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Vanessa Countryman
Secretary
U.S. Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Re: **File No. S7-30-22; Release No. 34-96494; Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders**

Investors Exchange LLC ("IEX") is pleased to respond to the request by the Securities and Exchange Commission ("SEC" or "Commission") for comment on the Commission's proposed changes (the "Proposals") to various provisions of Regulation NMS under the Securities Exchange Act of 1934 (the "Exchange Act").[1] IEX commends the Commission for issuing the Proposals, which we believe, with certain modifications described below, will lead the equity markets to better serve investors and will advance the national market system goals of efficiency, transparency, and fair competition.

I. Introduction

Nearly a half-century ago, Congress enacted landmark legislation directing the SEC to facilitate the creation of what it called a national market system for securities. The legislation laid out five overarching goals: fair market competition, efficient order execution, transparency of price quotations, the best execution of customers' orders, and opportunities for investors' orders to interact directly, without the participation of a dealer.[2] The SEC was given broad discretion to adopt rules designed to achieve these policy goals.[3]

Over the years, the SEC has taken various actions based on this authority and direction, most significantly the adoption of Regulation NMS in 2005.[4] That comprehensive rule set aimed both to break down barriers to competition and join together the various competing market participants in a coherent way by providing for protected quotes at the best prices, fair and nondiscriminatory access to protected quotes and a cap on fees that can be charged to access them, a minimum tick size, and strengthened requirements for dissemination of consolidated market data.

In the years since 2005, the U.S. equity markets have changed in dramatic ways, as described below. A close review of these changes shows that the existing market environment has diverged in some significant respects from the goals of the national market system and the

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[1] Securities Exchange Act Release No. 96494 (December 14, 2022), 87 FR 80266 (December 29, 2022) ("Proposing Release").
[2] 15 U.S.C. sec. 78k-1(a)(1)(C).
[3] See generally, John G. Gillis & Robert G. Dreher, Securities Law and Regulation: National Market System, 38 FIN. ANALYSTS J.13 (1982).
[4] See Securities Exchange Act Release No. 51808, 70 FR 37496 (June 29, 2005) ("Reg NMS Adopting Release").

objectives the Commission sought to achieve with Regulation NMS. This is in no way surprising. Because U.S. equity markets are highly dynamic, regulation cannot stay static for long, and rules need to be regularly updated to keep pace with market changes to ensure core regulatory objectives are met. We believe the Commission's Proposals are thoughtful and thorough and appropriately identify aspects of the rules that require reform.

Key Principles That Should Drive Reform

In seeking to adjust the rules to take account of the market changes to achieve the goals of the national market system, we believe the following are among the most important considerations.

First, recognizing the importance of exchange trading to maintaining high investor protection standards and transparency. Under the Exchange Act, exchanges are uniquely subject to strict standards of fair access and non-discrimination, and all of the aspects of their operations are subject to regulatory review to ensure that they are consistent with investor protection. They are also uniquely responsible for the public dissemination of quotes, which drives the level of price discovery on which the capital markets depend. There is substantial academic research to the effect that a reduction in the overall level of transparent trading can seriously undermine market quality.[5]

Second, changing the exchange fee structure to reduce costs for investors and increase healthy incentives to trade on exchanges. Reducing access fees can increase the demand to trade with displayed quotes, increase incentives for a broader pool of participants to submit displayed quotes, and reduce the distortive effects of the rebate system. Rationalizing exchange fees will advance all of the national market system goals described above.

Third, restoring a balance between competition among markets and competition among orders. In adopting Regulation NMS 18 years ago, the SEC said repeatedly that its overarching goal was to create a market structure that would provide an effective balance between competition among markets, on the one hand, and competition among orders, on the other.[6] In updating the rules to take account of developments since then, we believe the Commission should strive to restore that balance.

Finally, creating opportunities for investors' orders to interact with each other. In general, institutional investors that trade on exchanges are rarely able to interact with marketable retail order flow. Creating more opportunities for interaction increases the potential for retail and institutional investors to trade with each other at mutually-beneficial prices. This would directly promote the Congressional goal for the national market system to provide opportunities "for investors' orders to be executed without the participation of a dealer."[7]

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[5] See, e.g., Hatheway, Kwan, and Zheng, "An Empirical Analysis of Market Segmentation on U.S. Equity Markets," *Journal of Quantitative and Financial Analysis* (2017); CFA Institute, "Dark Pools, Internalization, and Equity Market Quality" (October 2012), at 14 ("CFA Study").
[6] See, e.g., Reg NMS Adopting Release, at 37498-89.
[7] Exchange Act Section 11A(a)(1)(C)(v).

Market Trends and Changes Since 2005

When considering whether the rules governing our markets need to be modernized, it is important to review some of the more significant changes in the equity landscape that have occurred since the last comprehensive set of regulations (Regulation NMS) was adopted 18 years ago:

Market Volumes have Exploded. The average daily volume for listed stocks in February 2005 was about 3.9 billion shares, compared to daily volume of trading in NMS securities last year of about 11.8 billion shares. Along with this change, volume has grown increasingly concentrated in stocks that are "tick-constrained" i.e., they would quote and trade at narrower increments if not for the one cent minimum tick constraint.[8]

Market Volumes Have Massively Fragmented to Include Nearly 50 Trading Venues. In 2005, the New York Stock Exchange ("NYSE") was still largely a floor-based market. It dominated trading in its listed stocks, accounting for 78% of those stocks' total trading volume. Nasdaq was not yet registered as a national securities exchange. Today, almost all trading is electronic, with 16 different equity exchanges, no one of which handles more than approximately 20% of trading volume.[9] There are currently 33 alternative trading systems ("ATSs") registered as NMS Stock ATSs, which meet the definition of "exchange" under the Exchange Act,[10] and a number of OTC market makers, all of which, together with registered exchanges, are treated as "market centers" under Regulation NMS.[11]

The Rise of "Dark" and Non-Exchange Trading. Exchanges are subject to comprehensive regulation geared to high standards of transparency and investor protection and are the primary contributors to the price discovery function, which all other market participants rely on. In 2007, the percentage of overall non-exchange volume was 29% of total volume. By 2022, the percentage of off-exchange volume had reached about 42% of all share volume,[12] and it was a majority of share volume for a large proportion of all NMS securities, including well-known "household" stocks like TSLA.

The Rise of a "Two-Tiered" Market. The predominant method of executing retail orders is to trade off-exchange directly with a wholesaler, making retail orders largely "inaccessible" to other market participants, including institutional investors. According to the Commission's estimate, this "inaccessible" market volume has now reached about one-fourth of total share volume.[13]

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[8] See IEX, "The Clock is Ticking on Equity Market Reform" (February 2023), avail. at https://www.iexexchange.io/blog/the-clock-is-ticking-on-equity-market-reform.
[9] Id.
[10] See 17 C.F.R 240.3b-16.
[11] Proposing Release, 87 FR at 80273.
[12] Id.; See IEX, "Losing Transparency in America's Stock Markets: How to Bring More Trading into the Light" (November 2021), avail. at https://www.iexexchange.io/blog/losing-transparency-in-americas-stock-markets-how-to-bring-more-trading-into-the-light.
[13] Proposing Release, 87 FR at 80306.

As a result, there is a "two-tiered" market that separates retail and other investors from each other and tends to keep their orders from interacting with each other.

Order Execution Speeds Have Dramatically Increased. In 2005, the average speed of execution of small orders by NYSE was about 10 seconds.[14] Today, execution times are typically measured in millionths of a second, and execution quality comparisons use very small fractions of a second. Speed-based trading strategies have arisen alongside this trend, with negative impacts to long-term investors that lack the means to use the same strategies or defend against them. Some markets, most notably IEX, have created innovations designed to protect institutional investors and others placing resting orders with the exchange from the adverse effects of some of these strategies.[15]

Decline in Broker Competition. The number of market makers and competing exchange brokers has substantially declined. For example, from the time IEX first started operating as an ATS in 2013 through its operation as an exchange up to 2021, the number of exchange members declined 44% on Nasdaq, 26% on NYSE, and 69% on NYSE Arca. The number of specialists or designated market makers on the floor of the NYSE has declined from 25 in 2000[16] to only 3 today.[17] The Commission estimates that six wholesaler firms internalize 90% of dollar volume of individual investor orders in NMS stocks.[18]

Exchange Access Fees Remain Fixed at Regulatory Maximum. There have been extraordinary improvements in technological efficiencies, including those related to the processing of data and transactions. However, this has not translated to reductions in fees to access displayed quotes, which remain fixed at the regulatory maximum for the largest exchanges. These high fixed fees fund rebates used to induce routing of orders and to compensate for worse execution quality on these particular venues.[19] In addition, "maker-taker" fee and rebate schedules have grown increasingly more complex. The distribution of rebate benefits is heavily concentrated among a

[14] Memorandum to SEC Market Structure Advisory Committee from SEC Division of Trading and Markets, dated April 30, 2015., at 7-8, avail. at https://www.sec.gov/spotlight/emsac/memo-rule-611-regulation-nms.pdf.
[15] See Citadel Securities LLC v. SEC and Investors Exchange LLC, Case No. 20-1424 (D.C. Cir.2022), avail. at https://www.cadc.uscourts.gov/internet/opinions.nsf/4E680EDE202B152E8525888E0051AE8C/$file/20-1424-1956972.pdf.
[16] Securities Exchange Act Release No. 52969, 70 FR 76337, 76341 (December 23, 2005).
[17] See https://www.nyse.com/markets/nyse/membership.
[18] Proposing Release, note 431, at 80303.
[19] See, e.g., Battalio, Corwin and Jennings, "Can Brokers Have it All? On the Relation between Make-Take Fees And Limit Order Execution Quality" (March 31, 2015), avail. at https://www.sec.gov/spotlight/emsac/can-brokers-have-it-all.pdf; IEX, "A Comparison of Execution Quality Across U.S. Exchanges" (April 19, 2017), avail. at https://iextrading.com/docs/A%20Comparison%20of%20Execution%20Quality%20across%20U.S.%20Stock%20Exchanges.pdf.

