behavior in Proposed Rule 615(f).

8 See MEMX Comment No. 2, supra note 5, for additional discussion of MEMX's justification for providing RML Orders with priority over non-displayed continuous book orders, which is based on the role those orders would play in attracting contra-side retail order flow and related information leakage risks associated with lighting up the Identifier.

no information leakage risk since auction responses would, by rule, be fully non-displayed.[9] Thus, to the extent there are relevant differences between MEMX's proposed priority requirements under the Proposal and the Commission's proposed priority requirements under the Order Competition Rule, those differences militate in favor of finding the Proposal consistent with the Exchange Act.

There is also a relevant difference in the scope of the proposed rules. Whereas the proposed priority requirements under the Proposal would apply only to MEMX's retail midpoint liquidity program – and would not impose similar requirements on other market centers – the priority requirements proposed under the Order Competition Rule would impose a broad regulatory mandate that impacts the entire market for retail order execution. If the Commission has met its statutory obligation to show that the proposed priority requirements under the Order Competition Rule are necessary – not for one market, but for all markets that are allowed to operate qualified auctions, either now or in the future – it is inconceivable that MEMX has not satisfied the much lower bar of showing that those same requirements are appropriate for a single exchange program.

As the Staff explains in the Disapproval Order, "MEMX bears the burden to provide a sufficient legal analysis to demonstrate how its proposed rules are consistent with the [Exchange Act]."[10] MEMX has met its burden through significant discussion of the proposed priority requirements in the Proposal, and amendments thereto, as well as numerous detailed comment letters, which together have established a significantly more robust record than the relatively short

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9 See supra note 6 at 159. The Commission explains that the requirement for auction responses to be non-displayed is, in part, designed to reduce risks of information leakage. Id. Although MEMX is also interested in limiting the impact of information leakage, the Identifier would play a critical role under the Proposal given the need to attract contra-side retail order flow, and the Commission has approved the dissemination of similar identifiers for existing exchange retail liquidity programs. See e.g. IEX Rule 11.232(f).

10 See supra note 2 at 29194.

record that the Commission has established for similar requirements under the Order Competition Rule that would be broadly applied to a large segment of U.S. equity trading.

IV. IF THE STANDARD EXPRESSED IN THE DISAPPROVAL ORDER IS, IN FACT, THE APPLICABLE STANDARD UNDER THE EXCHANGE ACT THEN THE PRIORITY REQUIREMENTS OF BOTH THE PROPOSAL AND THE ORDER COMPETITION RULE ARE INCONSISTENT WITH THAT STANDARD

Reviewing the requirements of the Order Competition Rule through the lens of the Disapproval Order is similarly instructive. As discussed in the Disapproval Order, the Staff's view is apparently that entering RML Orders into the Program comes with "little risk (if any)"[11] that would justify priority over non-displayed continuous book orders. In turn, this conclusion appears to be based on the assumption that the only relevant risks come from "adverse selection" – i.e., the risk that the price of a security will move against the posted order after a trade is consummated.[12] As stated in MEMX Comment No. 2, we believe that this analysis is fundamentally flawed and, in fact, contradicts how the Commission has handled similar priority questions in the past.[13] However, if this is the standard then not only would MEMX's proposed retail midpoint liquidity program be inconsistent with the Exchange Act – i.e., because RML Orders would admittedly face lower adverse selection risks than orders entered onto the exchange's continuous order book – the same would be true of qualified auctions under the Order Competition Rule. In fact, the Order

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11 Id at 29196.

12 Id. See also MEMX Comment No. 2, supra note 5, for additional discussion on this point.

13 See MEMX Comment No. 2, supra note 5.

Competition Rule is premised on the fact that market participants face lower adverse selection risks when trading with "segmented orders" entered on behalf of retail investors.[14]

V. THE COMMISSION HAS NOT PROVIDED A RATIONAL BASIS UNDER APPLICABLE D.C. CIRCUIT PRECEDENT FOR DISTINGUISHING THE PRIORITY REQUIREMENTS AT ISSUE IN THE DISAPPROVAL ORDER AND THE SUBSTANTIALLY SIMILAR REQUIREMENTS THAT WOULD BE MANDATED BY THE ORDER COMPETITION RULE

