March 31, 2023

Via Electronic Submission

Ms. Vanessa A. Countryman, Secretary
U.S. Securities and Exchange Commission
100 F Street, NE
Washington, D.C. 20549-1090

Re: Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders, File No. S7-30-22; Order Competition Rule, File No. S7-31-22; Regulation Best Execution, File No. S7-32-22; Disclosure of Order Execution Information, File No. S7-29-22

Dear Ms. Countryman,

Cboe Global Markets, Inc. ("Cboe") appreciates this opportunity to respond to the Commission's ("SEC" or "Commission") proposals – Regulation NMS: Minimum Pricing Increment, Access Fees, and Transparency of Better Priced Orders; Order Competition Rule; Regulation Best Execution; and Disclosure of Order Execution Information (each, a "Proposal") (collectively, the "Proposals")[1]. We request that this letter be included in the comment file for each proposal.

Cboe operates four equities exchanges representing a sizable portion of the total average daily volume in the U.S. equities market.[2] Our focus as a market operator is to provide trusted, liquid, and resilient markets in support of a larger ecosystem that serves and benefits all investors. Cboe is well-qualified to evaluate and comment on the potential impacts of the Proposals. As an initial matter, we will restate our view, shared by many if not most market participants, that the U.S. equities market has experienced dramatic improvements over the years and currently serves investors incredibly well.

That is not to say that as markets continue to evolve and mature, their regulatory frameworks should not be revisited and recalibrated when warranted. However, Cboe believes that meaningful

[1] Securities and Exchange Commission, Release No. 34-96494 (December 14, 2022), 87 FR 80266 (December 29, 2022) ("Tick Size Proposal" or "Odd Lot/Round Lot Proposal"); Securities and Exchange Commission, Release No. 34-96495 (December 14, 2022) 88 FR 128 (January 3, 2023) ("Order Competition Proposal"); Securities and Exchange Commission, Release No. 34-96493 (December 14, 2022) 88 FR 5440 (January 27, 2023) ("Best Execution Proposal"); Securities and Exchange Commission, Release No. 34-96493 (December 14, 2022) 88 FR 3786 (January 20, 2023) ("Rule 605 Proposal").

[2] Cboe also operates four U.S. options exchanges (Cboe Options, C2 Options, BZX Options, and EDGX Options), a designated contract market (CFE), a digital asset platform with corresponding DCM and DCO registrations under the Cboe Digital umbrella, a swap execution facility (Cboe SEF), one of the largest pan European stock exchanges (Cboe Europe), and a foreign exchange trading platform (Cboe FX). Cboe also owns a registered ATS (BIDS) which is subject to information barriers.

and targeted structural modifications can improve market quality for investors and further enhance the investor experience without introducing operational risks and complications associated with more dramatic overhaul proposals. The current equities market is overwhelmingly beneficial for large and small investors, and we believe that substantial changes to the U.S. market structure should be consensus-driven and must benefit end-users without harming the strong framework that already exists. Consistent with this "do no harm" approach, Cboe's views regarding each of the Commission's Proposals are provided below:

Summary

Minimum pricing increments, access fees, and transparency:

- *Tick sizes*: Modifications to the U.S. equities tick framework can benefit investors; however, the Proposal is too expansive. The most pragmatic approach to tick reform is to objectively identify and address truly tick-constrained securities, evaluate the results, and then consider more granular tick changes and potential harmonization over time. Cboe has put forth a straightforward framework to identify tick-constrained securities and believes a $0.005 pricing increment is a suitable starting point for those securities.
- *Access fees*: Cboe believes competitive forces should inform access fees. Equities market competition is vibrant and imposed price controls are unnecessary. Reducing the access fee cap to $0.0005 and restricting volume tiers will limit differentiation and competition between venues to the detriment of investors. The Commission is already empowered with the ability to suspend exchange fees that could be viewed as predatory or harmful to market structure.
- *Round lots and odd lots*: Cboe strongly supports the round lot and odd lot reforms proposed by the Commission.

Order Competition Rule: Cboe was built on dynamic order competition auctions for listed options. However, we do not believe the proposed mandate to submit segmented equity orders into auctions is prudent. Market-driven solutions, such as Cboe's Retail Price Improvement Program, should be encouraged and embraced by the Commission (our experience is that it is often difficult to secure regulatory approvals for these types of offerings). To the extent the Commission moves forward with this Proposal, the Commission should propose two-sided auctions that allow intermediaries to backstop executions. Also important would be to ensure greater regulatory harmonization around the process for venues to introduce, modify and price these auctions.