relatively few firms, and there is virtually no transparency about the net impact of fees and rebates on individual firms.[20]

The Growth of Odd-Lot Trading. The proportion of trading in "odd-lots" of less than 100 shares has grown to a level that now represents a majority of all trades. The percentage of odd-lot trades grew to about 55% of all trades in 2022, from less than 20% in 2014. The proportion of orders in odd-lot sizes has grown accordingly. Information related to odd-lot trades has been disseminated in consolidated market data since December 2013, but information on odd-lot orders is not available on those data feeds.[21]

Commission Actions and Ongoing Reviews

At the time Regulation NMS was adopted, the Commission noted that the rules that it had adopted would need to be reviewed and amended as the market evolved. Since 2005, the Commission has taken numerous steps to review, "holistically", the impact of the rules and has collected input from a broad spectrum of stakeholders on multiple occasions. These efforts include, among others: (i) establishing an Equity Market Structure Advisory Committee with representatives from across the industry, which developed specific recommendations on exchange fees and other topics covered by the Proposals;[22] (ii) gathering substantial comment and data relevant to exchange access fees and rebate practices, among other topics relevant to equity market regulation;[23] (iii) conducting roundtables and gathering public comment on market data and market access;[24] and (iv) proposing and adopting the Market Data Infrastructure Rule ("MDIR"), which ordered changes to the content and method of delivery of consolidated market data.[25]

The history shows that the Commission's current Proposals do not arise in a vacuum. In fact, the Commission has deliberately considered the views of multiple stakeholders over years of review, and its current Proposals grow out of and build on that ongoing review.

In summary, the passage of time and market changes since 2005 make it not only appropriate but necessary for the Commission to adopt significant changes to Regulation NMS. IEX believes that the SEC is fully warranted in undertaking this type of modernization of the rules, to ensure that the regulatory structure continues to support the goals of the national market system.

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[20] See IEX, "Breaking Down the SEC Plan on Exchange Fees" (February 2023), avail. at https://www.iexexchange.io/blog/breaking-down-the-sec-plan-on-exchange-fees.
[21] See generally https://www.sec.gov/marketstructure/midas-system.
[22] See https://www.sec.gov/spotlight/emsac/emsac-archives.htm.
[23] See, e.g., Comments on Proposed Transaction Fee Pilot, avail. at https://www.sec.gov/comments/s7-05-18/s70518.htm; Comments on Concept Release on Equity Market Structure, avail. at https://www.sec.gov/comments/s7-02-10/s70210.shtml.
[24] See https://www.sec.gov/spotlight/equity-market-structure-roundtables.
[25] See Securities Exchange Act Release No. 90610, 86 FR 18596 (April 9, 2021).

Summary of IEX Comments

IEX is pleased to support the SEC's Proposals, with the modifications described below.

First, to support more efficient trading in actively-traded stocks, we support a reduction in the minimum tick size. We recommend that the SEC set the tick size at one-half cent for all NMS securities with an average spread equal to or less than two cents, and at one cent for all others.

Second, to promote equal treatment and fair competition among trading venues, we support the use of these same tick sizes as common trading increments, along with exceptions for mid-point and benchmark priced trades, except as applied to retail execution systems.

Third, to promote fair competition and price improvement for retail orders, we propose a minimum tick and trade increment of one-tenth of one cent for retail execution systems. We believe exchanges should have the ability to fully display the price and size of orders in these increments in their retail execution systems. These displayed orders would not constitute protected quotes but would be provided on consolidated and proprietary market data.

Fourth, to reduce investor costs to trade on exchange and help rationalize the exchange fee structure, we support reducing the cap on access fees to one-tenth of one cent for all NMS securities.

Fifth, to increase transparency of exchange fees, we support changing the method for setting volume-based exchange fee and rebate tiers so that the fee or rebate for each trade is determinable at the time of the trade. To further address the discriminatory and anti-competitive impacts of tiered rebates, we also urge the Commission to take further action to eliminate or substantially restrict the tiered pricing methods that are now common.

Sixth, to improve the usefulness and accuracy of exchange displayed prices, we support the early implementation of changes to round lot sizes and display of odd-lot orders required by the MDIR. We also support the Commission's proposal to include a best odd-lot bid and offer in consolidated data.

We now provide our detailed comments on each of the elements of the Proposals.

II. Tick and Trade Increments

The Commission is proposing to replace the current one cent minimum tick standard under Rule 612 for all NMS securities with a price of $1 or more per share with four tick sizes, ranging from $.001, or 10 "mils", to a maximum of one cent. The tick categories would be determined based on the time weighted average quoted spread ("TWAQS"), as that term is defined in the Proposals, for each symbol. The allocation of the tick size among securities would be reset at the beginning of each calendar quarter, and the calculation of quoted spread would be based on the last month of each preceding quarter. The allocation of tick sizes by average spread category is summarized in this table:

Minimum Pricing Increment	Time Weighted Average Quoted Spread
$0.001	<= $0.008
$0.002	>$0.008, <=$0.016
$0.005	>$0.016, <=$0.04
$0.01	>$0.04

Further, the same minimum increments would be used as minimum trading increments for all market centers trading NMS securities, with exceptions for trading at the mid-point of the national best bid and offer ("NBBO") and trades tied to certain benchmark methods, including volume weighted average price ("VWAP").

Minimum Tick Increments

IEX agrees with the premise that tick sizes should be reduced for stocks that are currently "tick-constrained" or could easily become tick-constrained because of the current one cent limitation. We believe the relevant question is not whether the minimum tick size should be reduced, but by how much and how broadly narrower ticks should be applied.

First, we agree that TWAQS is a reasonable and appropriate measure to define which securities should be subject to a narrower tick size. We note that allocating tick size based on the price of each security would be a simpler method to apply but believe that share price does not sufficiently account for the different trading characteristics that can affect the need for more flexibility in accepting, ranking, and quoting, within the same price category. To this point, we note that many exchange-traded funds with relatively high share prices are also highly-liquid, with narrow bid-offer spreads. Many of these symbols are effectively "tick-constrained" but may not qualify for a smaller tick size based on a simple share price test.[26]

We also agree that resetting tick sizes on a quarterly basis is reasonable. We suggest, however, that the Commission allow a minimum period of time, e.g., one month, between the end of the data collection period and the beginning of trading with the reallocated tick sizes, in order to avoid any unanticipated disruptions. For example, the reallocation of tick sizes could be based on trading data for the second month of the previous quarter, rather than the last month, as proposed.

IEX believes the Commission should implement tick sizes in a less aggressive and more simplified form from the one proposed before considering additional changes. We believe that the current proposal risks unintended consequences that are too great relative to any benefits from tick sizes as low as $0.001 and $0.002. Instead, we support the adoption of two tick sizes -- one-half cent for securities with narrower spreads, and one cent for all others. This alternative is similar to the "Two-Tiered Alternative" described in the Proposing Release, with an important difference. As laid out by the Commission, that alternative would apply the half-cent tick size

[26] For example, according to January 2023 trading data, over 90% of ETF trading volume was in ETFs with a TWAQS of under 2 cents, yet approximately two-thirds of ETF volume was in ETFs with an average price above $25, and over 90% of ETF volume was in ETFs with an average price above $10. Source: NYSE TAQ Data, IEX Market Data.

only to securities the Commission identified as "tick-constrained", i.e., those with a TWAQS of 1.1 cents or less. For the reasons explained below, we recommend extending the half-cent tick size to symbols the SEC describes as "near tick-constrained" securities, meaning those with a TWAQS of up to two cents. The SEC estimated that the tick-constrained group would cover about 56% of total market volume, while the near tick-constrained group would capture an additional 16%.[27]

Concerns with Very Narrow Ticks

Although we agree with many of the benefits of narrowing tick sizes outlined by the SEC, we also believe the proposed $0.001 and $0.002 tick increments would create unnecessary complexity and lead to adverse consequences in the form of increased quote instability. We believe that $0.001 would present greater challenges than $0.002 tick increments, but to an extent, both tick sizes may result in the potential for "flickering quotations", making displayed quotes less reliable, reducing the quantity of shares available at the best price, and increasing transaction costs, particularly for institutional investors.[28] The Commission acknowledges these risks in the Proposing Release.

The Commission suggests that concerns with the potential for "flickering quotes" are less relevant today because of advances in trading technology since 2005 and the ability of market participants to accommodate many levels of data with very low latency levels, so as to be able to readily adjust to an increase in message traffic resulting from lower tick sizes.[29] We believe the concern with "flickering quotes" does not primarily concern the ability of some participants to accommodate increased message traffic. Instead, our concern is that natural investors and their brokers cannot as readily *react* to changing prices at multiple price levels. This means that they are exposed to increased losses in posting liquidity and seeking to access liquidity at multiple price levels on 16 different exchanges.