The Commission cannot have its cake and eat it too. It is abundantly clear that either the Staff is wrong in its analysis of the priority requirements established for MEMX's retail midpoint liquidity program, or the Order Competition Rule is itself inconsistent with the Exchange Act. The D.C. Circuit has held that "when departing from precedents or practices, an agency must offer a reason to distinguish them or explain its apparent rejection of their approach."[15] Any reason given must also comply with the requirements of the Administrative Procedures Act ("APA"). For example, the D.C. Circuit has found that the APA requires an agency to "articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made."[16] If an agency fails to meet this burden, such action would be considered "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."[17] The Commission has not articulated any rational basis for prohibiting priority of RML Orders over non-displayed

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14 A search for the words "adverse selection" in the rulemaking release for the Order Competition Rule returns 199 results, with those results generally discussing the fact that segmented orders impose lower adverse selection costs on liquidity providers.

15 *Physicians for Social Responsibility v. Wheeler*, 956 F.3d 634, 644 (D.C. Cir. 2020) (cleaned up).

16 *Motor Vehicle Mfrs. Ass'n of U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (internal quotation marks omitted)

17 5 U.S.C. § 706(2)(A)

continuous book orders while simultaneously proposing to mandate that all qualified auctions provide substantially similar priority to auction responses. Nor does any such rational basis exist.

Although the Order Competition Rule is still going through the public comment process and has not become a final rule (and therefore is not legally binding precedent) the Commission owes it to the millions of retail investors that transact in the U.S. equity market to promptly resolve this inconsistency.[18] The Proposal, which was originally filed in September 2021, was disapproved by the Staff in May 2022. The Commission only recently published its three-page Scheduling Order, nine months after the Staff issued the Disapproval Order. In the interim, MEMX has been prohibited from offering its proposed retail midpoint liquidity program – a free-market solution to facilitate midpoint execution opportunities for retail investors and to encourage interaction between retail and other investors on a national securities exchange. Given the Commission's analysis of substantially similar priority requirements in the Order Competition Rule, any further delay in reversing the Disapproval Order would only serve to frustrate the Commission's stated goal of encouraging additional price improvement opportunities for retail investors.

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For the reasons discussed above, and those detailed in MEMX Comment Nos. 1 and 2, we respectfully request that the Commission promptly reverse the Disapproval Order so that MEMX can continue with its plans to provide enhanced execution opportunities for retail investors.

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[18] If the Commission chooses not to reverse the Disapproval Order that decision may also set precedent that it would be required to follow or distinguish if or when it issues a final Order Competition Rule assuming that rule retains the current priority requirements.

Sincerely

/s/ Adrian Griffiths

Head of Market Structure

APPENDIX

MEMX COMMENT LETTER ON NYSE CLOSING AUCTION FEES

February 17, 2022

Submitted electronically

Ms. Vanessa Countryman
Secretary
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090

Re: Securities Exchange Act Release No. 34-94223 (SR-NYSE-2022-07)

Dear Ms. Countryman:

MEMX LLC ("MEMX") appreciates the opportunity to provide comments to the Securities and Exchange Commission ("Commission") on the above-referenced proposed fee change filed by the New York Stock Exchange LLC ("NYSE"). Notably, the proposed fee change would: (1) increase the fees that NYSE charges for Market on Close ("MOC") orders executed in its closing auction; and (2) introduce new incremental "discounts" to those higher MOC fees based on a member's contribution to consolidated average daily volume ("CADV") added on NYSE during intraday continuous trading or volume executed during the trading day by an affiliated floor broker. These proposed fees are anticompetitive and should therefore be suspended and, ultimately, disapproved by the Commission pursuant to Section 19(b)(3)(C) of the Exchange Act.[1]

MEMX was founded by leading market participants with the common goal of improving U.S. equity markets for investors through, among other things, fostering increased competition

[1] 15 U.S. Code § 78s(b)(3)(C).

among national securities exchanges. Such competition among exchanges is vital for a healthy national market system as it drives technological and operational efficiencies, reduces costs, and supports continued innovation. For this reason, Congressional policy enshrined in the Exchange Act and the Commission's own equity market structure efforts have also often focused on how to facilitate competition among venues transacting in NMS stocks. By tying fees for on-close volume, over which NYSE operates a virtual monopoly, to intraday volume traded in the continuous market, the proposed fees threaten the robust competition that MEMX was founded to promote and that Congress and the Commission have sought over the years to facilitate.