Regulation Best Execution: Cboe continues to support increased clarity and consistency with respect to best execution standards. However, we are not convinced an entirely new rule is necessary. We do believe best execution rigor is needed in nascent markets such as digital asset securities. As to the listed options market, a best execution regime should value market centers with competitive, consistent and proven liquidity.

Rule 605: Cboe supports increased transparency and disclosure of enhanced execution quality statistics. Data that emerges from these updated reports should be carefully analyzed and can serve as a foundation for potential future rulemakings.

Regulation NMS: Minimum Pricing Increment, Access Fees, and Transparency of Better Priced Orders

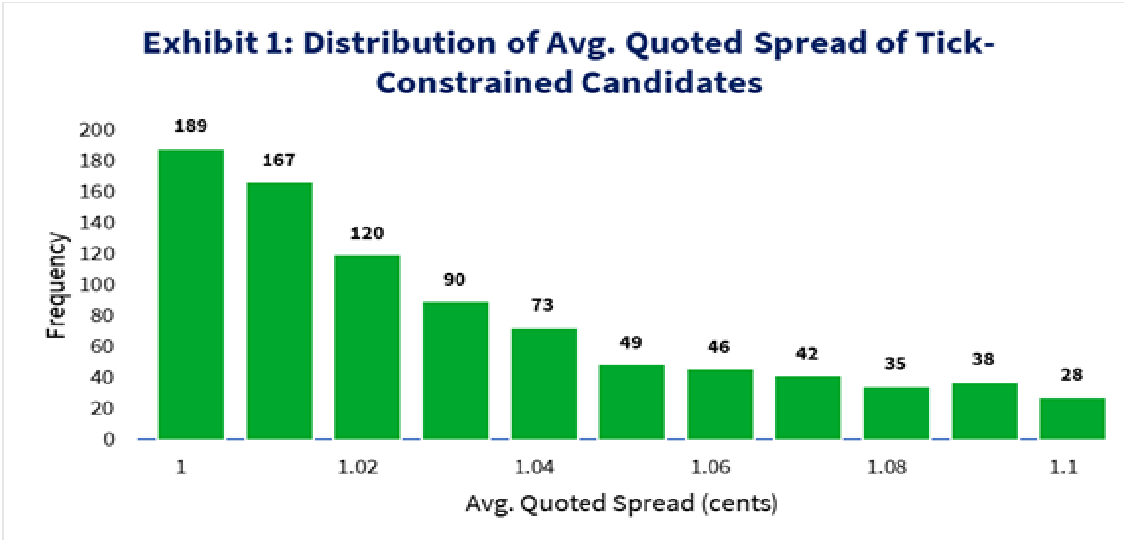
Cboe applauds the Commission's efforts to examine and update the tick regime in the U.S. equities market. We understand the aims of the proposed reforms to include improving trading in symbols that may be tick-constrained, harmonizing increments across the array of venues executing equity orders, and ensuring that price improvement opportunities for investors are maintained and/or maximized. These are laudable objectives; however, consistent with our "do no harm" philosophy, we believe any changes should be gradual and deliberate. As such, Cboe suggests only addressing truly tick-constrained securities at this time. Moving forward in a more targeted fashion, without embarking on sweeping changes that could introduce operational complexity and risk into the marketplace, is advisable.

Tick-size regime reform should focus on identifying truly tick-constrained securities, rather than harmonizing tick increments across an expansive universe of securities. Once an objective set of truly tick constrained securities is identified, we would then propose that a half cent increment be applied to these securities. We recommend that this approach be reevaluated quarterly or bi-annually, using empirical analysis to determine whether additional adjustments to tick sizes are warranted. Cboe believes that this measured approach will allow the marketplace to more safely understand and process the implication of tick reform. Our methodology for identifying the appropriate securities follows.