The reality of this imbalance in investors' ability to react to rapidly changing prices is shown by the scores of comment letters from institutional investors writing in support of IEX's efforts to introduce order types to redress this imbalance for their trading on IEX. Those letters explain how this imbalance leads them to shift orders away from exchanges and displayed trading.[30] The Commission recognized this aspect of the current market structure in its approval of IEX's D-Limit order type:

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[27] Proposing Release, 87 FR at 80305.
[28] See Reg NMS Adopting Release, 70 FR at 37550-51.
[29] Proposing Release, at 80278-79.
[30] See e.g., Comments on IEX Proposal to Add a New Discretionary Limit Order Type, avail. at https://www.sec.gov/comments/sr-iex-2019-15/sriex201915.htm. One example from global asset manager AGF: "One of the contributors to this downward trend [of displayed liquidity] has been the rise of high-speed trading, where faster data and technology purchased from exchanges is used to trade against participants who are slower. This phenomenon has caused many investors to steer orders away from exchanges, which ultimately reduces the displayed liquidity in the markets."

> In those rare moments when market prices are in transition, a race condition exists between liquidity providers who want to reprice their on-exchange displayed liquidity to reflect the changing market prices and the liquidity takers who want to take before those updates can occur. This creates information asymmetries and can lead to other externalities, which can affect the willingness of many market participants to post displayed liquidity because it subjects their orders to adverse selection when prices move and they are not able to see or react as fast to those changing conditions. In turn, this race can have a meaningful effect on all market participants because it can incentivize investors to trade in the dark, either off exchange or through non-displayed exchange order types. The result is that a valuable source of liquidity may instead seek out dark non-exchange trading venues where the speed traders' advantages are moot, but in doing so this liquidity is no longer displayed to and accessible by the market as a whole. Such an outcome does not advance the Exchange Act's goal of promoting fair and orderly securities markets.[31]

From the perspective of natural investors and agent brokers, the key question is their *relative* ability, compared to the fastest high-speed trading firms, to use technology advances to quickly set and react to changing quotes. IEX believes that changes in technology since 2005 have not changed this inequality.

Impact on Displayed Resting Orders

IEX's experience and analysis suggests that a severe reduction in spread as a result of very narrow tick sizes could exacerbate the speed imbalance between high-speed traders and investors in trading on exchanges. In particular, reduction in spreads is typically associated with reduced quote size at the NBBO, and this reduction in quote size is highly correlated with less price stability (or more volatile price moves). We measure price stability based on the volume of trading that occurs in the two milliseconds prior to a change in the NBBO. In these discrete moments, high-speed traders tend to trade in reaction to quote changes across various exchanges. Stocks that experience higher price instability also carry higher adverse selection costs to participants, including institutional investors, which lack the ability to adjust their order prices as quickly as the fastest high-speed trading firms.

In short, narrow tick sizes can undermine incentives to display orders because:

- very narrow ticks create more price points, which reduces the amount of displayed liquidity at any single price point, including at the NBBO;
- each individual quote becomes less "stable", meaning quotes will be repriced or canceled more quickly; and

[31] Securities Exchange Act Release No. 89686, 85 FR 54438, 54442-43 (September 1, 2020).

- less stable quotes increase the likelihood that liquidity providers, including investors, will suffer "adverse selection", meaning market prices move adversely against them immediately after their orders trade.

We break down each part of this sequence below.

Spreads and Quote Size

If spreads are viewed not in absolute terms but rather in number of ticks between the bid and offer, the chart below shows clearly that securities with wider spreads (as measured in number of ticks) generally have smaller quote sizes.[32]

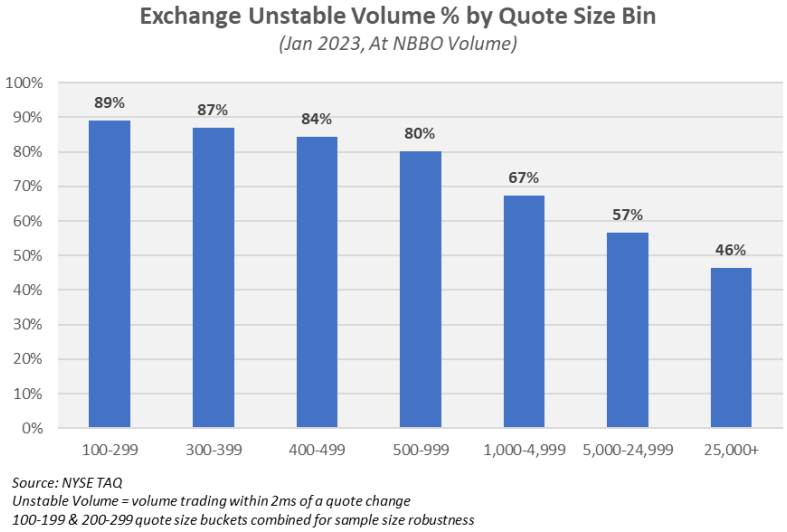
	Median Quote Size	
Spread in # of Ticks	**Common Stocks**	**ETFs**
Always 1	4,918	17,261
1 to 2	1,952	2,185
2 to 3	932	1,613
3 to 4	665	1,374
4 to 5	572	1,234
5 to 6	581	1,278
6 to 7	466	1,248
7 to 8	463	1,021
8 to 9	415	1,269
9 to 10	422	968
10 to 25	393	885
25+	333	671

Given this trend, it is reasonable to expect, for example, that a reduction in tick sizes to $0.001, while narrowing spreads in absolute terms, would widen spreads in terms of the number of ticks. Therefore, the number of shares available at each price point is likely to decline with each tick size reduction.

Quote Sizes and Market Instability

Smaller quote sizes, in turn, lead to greater market instability. Market data shows that securities with substantially smaller average quote sizes tend to have a significantly higher portion of their volume trade in unstable market conditions, as each trade more frequently results in a change to the NBBO.

[32] Based on NYSE TAQ and IEX Market Data, January 2023.

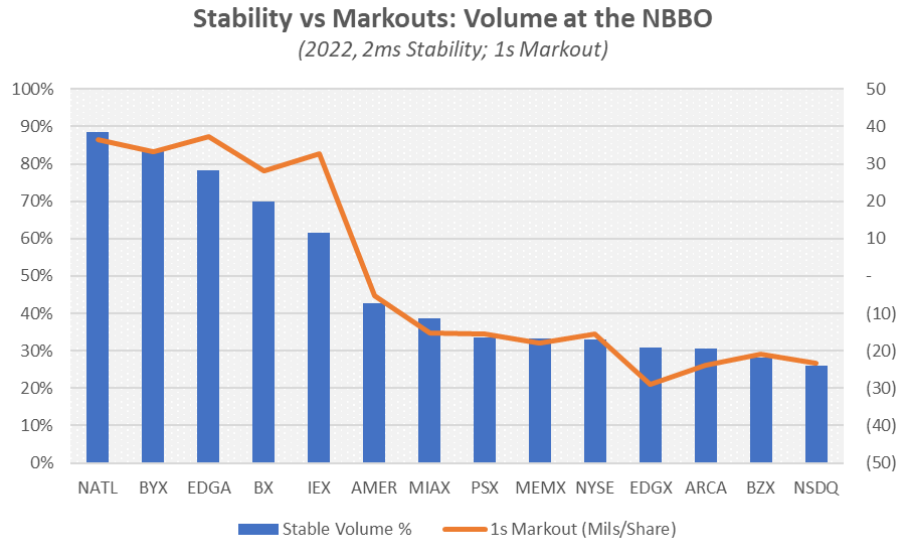


Market Instability and Adverse Selection

Quote instability results in greater adverse selection. As prices change, liquidity providers are often adversely selected by liquidity removers, buying before the price declines or selling before the price increases. This manifests itself in negative "markouts",[33] which is a measure commonly used to quantify the frequency and magnitude of adverse selection.

The below chart measures the proportion of stable volume on each exchange, focusing on shares trading at the NBBO as a proxy for displayed volume. The chart calculates the markouts from the perspective of the liquidity provider, showing a very clear relationship between lower stability and worse markouts.[34]

[33] Mark-outs are generally used to measure the degree of adverse selection of resting orders, by looking at the difference between the execution price and market prices for the security at various time intervals after the execution.
[34] Source: NYSE TAQ, IEX Market Data



Rise in Hidden Volume

IEX believes that reduced quote stability and higher adverse selection also contribute significantly to a lack of displayed volume in securities with a higher number of ticks within the average spread. SEC MIDAS data (for 4Q 2022) provides hidden exchange volume on a symbol-by-symbol basis for the majority of NMS securities. This data demonstrates that, particularly for stocks with more than four ticks between the spread, a meaningfully higher percentage of volume is "hidden", or results from non-displayed orders.

	Hidden Volume %	
Spread in # of Ticks	**Stocks**	**ETFs**
1	17%	12%
2 to 4	20%	18%
5 to 9	26%	31%
10 to 24	32%	30%
25+	37%	24%

It is important to note that these percentages represent the portion of *exchange* volume that is hidden. In other words, this trend exists against the backdrop of significantly-rising off-exchange volume (over 40% in 2022).

Impact on Orders Accessing Liquidity

Much of the discussion on smaller tick sizes has focused on the impact to resting orders. However, dialogue with institutional investors and their brokers reveals that it can be challenging for them to *access* displayed liquidity across markets and at different price levels today. We believe that institutional investors would find it more challenging to access the same level of liquidity at a substantially larger number of additional price points.

The Commission acknowledges that "smaller tick size may increase the cost of executing large orders by fragmenting liquidity across multiple price levels and increasing the complexity of locating shares for the orders."[35] We agree with this concern. Also, in cases where investors attempt to access multiple price levels at a time, we believe the act of doing so is likely to cause "reverberations" across additional price levels. For instance, if a large buy order were to access sellers at price levels 1 through 3, it is unlikely that sellers at price levels 4 and 5 would continue to quote at the same prices.