Background

The MOC fees that NYSE seeks to increase were introduced in January 2018, the same month that the Staff of the Division of Trading and Markets ("Staff") initially approved the Cboe Market Close, an on-exchange facility for executing MOC orders at the official closing price.[2] At that time, and presumably in anticipation of *potential* competition, NYSE reduced its MOC fees, which had long been criticized by the industry as being unreasonably high, and those reduced MOC fees have been in place until the current proposal became effective on February 1, 2022.

However, following a lengthy review by the Commission, which resulted in the Commission eventually affirming the Staff's decision to approve the Cboe Market Close,[3] this

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2 See Securities Exchange Act Release Nos. 82563 (January 22, 2018), 83 FR 3799 (January 26, 2018) (SR-NYSE-2018-03) (2018 NYSE Fee Filing); 82522 (January 17, 2018), 83 FR 3205 (January 23, 2018) (SR-BatsBZX-2017-34) (Staff Approval of Cboe Market Close). Cboe Market Close was initially referred to as the "Bats Market Close," but the name was changed following Cboe Holdings acquisition of Bats Global Markets, Inc. For brevity, we refer to this product as Cboe Market Close throughout this letter.

3 See Securities Exchange Act Release No. 88008 (January 21, 2020), 85 FR 4726 (January 27, 2020) (SR-BatsBZX-2017-34) (Commission Approval).

facility has failed to divert volume from listing exchange closing auctions. In fact, while NYSE makes an unsubstantiated assertion in its filing that the "availability of the Cboe Market Close" along with "broker-dealer internalization of MOC orders" has "increased competition for MOC orders in NYSE-listed securities," our data on closing activity shows that Cboe BZX Exchange, Inc. ("BZX") accounts for less than 0.01% of total closing activity in NYSE-listed securities.[4]

At the same time, while various off-exchange venues do offer closing facilities to their customers, off-exchange trading in NYSE-listed securities at the official closing price accounts for only 22.6% of total closing activity. Now that the dust has settled on the Cboe Market Close, and in the face of still limited off-exchange execution opportunities to trade at the official closing price, NYSE seeks to raise its prices back to the levels that existed prior to January 2018. In addition, NYSE seeks to use the opportunity produced by these higher fees to incentivize members to transact more volume on NYSE during intraday continuous trading to lower these higher fees to more reasonable levels, thereby subverting generally fierce intraday competition for order flow.

I. THE PROPOSED FEES IMPOSE AN UNDUE BURDEN ON COMPETITION THAT IS INCONSISTENT WITH SECTION 6(B)(8) OF THE EXCHANGE ACT

NYSE's closing auction, which sets the official reference price for various mutual funds, exchange traded products ("ETPs"), and derivatives, "represent[s] about 7% of daily volume in NYSE-listed securities" and "can account for over 20% of daily volume" on "major option expiration and index rebalance days."[5] Notwithstanding unsubstantiated assertions to the contrary contained in NYSE's filing, NYSE enjoys a virtual monopoly over this closing activity. As

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4 All market share numbers discussed in this comment letter are calculated as discussed in the Appendix for the period from January 3, 2022 to February 14, 2022.

5 See NYSE Auctions *available at* https://www.nyse.com/auctions.

discussed, no meaningful volume is transacted in on-exchange MOC facilities that offer executions at the official closing price outside of NYSE's closing auction. And, while various broker-dealers do offer facilities that allow their customers to seek to obtain executions at the official closing price, these facilities are somewhat fragmented and do not offer a true substitute for market participants trading in the closing auction on the primary listing exchange. As a result, NYSE continues to maintain a market share of 76.5% of total closing activity in its listed securities.[6]

It is in this environment of limited competition that NYSE seeks to use its market power to increase MOC fees while offering "discounts" to those higher fees to members that direct significant intraday volume to NYSE. The result is that smaller broker-dealers that do not qualify for the proposed incentives would have to pay more to execute MOC orders in NYSE's closing auctions, while larger broker-dealers are offered what amounts to a Hobson's choice: pay the monopoly prices that NYSE proposes to charge for MOC orders executed in the closing auction, or divert intraday order flow to NYSE to avoid paying those monopoly prices. The Exchange Act does not permit a national securities exchange to use its fees to restrict competition in this manner.