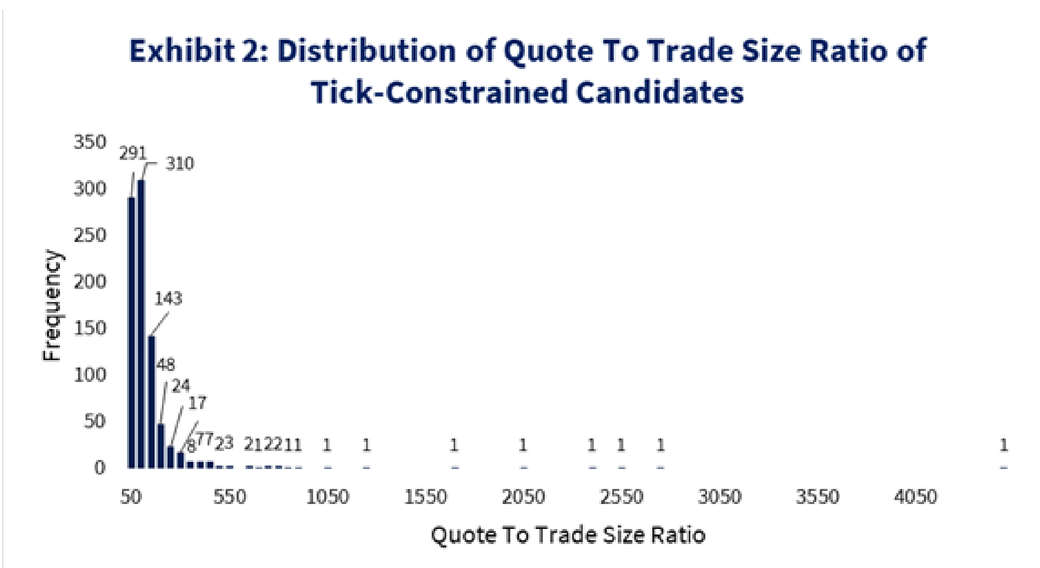
Cboe's Objective Framework for Identifying Tick-Constrained Securities
The most critical step in any tick-size regime reform is first establishing an objective methodology designed to address truly tick-constrained securities. In this regard, we recommend using a multi-factor methodology, such as Cboe's Tick-Size Reduction Framework.[3] As we previously and publicly set forth in greater detail, we started with the complete universe of NMS securities, and applied three constraints – quoted spread, quote-size-to-trade-size ratio, and notional turnover ratio – to arrive at a group of securities that are quantifiably tick-constrained.

- **Step 1: Quoted Spread Factor** – We first focused on securities with an average daily quoted spread at or below 1.1 cents, selecting these securities as candidates for tick-reduction. We chose 1.1 cents because within this group of securities we see a high concentration of securities being quoted closer to $.01, as shown in Exhibit 1.0 below.

[3] See "Cboe Proposes Tick-Reduction Framework to Ensure Market Structure Benefits All Investors," September 22, 2022, available at, https://www.cboe.com/insights/posts/cboe-proposes-tick-reduction-framework-to-ensure-market-structure-benefits-all-investors/; see also Cboe comment letter re: *SEC Proposal on Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders (No. 27_30-22)*, available at, https://www.sec.gov/comments/s7-30-22/s73022-20158236-326301.pdf.