In summary, IEX believes that instituting very narrow tick sizes will likely exacerbate speed-based differences, reducing incentives for institutional investors and agent brokers to access liquidity on-exchange and contribute displayed limit orders, which would run contrary to the Commission's purpose to incentivize displayed trading on exchange.

Advantage of a Half-Cent Tick Applied to Most Trading

We believe that reducing the tick size to a half-cent and applying it to all securities with a TWAQS up to two cents will substantially improve the efficiency of displayed trading and avoid the unintended results described above. The Commission acknowledges in the Proposing Release that determining what is the "optimum" number of ticks within the natural bid-offer spread for a given security to promote the best market quality is not clear. We believe it is also not clear whether the optimum number is the same for different categories of securities. The SEC notes that its proposal equates to a range of 4-8 ticks within each spread "bucket", but it also acknowledges that a target range of 2-4 ticks within the spread might be preferable, and it sought comment on this question. We believe there is substantial evidence and research supporting a tick regime that results in a tick to spread ratio of more than one but less than the 4 to 8 ticks targeted by the Commission's proposal.

For example, a study by the French regulator AMF examined 500 stocks over two months (December 2017-January 2018) around the time of the introduction of the new European tick regime under MIFID II. The study reflected the conclusion of European regulators that an appropriate tick size for very liquid securities corresponds to 1.5 to 2 ticks within the spread and for less liquid securities, between 1.5 and 5 ticks within the spread.[36]

The number of ticks within the spread can also be thought of as a reflection of whether a change to a new price level reflects a level of price improvement that is "economically meaningful". Using this perspective, a large market maker active in many global markets has estimated that in its view the optimal ratio is approximately 2-4 ticks within the spread.[37]

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[35] Proposing Release, at 80304.
[36] See Autorite des Marches Financiers, "MIFID II: Impact of the New Tick Size Regime" (March 2018), avail. at https://www.amffrance.org/sites/institutionnel/files/contenu_simple/lettre_ou_cahier/risques_tendances/MiFID%20II%20Impact%20of%20the%20New%20Tick%20Size%20Regime.pdf.
[37] See https://www.sec.gov/comments/4-729/4729-4681565-176567.pdf

Extending a half-cent tick to all stocks with an average spread equal to or less than two cents would be consistent with these estimates, since a spread of 2 cents and a tick size of one-half cent would equate to a spread that is "4 ticks wide". It would also answer a concern identified in the Proposing Release that applying a half-cent tick size only to symbols with an average spread of 1.1 cents or less would leave many symbols effectively tick-constrained in some circumstances.[38] Applying a half-cent tick to symbols with an average spread of up to two cents would generally correlate to a range of 2-4 ticks for stocks that are clearly-tick constrained or could easily become so constrained.

Further, we believe that data relating to the frequency of quoting by "inverted" maker-taker venues (which charge participants a fee to add liquidity) supports the premise that a half-cent tick will not unduly constrain quoting in stocks that are trading with a spread at or very close to one cent. Such inverted venues require participants to pay a fee, rather than receive a rebate to post liquidity. Therefore, they provide a direct indication of a participant's willingness to effectively "narrow the spread" to quote in a particular symbol, as well as market demand for narrower spreads in general. It is particularly instructive to analyze scenarios in which there is an inverted maker-taker exchange on both sides of the NBBO. The spread in these cases would be "narrowed" by the average fee required to post liquidity (and execute) on both the bid and offer.

The below table demonstrates the percent of market volume comprised of securities with various quoting patterns of inverted maker-taker exchanges. For instance, the "5.2%" datapoint highlighted in the right-most column indicates that the securities for which an inverted maker-taker venue is on at least one side of the NBBO 99% of the time and on both sides of the NBBO between 50 and 60% of the time account for 5.2% of all market volume.[39]

		% of Time on One Side of NBBO											
		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%
% of Time on Both Sides of NBBO	0%	1.6%	2.8%	5.9%	8.8%	6.9%	4.0%	3.0%	3.8%	4.5%	0.5%	0.1%	0.0%
	10%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%	0.8%	0.7%	2.3%	3.9%	2.0%	0.5%
	20%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.3%	0.4%	4.2%	4.1%
	30%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.7%	0.2%	3.0%	3.1%
	40%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.9%	0.4%	3.8%
	50%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%	**5.2%**
	60%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	3.7%
	70%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%
	80%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
	90%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

This table demonstrates that there is a very small percentage of market volume where inverted exchanges are on both sides of the NBBO *a majority* of the time. We believe this supports the

[38] See Proposing Release, at 80343.
[39] Based on NYSE TAQ and IEX Market Data, January 2023.

premise that, while there *is* a demand for participants to trade at narrower increments in some circumstances, the demand is tempered and not at a level that would support a highly aggressive reduction in tick sizes, affecting trading during the entire trading day. We believe reducing the tick size to a half-cent and applying it to stocks with an average spread of up to two cents would provide substantially more flexibility in quoting, while tailoring the amount of the reduction to the level of demand for quoting at narrower ticks.

Moreover, applying a half-cent tick as suggested would amount to a substantial change, applying a 50% reduction in tick size to symbols accounting for over 70% of total market volume, based on the Commission's estimate. IEX believes it would also represent meaningful price improvement consistent with the purpose of creating incentives for participants to improve the best prices quoted, as contrasted with "gaming" behavior used to gain execution priority of the type that can undermine rather than promote the use of limit orders and healthy liquidity on regulated markets.

Finally, we believe this modification will still allow for the ability to create fairer competition for the handling of retail orders, which the SEC identified as one of the purposes for its Proposals. In our view, this additional purpose could be well-served by the adoption of a common tick and trade increment for retail execution systems, as detailed below.

Balancing Benefits and Risks

IEX agrees with the Commission that there is a sound basis to believe that a reduction in tick sizes for stocks that are tick-constrained, or are nearly tick-constrained, will lead to an overall improvement in market quality. However, as explained, we believe that tick sizes that equate to more than four ticks within a stock's natural spread would "overshoot the mark" and create a high risk of negative consequences, including:

- Reduced liquidity provision on exchanges by institutional investors and agent brokers, with less stable quotes and less willingness to use limit orders in general.
- Less participation by natural investors in seeking to access exchange liquidity at multiple price levels and an increase in their transaction costs.
- Increased market fragmentation and further reduction in non-toxic trading on exchanges, resulting in less price discovery, market efficiency, and regulatory oversight.

By initially reducing tick sizes to one-half cent for stocks that are tick-constrained, or are nearly tick-constrained, the Commission can evaluate the market impact and consider further adjustment if experience and data demonstrate doing so will yield additional benefits.

Common Trading Increments

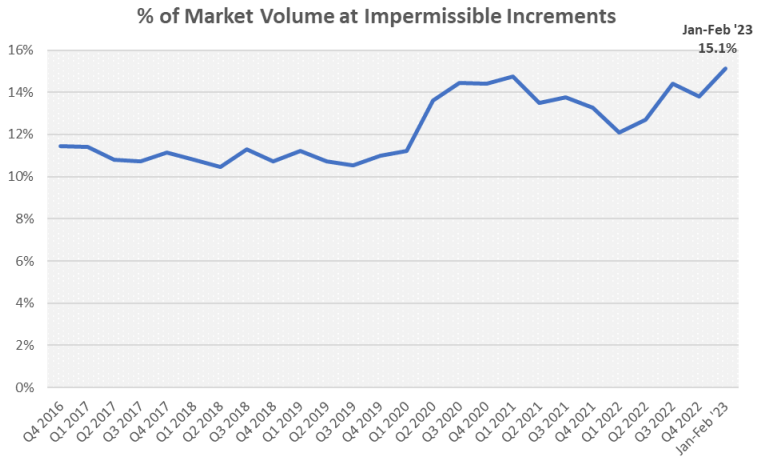
The Commission is proposing to apply the same four tick sizes as minimum trading increments to the same respective groupings. For example, all symbols subject to a half-cent tick increment would also be required to trade at a half-cent tick. In each case, however, the trading increment requirement would include exceptions for trades that are priced at the mid-point of the

NBBO and for benchmark prices like VWAP. Thus, subject to those exceptions, all market centers, including those that trade against individual orders as principal but do not match orders of various participants, as exchanges and ATSs do, would be required to trade at increments that are equal to the new increments at which orders must be accepted, ranked, and quoted.

IEX supports making trade and quote increments consistent. As described below, we believe a different trade increment would be appropriate for certain systems handling retail orders, to maintain the principle of equal treatment of trading platforms, while recognizing differences in the handling and pricing of retail orders.

IEX believes that it is important that any action to set minimum tick increments should also include this principle to adopt common trading increments. This will ensure that going forward, market venues are held to a common set of rules to support vigorous and fair competition. As noted above, the percentage of trading that occurs on exchange and results from displayed trading has been on a steady decline. We think this by itself is a cause for concern. Further, as discussed previously, exchanges are subject to comprehensive oversight and strict standards of fair access and non-discrimination, and displayed trading by exchanges determines the level of price discovery in the markets.

Apart from the impact on exchanges, the lack of a common trading increment reinforces the existing growth in volume on market centers that do not provide an opportunity for competitive interaction among orders. The extent of that trend is partly reflected by data showing the volume of trading that occurs at trading increments that are not permissible for exchanges and ATSs. The proportion is now 15% of overall market volume (as of Jan-Feb. 2023), an amount that has increased more than 40% during the last five years.[40] In the Proposing Release, the Commission notes that retail volume that is internalized by wholesaler firms now equals 24% of all market volume.[41]



[40] Source: NYSE TAQ and IEX Market Data.
[41] Proposing Release, at 80306.