Section 6(b)(8) of the Exchange Act provides that the rules of a national securities exchange registered with the Commission must not "impose any burden on competition not necessary or appropriate in furtherance of the purposes" of the Exchange Act.[7] This requirement reflects Congress's understanding of the significant role that national securities exchanges play in our capital markets and the benefits that investors receive from robust competition. As a market

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6 In addition to volume executed off-exchange at the official closing price and the insignificant volume executed in the Cboe Market Close, competing exchange auctions offered by The Nasdaq Stock Market LLC ("Nasdaq") and NYSE Arca, Inc. ("Arca") account for the remaining 0.9% of total closing activity in NYSE-listed securities.

7 15 U.S. Code § 78f(b)(8).

operator that was founded with the goal of increasing competition among exchanges, we urge the Commission to reject NYSE's attempt to use its market power in the market for executions at the close to inhibit competition in other segments of the national market system.

As the D.C. Circuit has stated, "[n]o one disputes that competition for order flow is 'fierce.'"[8] This is not mere happenstance and we must not take it for granted. Competition is fierce because of the steps taken by Congress and the Commission to facilitate that competition and the works of firms like MEMX that bring competition to the market. Put another way, competition is something that must be cultivated and not an immutable characteristic of financial markets. Allowing an exchange to leverage its ability to set monopoly prices in one aspect of the market to limit competition in another is a surefire way to unravel the carefully crafted tapestry of competition that Congress, the Commission, and market participants have nurtured over the years.

Indeed, the Commission has previously acknowledged the potential that a self-regulatory organization ("SRO") could attempt to improperly leverage its market power to set anticompetitive fees that are inconsistent with Section 6(b)(8). For example, the 2019 Staff Guidance on SRO Rule Filings Relating to Fees discusses the possibility that an SRO could leverage its "significant market share" in a manner that imposes an undue burden on competition from other smaller SROs:

> "[T]o the extent that a proposed fee structure creates significant incentives for certain market participants to realize significant pricing benefits by maintaining minimum volume levels with an SRO having significant market share, the SRO should address whether that

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8 See NetCoalition v. SEC, 615 F.3d 525, 539 (D.C. Cir. 2010) (quoting Securities Exchange Act Release No. 59039 (December 2, 2008), 73 FR 74770, 74782-83 (December 9, 2008) (SR-NYSE-2006-21)).

structure permits the SRO to leverage its market share in a manner that would impose an undue burden on competition on smaller SROs attempting to gain market share."[9]

It is patently clear that NYSE, which is responsible for about 76.5% of total closing activity in its listed securities has "significant market share" in that market. Although it no longer executes 79% of overall consolidated volume in its listed securities as it did in 2005 before the introduction of Regulation NMS and an explosion of competition from other trading venues,[10] NYSE continues to maintain a virtual monopoly in trading in its listed securities at the close. There can also be little doubt that the proposed fee structure "creates significant incentives" for NYSE members to "realize significant pricing benefits by maintaining minimum volume levels." Indeed, the highest incremental discount that NYSE proposes in its filing requires that the member add liquidity on NYSE that accounts for at least 1% of CADV,[11] an amount that is greater than the market share of seven of sixteen U.S. equities exchanges, including three NYSE affiliates.

The only question then is whether the significant burden on competition imposed by NYSE's proposed fee structure is "undue." We submit that any attempt by an exchange to leverage market power in a monopoly business to gain a competitive advantage in another business must be considered an undue burden. Anticompetitive "tying" of products in a more competitive market with products over which a monopolist has market power has long been held to violate the antitrust laws. Similarly, tying fees charged for the execution of orders in an exchange's closing auction, which is a virtual monopoly, to volume transacted on that exchange in what is an otherwise

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9 See Staff Guidance on SRO Rule Filings Relating to Fees (May 21, 2019) *available at* https://www.sec.gov/tm/staff-guidancesro-rule-filings-fees (Staff Fee Guidance).

10 See Securities Exchange Act Release No. 61358 (January 14, 2010), 75 FR 3593, 3595 (January 21, 2010) (File No. S7-02-10) (Concept Release on Equity Market Structure).

11 The 1% of CADV added excludes any volume from a NYSE Designated Market Maker.

competitive market for continuous trading must be found to violate Section 6(b)(8).[12] Such a finding is needed not only to allow other exchanges like MEMX a fair opportunity to compete but also to ensure that broker-dealers and the investors they represent continue to be able to freely direct their order flow to the best market without incurring a penalty for doing so.