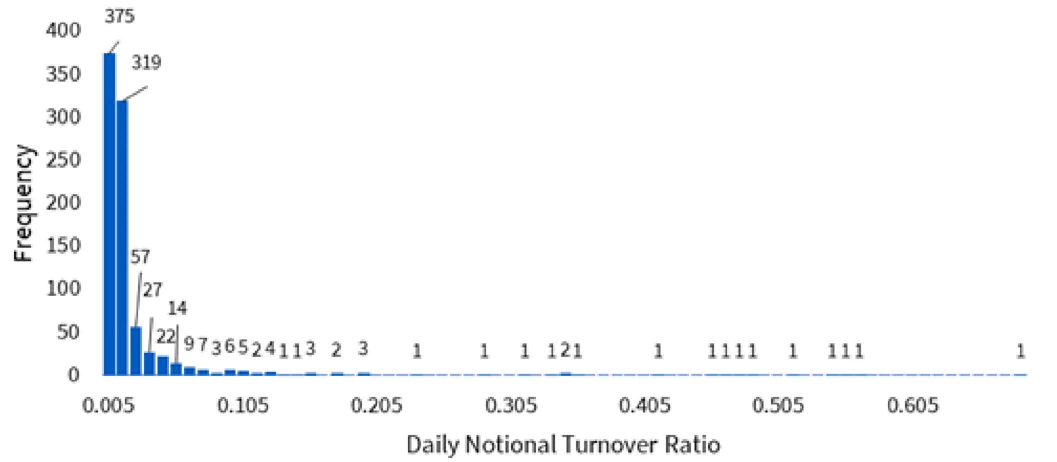


- **Step 2: Quote-Size-to-Trade-Size Ratio (Quote-Trade Ratio)** – We then looked at the distribution of the Step 1 securities' quote-trade ratios and noted the group of securities clustered on the left-hand side of the distribution chart, as shown in Exhibit 2, below. These securities had lower quote-trade ratios, indicating that quoting in these names often results in executions evidencing that they are likely not tick constrained. We, therefore, focused on the long right tail of the distribution chart – i.e., those securities with high quote-trade Ratios - and selected the top 75th percentile as our objective threshold.



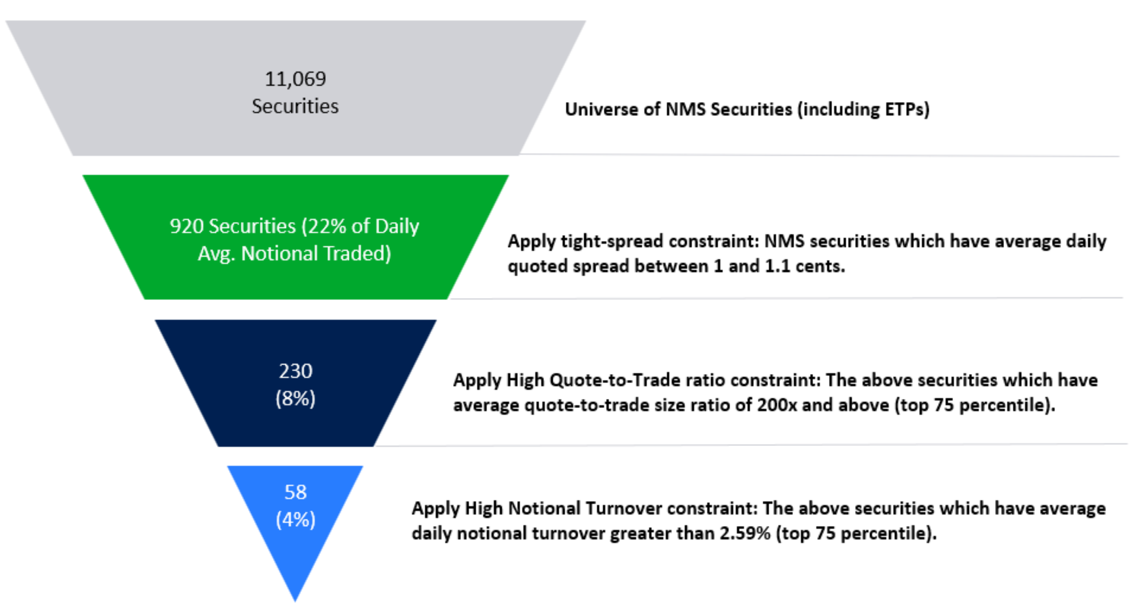
- **Step 3: Notional Turnover Ratio** – We then calculated the notional turnover ratio for these securities and noted that a majority of the securities were concentrated on the left-hand side of the distribution table (Exhibit 3)– i.e., thinly traded securities with low notional turnover ratios. We do not believe these securities should be considered tick-constrained. We again selected the top 75th percentile as our objective threshold.

Exhibit 3: Distribution of Daily Notional Turnover Ratio of Tick-Constrained Candidates



- **Results** – Exhibit 4, below, summarizes our objective selection framework for tick-size reform. We focused on NMS securities with an average daily Quoted-Spread between 1 and 1.1 cents and calculated the 75th percentile for the quote-trade ratio and notional turnover ratio, resulting in 58 securities that are quantifiably tick-constrained. To this universe of securities, we suggest applying a more conservative initial quoting increment of $0.005 Additionally, this framework should be reevaluated quarterly or bi-annually for the parameters to remain nimble to changing market conditions.

Exhibit 4



Importantly, Cboe's framework is intended to be flexible with parameters that can be adjusted or removed to increase the number of tick-constrained symbols. We demonstrate our Framework's flexibility in Appendix A, highlighting alternative tick-constrained securities utilizing our objective methodology for the 65th and 50th percentiles. For instance, eliminating the proposed high notional turnover constraint for the 50th percentile framework would produce a large subset of tick-constrained symbols – from 58 to 230.