Applying the mid-point exception, adopting half-cent and one cent tick sizes as common trading increments would mean that most (non-retail) trades could occur at increments of one-quarter and one-half cent. Stocks with a one cent tick size could trade at half-cent and one cent increments. All stocks could trade at benchmark-determined prices. We believe the adoption of this change would not interfere with the ability of institutional investors and trading firms to trade at the prices they use today.

When Regulation NMS was adopted, the Commission determined not to set minimum trading increments based on the reasoning that the lack of such a common increment did not raise the same concerns about flickering quotes and the size of displayed trading interest that caused it to set a minimum increment for ranking and displaying orders.[42] But the facts and assumptions behind that earlier decision have changed. We believe that it is difficult to dispute that the ability of one set of players to trade at 100 price increments, while others are limited to only a few, is a factor driving trading volume toward the first group and away from the second.

In adopting Regulation NMS 18 years ago, the SEC said repeatedly that its overarching goal was to create a market structure that would provide an effective balance between competition among markets, on the one hand, and competition among orders, on the other.[43] In updating the rules to take account of developments since then, we believe the Commission should strive to restore that balance. Setting common trading increments for all trading venues would represent substantial progress toward that end.

Retail Tick and Trading Increments

Description of Alternative

The Commission is proposing to apply the designated tick and trade increments to all trading, without distinguishing retail from other orders. At the same time, it stated that one purpose for the proposed tick and trade increments was to allow for competitive parity in the handling of retail orders, which today are generally handled by the large retail wholesalers.

IEX proposes that the Commission adopt a uniform tick and trade increment of $0.001 (10 mils) for systems that execute orders for retail investors. This would include the following elements:

- The 10-mil exception would apply to all retail execution systems, meaning all on- and off-exchange execution systems by which one or more participants provide liquidity in NMS securities exclusively to orders from retail investors.
- For this purpose, retail orders would include those for an account of a natural person, or an account held in legal form on behalf of a natural person or group of related family members.
- Because the uniform increment would apply to both quoting and trading, exchanges or ATSs could offer retail liquidity programs ("RLPs") that display the price and full size of orders at 10-mil increments. These displayed orders would not constitute protected

[42] Reg NMS Adopting Release, at 37556.
[43] Id. at 37498-9

quotes but could be provided through proprietary and consolidated data feeds and accessible to all brokers routing orders for retail customers.

- The mid-point trading exception could be preserved, so that trades could occur at the mid-point of the NBBO when the trade increment would otherwise prevent it. For example, a resting order to provide mid-point liquidity in a retail liquidity program, at a time when the NBBO was $10.00-$10.005, could still be executed at $10.0025, even though that price would not otherwise be allowed.
- Markets designing such systems would be free to impose limitations, such as limits on the number of monthly trades executed per month for a single account, on retail orders that could be accepted by the system.

This proposal is very similar to the "segmented trade exemption" described in the Proposing Release,[44] with two important differences. First, as noted, it would adopt the 10-mil increment as both tick and trade minimums for retail systems. Second, the Commission's alternative would limit retail orders to those sent by accounts with an average of no more than 40 trades per month. The Commission explained that this would limit the use of exception to orders with low adverse selection costs. We agree that the Commission's proposed measure would help to reasonably distinguish "benign" retail order flow from orders more indicative of professional trading. On balance, however, we think the Commission's goals would be best advanced by allowing trading centers to determine for themselves how to filter incoming orders to ensure they are able to provide the best price improvement for ordinary retail investors.

This alternative would allow retail trades to be priced in 10-mil increments without the negative consequences of very narrow tick increments identified above, because the 10-mil quoting increments would not impact the determination of the NBBO. It would therefore not reduce the quote size on exchange, lead to less stable quotes, or increase transaction costs for institutional investors.

IEX believes that this proposal could be adopted in practice without the need for additional notice and comment. First, as noted, the proposal for a minimum trading increment of $0.001 for retail execution systems closely matches the specific segmented trade alternative in the Proposing Release. Second, although the Commission did not specifically seek comment on a minimum quote increment related to retail orders, it sought comment in multiple respects on the appropriate treatment of retail orders for purposes of quote and trade increments.

If, however, the Commission determines that adopting a minimum tick increment for retail execution systems would require additional notice and comment, IEX believes that it could achieve the same benefits through the exercise of existing exemptive authority without that additional step. Rule 612 grants specific exemptive authority from the restrictions on quoting and ranking orders in sub-penny increments, based on classes of persons or securities.[45] The

[44] Proposing Release, at 80340-41.

[45] 17 CFR 242.612(c): "The Commission, by order, may exempt from the provisions of this section, either unconditionally or on specified terms and conditions, any person, security, quotation, or order, or any class or classes of persons, securities, quotations, or orders, if the Commission determines that such

Commission has frequently used this authority over the years to allow exchange RLPs to accept and rank orders providing liquidity to retail investors at 10-mil increments. Allowing the display of the specific price and size of orders at $0.001 increments would represent a logical extension of that authority and would provide the substantial benefits of giving both retail and institutional investors an opportunity to have their orders interact in a way that increases price transparency and is mutually beneficial.

Benefits

IEX believes that applying this narrower common trading increment for retail execution systems, coupled with the ability of exchanges to display orders in those increments, would effectively promote the Commission's goals of creating fair competition among trading centers. It would also give retail investors the opportunity to obtain the best price, for the following reasons.

First, it would maintain the principle of common trading increments for all orders, to promote fair competition among market centers.

Second, it would not necessitate the use of very narrow tick increments for displayed, continuous trading, with the adverse consequences noted above.

Third, it would use the same increment that is used by many exchange RLPs today, which those exchanges have determined is effective in offering price improvement to retail investors.

Fourth, it would allow exchanges (and ATSs that are willing to provide fair access to displayed quotes) to better compete for retail orders than they are allowed to do today. Various exchanges rely on individual exemptions from the SEC allowing them to accept, rank and trade liquidity-providing orders sent to RLPs in sub-penny increments. Those exemptions, however, allow exchanges only to indicate on market data when there is trading interest at a price better than the NBBO, but not the size or specific price of that interest.[46] As a result, exchanges are severely limited in being able to use displayed trading interest to advertise the amount of price improvement and the associated size that participants are willing to provide to retail orders.

Fifth, it would allow markets to compete in offering mechanisms to maximize price improvement, including retail auctions. Like RLPs, these could also be designed to filter the orders that can be submitted to maximize the price improvement opportunities for incoming retail orders.[47]

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exemption is necessary or appropriate in the public interest, and is consistent with the protection of investors."

[46] IEX's program is different from other existing programs in that we publish through our data feeds an indicator showing when there is at least one round lot of interest willing to trade at the mid-point of the NBBO.

[47] We believe this alternative would be consistent with the Commission's separate Order Competition Rule (Securities Exchange Act Release No. 96495), if adopted. Specifically, the Commission proposed to require that marketable retail orders be sent to a retail auction operated in compliance with various requirements, including a requirement to use minimum increments of 10 mils, before the orders could be executed internally. The Commission proposed to provide exceptions to that requirement for executions

Finally, and certainly not least, it would provide opportunities for institutional investors that trade on exchanges to interact with "benign" retail order flow that they lack today.[48] This increases the potential for retail and institutional investors to trade with each other at mutually-beneficial prices, in ways that promote the Congressional goal for the national market system to provide opportunities "for investors' orders to be executed without the participation of a dealer."[49]

It is indisputable that under the current market structure, it is extremely rare for institutional and retail investor orders to have the chance to interact, without the intervention of a dealer. The walling off of retail order flow means that there is a large and growing share of market volume that is almost completely inaccessible to institutional investors, and both types of investors lose the potential for more mid-point and otherwise mutually beneficial executions. This makes no sense, and we believe the changes we are suggesting would go a long way towards removing the invisible wall that prevents different types of U.S. investors from finding each other.

To evaluate the potential impact of allowing exchanges to display the price and size of orders seeking to interact with retail orders, IEX examined changes that occurred following a change to its own RLP in October 2021. At that point, IEX began sending an indicator, through its market data, showing when a retail liquidity provider was offering to provide mid-point price improvement for at least one round lot. We believe this limited transparency helped to attract "benign" retail orders by better identifying times when IEX could provide material price improvement for marketable retail orders. IEX Market Data indicates that after this change, the average markouts[50] for orders providing liquidity to retail orders were materially better than they had been before, implying that the incoming retail orders were more "benign", i.e., more desirable from the standpoint of the liquidity providers. In turn, the retail orders received executions at or better than the mid-point, representing substantial price improvement from what they might have otherwise received.

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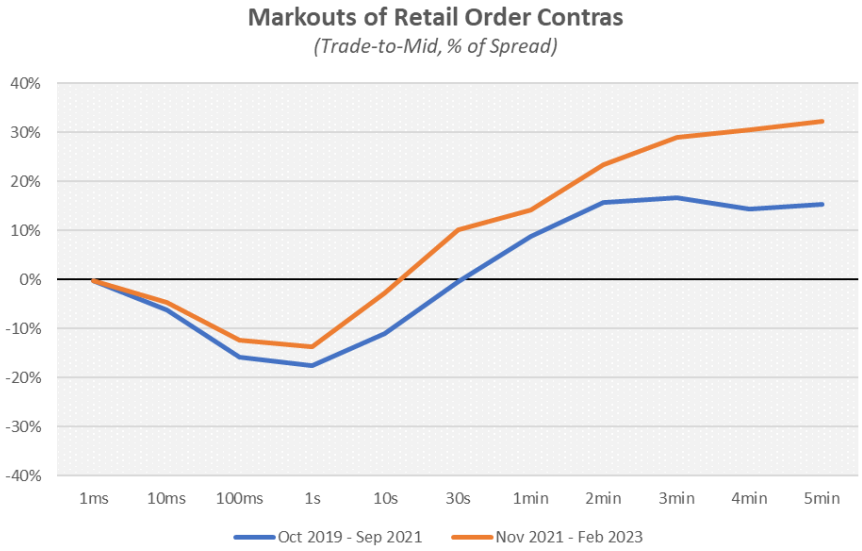
priced at the mid-point or better, including executions using retail liquidity programs. Allowing markets operating such programs to fully display price and size would aid firms in determining whether they could qualify for the mid-point exception by sending an order to the retail liquidity program.