II. THE COMMISSION SHOULD APPLY HEIGHTENED SCRUTINY WHEN EVALUATING WHETHER MONOPOLISTIC AUCTION FEES ARE "REASONABLE" UNDER SECTION 6(B)(4) OF THE EXCHANGE ACT

Competition for order flow has brought down prices in the market for intraday trading, with exchanges largely retaining modest capture for providing these services. However, due to the virtual monopoly that the listing exchanges have over their closing auctions, prices in these auctions have remained high, with significant fees generally charged to both buyers and sellers. While the threat of potential competition seems to have initially resulted in a reduction in NYSE's prices, NYSE has decided to raise its prices again, secure in the knowledge that such competition has not actually materialized. Its filing to do so should be subject to heightened scrutiny.

Section 6(b)(4) of the Exchange Act requires that the rules of an exchange "provide for the equitable allocation of reasonable dues, fees, and other charges."[13] Generally, the Commission applies a "market-based approach" when evaluating whether fees proposed by an exchange are "reasonable" as required under Section 6(b)(4).[14] Pursuant to this market-based approach, the

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12 NYSE briefly discusses in its filing similar fees charged by Nasdaq for trades in Nasdaq-listed securities. However, the fact that another exchange has similar fees is not evidence that those fees are consistent with the Exchange Act. The Nasdaq fees cited by NYSE in its proposal raise the same issues discussed in this comment letter.

13 15 U.S. Code § 78f(b)(4).

14 See Staff Fee Guidance, supra note 9. The guidance cites several Commission actions for this principle. See e.g. Securities Exchange Act Release No. 59039 (December 2, 2008), 73 FR at 74770 (December 9, 2008) (SR-NYSEArca-2006-21) (ArcaBook Order)

Commission first "examines whether the exchange making the proposal is subject to significant competitive forces in setting the terms of its proposal, including the level of any fee."[15] If the proposed fees are subject to significant competitive forces, then the Commission will generally approve the proposed fees except where there is "substantial countervailing basis"[16] not to do so. However, in the absence of persuasive evidence that the proposed fees are constrained by significant competitive forces, an exchange must provide a substantial basis other than competitive forces that demonstrates that the proposed fees are consistent with the Exchange Act.[17]

As discussed, the reasonableness analysis contained in NYSE's filing relies on unsubstantiated assertions about the competitiveness of the market for the execution of orders in its listed securities at the close. However, far from being a competitive market as NYSE asserts, the evidence actually shows that NYSE, which maintains a market share of 76.5% of total closing activity, actually maintains a virtual monopoly over this market. 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."[18] NYSE has certainly not met its burden. Given the lack of competition in the market for executions in its listed securities at the close, NYSE must present additional analysis to enable the Commission to fulfill its own statutory role in evaluating the reasonableness of the proposed MOC fees.[19] Such

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15 Id.

16 Id.

17 Id.

18 See Commission Rules of Practice, Rule 700 (b)(3) (17 CFR 201.700(b)(3)).

19 See Susquehanna Int'l Grp., LLC v. SEC, 866 F.3d 442 (D.C. Cir. 2017).

heightened scrutiny is required under the Exchange Act in the absence of meaningful competition that would otherwise constrain an exchange's ability to charge supra-competitive fees.

* * *

MEMX was founded by leading market participants who believe in the benefits of robust competition. Our capital markets work best when exchanges compete vigorously to offer high-quality services at reasonable prices. Today, competition for intraday volume is fierce and this competition has benefited investors through innovation and reduced costs. Nevertheless, now is not the time for complacency. NYSE's proposed fees violate Section 6(b)(8) and threaten the competitive environment that has been fostered through years of work by Congress, the Commission, and firms like MEMX. In addition, in the absence of a competitive market to constrain fees charged for executions in NYSE's closing auction, the proposed filing raises significant issues with regard to whether the proposed fees are "reasonable" under Section 6(b)(4).

We therefore request that the proposed fee change be suspended pursuant to authority granted to the Commission under Section 19(b)(3)(C), which allows the Commission to temporarily suspend an immediately effective proposed fee change "if it appears to the Commission that such action is necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of"[20] the Exchange Act. If the Commission chooses to temporarily suspend the proposed fee change, Section 19(b)(3)(C) further provides that the Commission shall institute proceedings to determine whether the proposal should be approved or disapproved. We further request that the proposed fee change be disproved following such proceedings. Suspension and, ultimately, disapproval of the proposal is warranted given the

[20] 15 U.S. Code § 78s(b)(3)(C).