[48] The Commission and outside analysts have determined that the impact of retail orders that are sent to exchanges is substantially higher than the impact of those that are internalized, meaning that the adverse selection costs of participants that interact with retail orders sent to exchanges are higher than those of firms that internalize retail orders. As a result, exchanges are severely limited in their ability to provide executions to retail orders that could benefit from greater price improvement than they receive presently. See Securities Exchange Act Release No. 96495, 88 FR 128, 187-195 (January 3, 2023); https://f.hubspotusercontent10.net/hubfs/4982966/BestEx%20Research%20PFOF%2020210503.pdf.

[49] Exchange Act Section 11A(a)(1)(C)(v).

[50] See note 33, supra.



IEX believes this data suggests that displaying the price and size of orders to provide liquidity to retail investors will create even more incentives for participants to offer liquidity in such programs by attracting more "benign" retail orders, since the firms handling those orders will have greater assurance that they can receive a certain level of price improvement for a certain number of shares. This can work to the mutual benefit of both sides by prompting liquidity providers to compete in the level of price improvement provided to retail investors.

III. Regulation of Exchange Fees

Reduction in the Access Fee Cap

Rule 610 presently limits the maximum fee that an exchange can charge for access to its protected quotes to $0.003 per share, or "30 mils", for all NMS securities priced at or greater than $1 per share. The Commission is proposing to reduce the cap to 10 mils for all symbols, other than those for which it proposed a minimum tick increment of 10 mils. For this group, it proposed to reduce the fee cap to $0.0005, or 5 mils.

IEX strongly endorses the proposal to reduce the fee cap to 10 mils, and we propose this limit be applied to all NMS securities. We believe this reduction is fully consistent with the Commission's reasoning in issuing the Proposals. The Commission indicated that its reason for setting a 5-mil access fee cap for securities trading at the narrowest, $0.001, tick size was to avoid market distortions from allowing access fees that equal more than one-half of the spread.[51] If the Commission determines not to adopt a $0.001 tick increment, for the reasons detailed above, the rationale for the smaller access fee cap would not apply.

[51] See Proposing Release, at 80290.

The Need to Update the Fee Cap

When the SEC adopted Regulation NMS in 2005, a central element was the adoption of the "protected quote" requirement of Rule 611, which prevented market centers from bypassing the best-displayed electronic quotations of exchanges and any other markets that displayed and gave access to their best prices. The adoption of quote protection raised the concern about the need to limit fees that markets could charge to access these quotes. The access fee issue was highly contentious, with very widely divergent views and no clear consensus about the best approach -- some arguing for no cap, some believing there should be a ban on charging access fees, and some arguing for a lower cap.[52]

The cap adopted in Rule 610 represented an attempt to find a compromise among these competing views. As described further below, the Commission explained that its purpose was to prevent an "outlier" market from taking advantage of this new protected quote requirement by raising its access fees to an unreasonable level. The 30-mil standard was selected because it approximated the highest access fees that markets charged at the time.[53] Regardless of the basis for that decision, even if the level of the fee cap made sense at that time, it was explicitly tied to the prevailing conditions in 2005, and the assumptions behind the rate that was set then no longer apply.

First, unarguably, there have been enormous improvements in the efficiencies related to data transmission and processing. In most businesses, these types of efficiencies can be passed along to customers in the form of lower prices or greater value for the same prices. For most exchange trading, however, it costs the same per share to access a quote in 2023 as it did when the Regulation NMS rules were proposed nearly 20 years ago.

Second, in 2005, a substantial portion of all trading still occurred on a manual trading floor. Today, all exchanges have migrated to fully automated and electronic trading, while overall trading volumes have tripled since 2005.[54] The nature of electronic trading allows for large benefits of scale. The investment needed to build systems to match buyers and sellers in a compliant way is significant, but these costs drop significantly to allow trading in more volume with little incremental cost. Still, none of these benefits of scale in electronic trading have been returned to investors in the form of lower access fees. As one example of the benefits of scale in operating an exchange, in 2019, IEX conducted an analysis of its own costs to provide market data and connectivity services and found that the costs of production to the exchange were a very small fraction of the fees charged by "maker-taker" exchanges.[55]

Third, the rates charged by ATSs to access liquidity allow comparison to market-based prices that are not affected by prices imposed by exchanges to access protected quotes. Although

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[52] See Reg NMS Adopting Release, at 37543-46.
[53] Id., at 37545.
[54] See IEX, "The Clock is Ticking on Equity Market Reform" (February 2023), avail. at https://www.iexexchange.io/blog/the-clock-is-ticking-on-equity-market-reform.
[55] See IEX, "The Cost of Exchange Services" (January 2019), avail. at https://iextrading.com/docs/The%20Cost%20of%20Exchange%20Services.pdf.

there is a lack of public information, an informal survey of ATS operators indicates that the standard access fee charged by most ATSs is approximately 10 mils, and many charge reduced amounts to individual subscribers based on various factors. It is also relevant that the technology used to match transactions is virtually identical as between exchanges and ATSs. At the same time, ATSs do not have the same ability to leverage their regulatory status to profit from fees from selling market data and connectivity. Thus, they rely more heavily on access fees for revenue than most exchanges do.

Fourth, the fixity of the fee cap is markedly out of step with the substantial contraction in both spreads and commission rates since the fee cap was adopted. Access fees have come to represent a distorted and disproportionate amount of overall transaction costs compared to other factors that have been influenced by market factors.[56]

Relationship of Existing Fee Cap to Problems Associated with Maker-Taker Pricing

Further, the existing fee cap is directly related to various distortions and inequities in the allocations of fee burdens imposed by exchanges. We believe these impacts conflict with the core requirement of the Exchange Act that exchange rules must provide for "equitable allocation" of fees among members and others using exchange facilities.[57] It is worth noting that approximately 86% of all on-exchange share volume of NMS securities is presently executed on exchanges charging a base access fee rate at the maximum of $0.003 per share set nearly 20 years ago.[58] More than 90% of those revenues on average are paid out in the form of rebates, based on the SEC's estimates that maker-taker exchanges earn a net capture of 2 mils per share. Instead of relying on transaction revenue, maker-taker exchanges rely heavily on the sale of "subscription" products tied to proprietary market data and connectivity to the exchange.

One result is that the burden of exchange fees falls heavily on participants who have the need to trade, thus taking liquidity on a more frequent basis. Many institutional investors who are consistently processing inflows and outflows of funds, and making fundamental investment decisions, need to take liquidity to achieve their investment objectives. As a result, these investors, and the brokers who service them, are disproportionately impacted by the higher access fees charged by the majority of exchanges.

Another result is that the maximum access fee is used to subsidize maximum rebate payments, which creates embedded conflicts of interest in order routing. Public data shows that exchanges that pay the highest rebates often provide worse execution quality. IEX has published data confirming that, in fact, customer orders that are routed to exchanges that pay high rebates are more likely to be adversely selected and to therefore incur worse execution

[56] See Letter from Paul M. Russo, Managing Director, Goldman Sachs & Co., to Brent F. Fields, Secretary, SEC, dated May 24, 2018, at note 5 and accompanying text ("Russo Letter").
[57] Exchange Act Section 6(b)(4).
[58] Source: exchange fee schedules, January 2023.

than on other venues.[59] Long-term investors have long and loudly spoken out about these conflicts of interest and the need to address them.[60]

Former SEC Chief Economist Larry Harris has written extensively about the problems that maker-taker pricing has on both transparency of prices, since "quoted prices do not reflect net prices", and in creating agency conflicts:

> Furthermore, in markets where exchanges employing traditional pricing still compete with exchanges employing maker-taker pricing, the different systems create an agency problem between brokers and their clients. Brokers will route standing orders to maker-taker exchanges to avoid access fees and earn liquidity rebates…Accordingly, the orders posted at the maker-taker exchanges will be the last to trade.[61]

Another impact is that high access fees have helped to spawn enormously complicated fee schedules, using tiers based on consolidated average daily volume ("CADV") and hundreds of pricing "paths" that, according to one industry study, use thousands of variable factors.[62] In practice, rebates paid under this system are heavily skewed to benefit a relative handful of firms that are able to trade in volumes necessary to qualify for the best tiers, resulting in a significant burden on market competition.

The following points illustrate some of the distortive aspects of this system:

- Last year, exchanges paid out over $3.5 billion dollars in rebates, funded by the access fees they assessed.
- Each of the nine maker-taker exchanges has at least one tier rate where the rebate is equal to or greater than the access fee they charge.
- Eight of these exchanges have at least one tier rate where the rebate exceeds 30 mils, the maximum allowable access fee.
- There are currently at least 59 different pricing tiers offering a rebate exceeding the maximum allowable access fee.