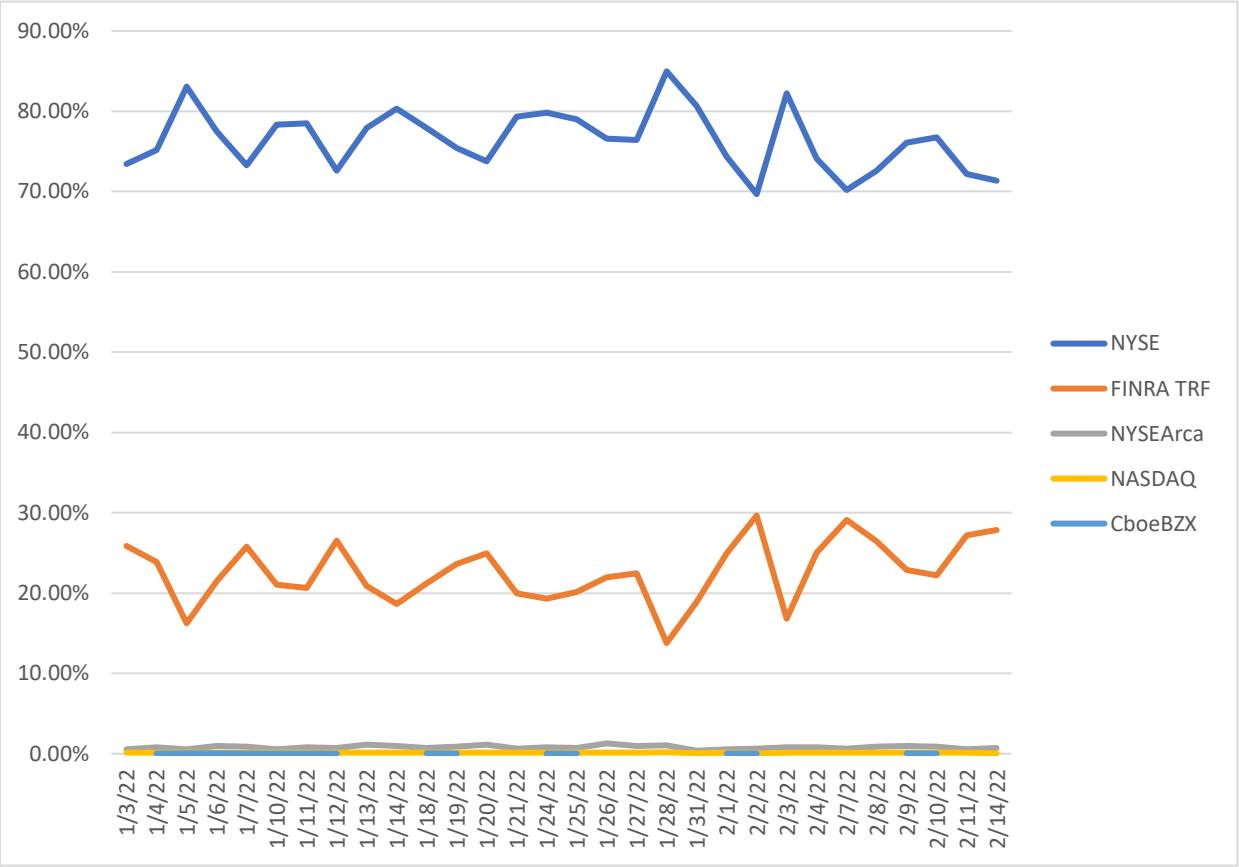
anticompetitive nature of the proposed fees and the insufficient justification provided for them in light of the virtual monopoly that NYSE has in closing activity in its listed securities.

Sincerely,

/s/ Adrian Griffiths

Adrian Griffiths
Head of Market Structure

APPENDIX: CLOSING MARKET SHARE IN NYSE-LISTED SECURITIES



* Market share includes executions in NYSE's closing auction and competing exchange closing facilities, *i.e.*, both price forming auctions and MOC facilities offered by other exchanges, as well as off-exchange executions at the official closing price between 4:00 p.m. to 4:15 p.m.