To better explain how heavily skewed the payouts are under this system, the table below provides a representative illustration of the tier structure that exists at the six largest maker-taker exchanges. The largest rebate paid by each venue is paid to firms achieving the top tier, which is generally expressed in a percentage of CADV. The required percentage represents over 5% of total market volume and nearly 10% of exchange volume, suggesting that only a small handful of firms can qualify for the top tier on each exchange. Furthermore, each venue

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[59] See note 19, supra.
[60] See comment file for SEC Proposed Transaction Fee Pilot for NMS Securities, avail. at https://www.sec.gov/comments/s7-05-18/s70518.htm.
[61] See Larry Harris, ''Maker-Taker Pricing Effects on Market Quotations,'' at 24 (Nov. 14, 2013), avail. at https://www.lexissecuritiesmosaic.com/ gateway/sec/speech/hujibusiness_Maker-taker.pdf.
[62] See RBC Capital Markets, "Complexity of Exchange Pricing and Corresponding Challenges to Transparency and Routing" (October 2018), avail. at https://www.sec.gov/comments/s7-05-18/s70518-4527261-176048.pdf.

offers several tiers, each of which is retroactively applied to the entirety of a firm's trading volume for the month. As a result, missing a tier by a single share can cost a broker millions of dollars in rebates. Finally, the "base rate" rebate at each venue is substantially smaller than any of the top-tier rates, making it difficult for smaller agency brokers to provide competitive rates to their institutional clients.

	Nasdaq	NYSE	ARCA	EDGX	BZX	MEMX	TOTAL
Market Share (incl TRF)	16.1%	9.8%	8.5%	5.6%	5.1%	3.4%	**48.5%**
Top Tier Rates							
Required Market Share %	**1.4%**	**0.6%**	**1.4%**	**0.7%**	**0.9%**	**0.4%**	**5.3% (9.2% of exch)**
Rebate Rate (mils)	**-30.5**	**-22 to -31**	**-23 to -32**	**-29**	**-31**	**-34**	**-30.2**
Required ADV (mm)	152	65	152	72	100	44	**585**
Rebate Annualized (mm)	($116)	($39)	($121)	($52)	($78)	($38)	**($443)**
Comparisons							
Tier 2 Rebate Rate (mils)	**-30**	**-20 to 29**	**-23 to -31**	**-27**	**-30**	**-33**	**-29.4**
Tier 2 Rebate Ann (mm)	($114)	($35)	($116)	($48)	($75)	($36)	**($426)**
Base Rebate Rate (mils)	**-13 to -18**	**-12 to -20**	**-20**	**-16**	**-16**	**-20**	**-16.0**

It should be clear that the number of firms that could conceivably qualify for the top CADV volume-based tiers on multiple exchanges is necessarily a very small number. Conversely, the burden of exchange transaction and subscription fees falls on the much larger number of members that are not able to trade in volumes that would qualify for the highest tiers. We believe this data helps to show the current system, enabled by 30-mil access fees, is highly anti-competitive and violates the requirement that exchange fees must be equitably allocated among all members.

Redefining "Outlier" Exchanges

When the SEC set the existing access fee cap, it explained that it assumed that some exchanges might pass back a portion of access fees as rebates, but it meant to prevent the result that exchanges would charge the highest possible fees and pass most of them back in the form of rebates:

> Access fees tend to be highest when markets use them to fund substantial rebates to liquidity providers, rather than merely to compensate for agency services. If outlier markets are allowed to charge high fees and pass most of them through as rebates, the

> published quotations of such markets would not reliably indicate the true price that is actually available to investors or that would be realized by liquidity providers.[63]

It is clear in hindsight that the "outlier" has become the norm, and the 30-mil rate has led to the result that the Commission was concerned about, though the SEC probably could not have foreseen that the cap it established would result in rebate payouts of over 90% of the amounts collected. Given the experience with the existing fee cap, a substantial, across-the-board reduction is necessary.

Benefits of a Uniform 10-Mil Cap

IEX believes a uniform 10-mil cap would best reflect prevailing market conditions and most effectively address the concerns described above and those that the Commission was concerned about in 2005.

As noted above, technological efficiencies, coupled with the economies of scale that exchanges enjoy, suggest that the 30-mil cap is outdated and should be substantially reduced. Comparison to market-based rates that are not subject to exchange fee regulation, including those charged by ATSs, suggest that a 10-mil limit would be appropriate.

A reduction in access fees resulting from the reduction in the cap will substantially reduce the overall cost of exchange trading for investors and other market participants. As noted, institutional investors tend to trade on exchange more often by taking, than by offering, liquidity. A substantial reduction in the access fees will be impactful for those investors and is likely to increase their willingness to trade on exchanges. A greater willingness by natural investors to trade on exchange will improve the quality of liquidity on exchange, creating a virtuous cycle that can help the quality of the markets overall for investors and other market participants. The result can be an increase in the use of displayed exchange trading and an improvement in the price discovery function of the market, with broad benefits extending beyond trading on exchanges themselves.

A single uniform cap will be simpler to apply and for investors to understand. IEX believes that moving from a single to multiple fee caps would serve to perpetuate or increase the existing unnecessary and counterproductive complexity in exchange transaction pricing.

A 10-mil cap will also increase transparency by substantially improving the extent to which displayed prices accurately reflect total transaction costs. The existing standard 30-mil access fee represents 30% of the entire spread of stocks trading at a spread equal to the minimum one cent tick size. If the Commission adopts a minimum tick of one-half cent for stocks with a spread up to two cents and a one cent tick size for all others, as we recommend, a 10-mil access fee would equal no more than 20% and 5% of the respective minimum spreads.

Finally, because access fees are in practice used to fund rebate payments, a substantial reduction in the cap will also help to address to a meaningful extent the concerns about the

[63] Reg NMS Adopting Release, at 37545.

conflicts, distortions, and anticompetitive impacts of the rebate system detailed above. As reflected by the previous analysis, the current system, by which exchanges charge 30 mils to take and provide maximum rebates of 30 mils or more, creates a total distortion in terms of incentives in order routing of 60 mils, which is more than half of the one cent minimum tick increment. This creates a substantial misalignment between the interests of brokers and customers. If the cap is reduced to 10 mils, the maximum potential distortion would be reduced by two-thirds.

The effect of creating more alignment between the interests of brokers and customers will also help to address the long-standing and deeply held concerns of long-term investors about the impact of rebates on order routing. Those concerns were evidenced by the outpouring of comment letters in 2018 from over 40 major buy-side investors and representatives, representing trillions of dollars in assets, in support of the Commission's Transaction Fee Pilot.[64] The pilot was blocked from being implemented, but as detailed next, there has been independent support to address some of the concerns motivating that proposal by substantially reducing the fee cap.

Previous Support for a Lower Cap

Market participants have signaled in general that they believe a substantial reduction in the fee cap is warranted. It is worth noting that in 2018 an executive of one of the large exchange groups herself proposed a pilot program that would reduce access fees to 10 mils for all securities.[65] IEX believes there is also significant industry support for a substantial reduction in access fees across-the-board. As a representative of one prominent trading firm put it:

> In our view, a reduction in the Fee Cap from $.0030 to $.0010 per share could be supported today and would be better calibrated with present-day trading and execution costs, which have decreased substantially since 2005 when the current Fee Cap was adopted. We believe that such an adjustment would be reasonable and would bring some immediate benefits to equities markets with respect to price transparency and addressing potential conflicts of interest…By maintaining the Fee Cap at the level adopted in 2005 as spreads have narrowed and commissions have decreased over the last 13 years, these misaligned incentives and potential conflicts of interest have grown. An immediate reduction in the Fee Cap to $.0010 per share would reduce the effect of these misaligned incentives.[66]

Allowing for Exchange Innovation

IEX believes that a reduction of the cap to 10 mils represents a reasonable limit on how far access fees may be compressed without unnecessarily harming exchange competition and

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[64] See Letter from John Ramsay, Chief Market Policy Officer, IEX to Brent J. Fields, Secretary, SEC, dated June 27, 2018, avail. at https://www.sec.gov/comments/s7-05-18/s70518-3968434-167099.pdf.
[65] Letter from Stacy Cunningham, President, NYSE, to Brent J. Fields, Secretary, SEC, dated October 2, 2018, avail. at https://www.sec.gov/comments/s7-05-18/s70518-4470779-175854.pdf.
[66] Russo Letter, at 1, 3.

providing the ability for exchanges to innovate to provide investors with superior execution quality in matching buyers and sellers.

In setting the appropriate fee cap, IEX believes the Commission should seek to balance the objectives identified above – modernizing the cap to reflect technology advances, reducing costs to investors, and helping to address problems associated with maker-taker pricing – with the need to ensure that new exchanges have the potential to compete by offering superior service and execution and while charging reasonable fees for those services. If the fee cap is set too low, an entrant like IEX may not have the ability to compete as an exchange using a model that seeks to provide superior services while charging fees to both sides of the trade, without relying on a maker-taker pricing model.

Second, setting an access fee cap that is too low could undermine the ability of an exchange to choose not to rely on revenue from "subscription" fees for market data and connectivity products. IEX has chosen to rely on transaction fees that are simple, transparent, and equitably applied to support its business. It has chosen to set fees for market data at levels that are closely tied to the exchange's cost of providing it, supported by a rigorous cost-allocation methodology. The fees charged by the largest exchanges for market data and connectivity have been highly controversial. Industry concerns with the ability of exchanges to coerce market participants to buy proprietary market data, rather than more affordable consolidated data, were a major factor driving the adoption of the MDIR. IEX believes that its model is more equitable and transparent and that the access fee cap should not be set at a level that drives exchanges to exploit their leverage to charge excessive fees for market data.

As the Commission acknowledged in the Proposing Release, compressing fees substantially below 10 mils could have the unintended effect of undermining the ability of an exchange to use an agency exchange model. IEX agrees with this concern, and we believe this outcome would conflict with the public policy goals of promoting competition and prohibiting unfair discrimination among participants. We also believe that such a lower limit could not be fairly characterized as a "cap", in that it would effectively provide little to no room to compete in setting fees under the cap. Therefore, to adopt such a lower limit, we believe the Commission would need to provide justifications other than those it relied on in adopting the original cap and in proposing to amend it.

Changes to the Method for Calculating Exchange Fees

Separately, the SEC is proposing to prohibit an exchange from setting fees or rebates in a way such that the fee or rebate for a trade cannot be determined at the time the trade is executed. The purpose and effect of this change is to increase transparency in pricing and to allow for fees and rebates in agency transactions to be potentially "passed back" to customers. With regard to rebate tiers, if this change were in effect, an exchange could establish a rebate tier tied to a prior month's volume, but a tier could not be based on volume that is yet to be determined.

IEX supports the proposal, which we believe will have two important benefits. First, it will shed greater transparency on the use of fee and rebate tiers and their impact on individual trades,

which will give participants more visibility into the impact of tiered pricing on transaction costs and how this system impacts different participants. Second, it will help to address concerns related to conflicts of interest, because in the case of orders sent on behalf of institutional investors, those investors will be in a better position to identify and seek the recovery of rebates that accrue specifically to their orders, should they wish to do so.

Given the previous points and data about the impact of the rebate tier system, IEX believes further action is warranted. IEX therefore encourages the Commission to take additional steps to address the complexities and the discriminatory and anti-competitive impacts of the rebate tier system. In particular, we believe the Commission should prohibit or restrict the use of CADV-based tiers, which by their nature are highly anti-competitive and discriminatory. We also believe the Commission should require exchanges to provide a higher level of justification and transparency in filings related to tiered pricing. We believe these steps would help to support the standard in the statute that exchanges must "provide for the *equitable* allocation of reasonable dues, fees, and other charges among its members and issuers and other persons using its facilities."[67]

IV. Transparency of Better-Priced Orders

As part of the MDIR, the SEC required two significant changes to the methods used for communicating exchange prices in proprietary and consolidated market data feeds. First, the Commission determined to replace the 100-share "round lot", which is the standard unit for determining NBBO prices at each moment in time, with four new round lot sizes, assigning a round lot size of less than 100 shares to higher-priced stocks. The allocation of the new round lot sizes by share price is shown as follows:

Share Price	Round Lot Size
$250.00 or less	100
$250.01 to $1,000.00	40
$1,000.01 to $10,000.00	10
$10,000.01+	1

Second, the SEC determined to include data on quotations in odd-lot sizes (odd lots being determined by reference to the new round lot sizes) equal to or better than the NBBO as part of the "core data" that is required to be carried on consolidated data feeds. Presently, this odd-lot data is available only through exchange proprietary market data.

Following a court challenge by the three large exchange companies, the MDIR was upheld by the D.C. Circuit Court of Appeals last year.[68] Under the MDIR, the changes described above were scheduled to be implemented only after the introduction of new competing market data consolidators, which will replace the existing exclusive securities information processors

[67] Exchange Act Section 6(a)(4) (emphasis added).
[68] See The Nasdaq Stock Market LLC, et al. v. SEC, Case No. 21-1100 (D.C. Cir. 2022), at 4, avail. at https://www.cadc.uscourts.gov/internet/opinions.nsf/F6450AF20E3C34AC8525884C004E0670/$file/21-1100-1947763.pdf.

("SIPs") that publish consolidated market data today. For various reasons, the self-regulatory organizations in charge of the current consolidated market data plans have failed to establish the framework that is necessary before competing consolidators can register and prepare to operate. It remains unclear how long it will take to fully implement all the changes called for by the MDIR, but it is clear that the timeline will be much longer than the Commission envisioned when the MDIR was adopted.

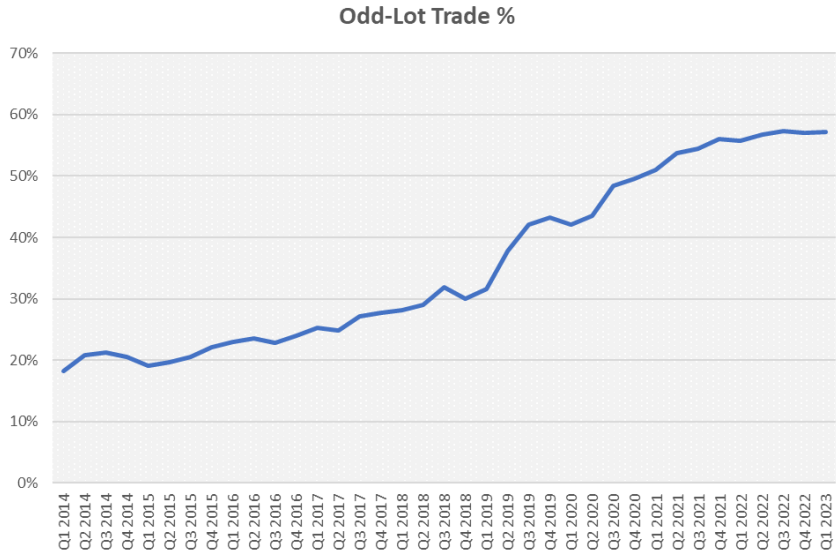
The Commission is now proposing to accelerate the implementation of the new round lot sizes and odd-lot disclosure provisions, by requiring the existing SIPs to disseminate consolidated market data using the new round lot sizes (shown in whole number of shares, rounded down to the nearest round lot size) and include the new odd-lot data required by the MDIR on the existing consolidated data feeds.

Separately, the Commission is proposing to require the existing SIPs to also provide the price and size of the best odd-lot bid and offer ("BOLO") for each symbol available across the exchanges. This separate data could then be used as a benchmark to reference the best prices that are available for sizes under a round lot.

The enhanced information required by the MDIR and the newly proposed BOLO data would be required to be provided by the SIPs beginning 90 days after the Commission's final adoption of changes to the relevant Regulation NMS rules.

For many years, IEX has publicly and vigorously advocated for changes to make consolidated market data more inclusive and to make the system for disseminating it more competitive. Accordingly, IEX supported the MDIR, and more recently, we have advocated for the early implementation of the round lot and odd-lot changes for all the reasons the Commission laid out in the Proposing Release.[69] The 100-share round lot definition has long been outdated, and the percentage of trades in odd-lot sizes (even with the use of new round lot sizes) has reached a majority of total transactions.[70]

[69] See IEX, "The Long and Winding Road to Market Data Reform" (September 2022) avail. at https://www.iexexchange.io/blog/the-long-and-winding-road-to-market-data-reform.
[70] Based on NYSE TAQ and IEX Market Data.



As noted at the outset of this letter, transparency is an important strength of U.S. capital markets. A high level of transparency requires that the units used to represent the range of prices available in the market match the units in which participants typically quote and trade.

For all these reasons, we support the early implementation of these needed changes. We also support the addition of the BOLO data because we believe it will provide a useful measure for all investors and their agents to better evaluate the best prices in NMS securities that may be available to them.

V. Conclusion

The SEC's Proposals do not arise out of thin air. They arise in the context of profound changes since 2005 involving the volume and speed of trading, market fragmentation and a decline in displayed trading, reduced broker competition, and an increase in orders that are inaccessible to other investors. The imposition of exchange fees that increase costs for investors, create perverse incentives, and drive unnecessary complexity also calls for modernizing market structure rules. The Proposals build on extensive reviews over many years by the Commission in response to concerns by a broad cross-section of market participants about those trends. Further, the Commission has laid out in detail and is asking for comment on alternative approaches for each aspect of the Proposals.

Considering this background, IEX believes that investors are best served by modernizing our rules to increase competition, promote transparency with rules that put exchanges on a level playing field with other venues, rationalize exchange fees and reduce transaction costs to investors, and create more opportunities for investors' orders to interact directly. On the other hand, those who argue the loudest for no or minimal change are, obviously, best served by the current structure. We are encouraged that the SEC has clearly signaled that its overriding goal in proposing reform is to serve the investing public. IEX strongly agrees that this must be the guiding purpose of regulatory reform.

To summarize, the Commission can help to realign the markets with the goals of the national market system with changes that do the following:

- Adjust quoting and trading increments in ways that both promote efficiency and strengthen incentives for all participants, especially investors, to trade on exchanges and contribute to price discovery.
- Reduce the exchange access fee cap to $0.001 for all NMS securities, to lessen costs for investors, make prices more transparent, reduce perverse incentives in routing orders, and promote competition by requiring fees be applied more equitably.
- Break down the wall that separates investors from each other and increase opportunities for their orders to interact directly, including through more opportunities for exchanges to offer price improvement to retail orders.
- Change the ways that exchanges display prices so investors and brokers can more easily identify the best prices available.

America's stock markets are, in the words of the Exchange Act, "affected with a national public purpose". By taking decisive and targeted action to reset the governing rules, the Commission can do much to ensure they serve the hundreds of millions of individuals who rely on well-functioning and competitive markets.

Sincerely,

John Ramsay
Chief Market Policy Officer, IEX

cc: Honorable Gary Gensler, Chair
Honorable Hester M. Peirce, Commissioner
Honorable Caroline A. Crenshaw, Commissioner
Honorable Mark T. Uyeda, Commissioner
Honorable Jaime Lizárraga, Commissioner
Haoxiang Zhu, Director of the Division of Trading and Markets