While we are open to these alternative frameworks, we strongly believe that starting with a universe of securities that are truly tick-constrained and then evaluating the results using empirical data before making the tick size reform more expansive is the most pragmatic approach that also better insulates investors and issuers from any negative unintended consequences.

Concerns with Proposed Increments in the Proposal

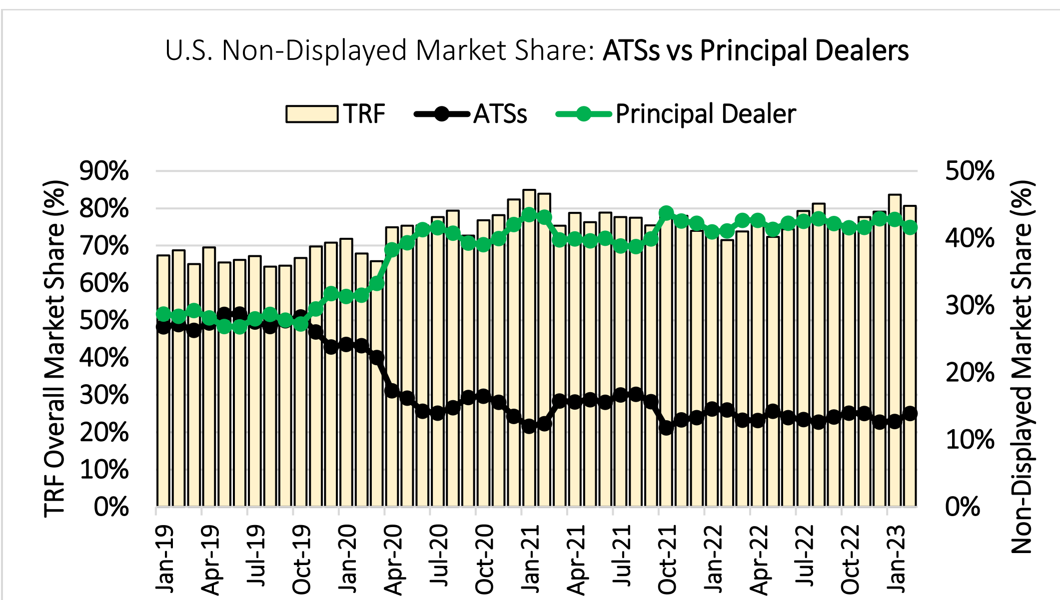
The Commission seeks to amend Regulation NMS to amend the tick sizes under Rule 612 to establish a minimum pricing increment model that would apply to both the quoting and trading of NMS stocks. The proposed variable minimum pricing increments would apply to all quoting and trading on exchanges, alternative trading systems, and over-the-counter, subject to certain exceptions. Specifically, for quotations and trades in NMS securities priced equal to or greater than $1.00 per share, the Reg NMS Proposal sets forth:

Minimum Pricing Increment	**If the Time Weighted Average Quoted Spread for the NMS stock during the Evaluation Period was:**
$0.001	Equal to or less than $0.008
$0.002	Greater than $0.008 but less than or equal to $0.016
$0.005	Greater than $0.016 but less than or equal to $0.04
$.01	Greater than $0.04

We believe that the proposed tick increments of $.001 and $.002 are too granular and that the breadth of securities to which the Commission extends the proposed increments is entirely too expansive. Embarking down this path is likely to introduce operational complexity and risk. By extending the proposed minimum pricing increments to such a large number of securities, the Proposal risks applying tick-reform to securities that are arguably not tick-constrained. The analysis in Appendix B demonstrates that most securities are ***not*** tick-constrained. Therefore, rather than a one-size-fits-all tick-reform, Cboe again recommends that any tick-size regime reform should instead focus on developing an objective methodology to identify securities that are appropriate candidates for tick reduction.

Moreover, imposing an across-the-board granular increment for a security that is not tick-constrained could negatively impact liquidity, which is inadvisable given the uncertainty of whether the proposed retail auction mechanism will materialize or result in beneficial outcomes. First, the proposed tick increments – particularly $0.001 and $0.002 – in conjunction with the proposed access fee cap reductions, will hinder exchanges' ability to differentiate. In turn, this will limit exchanges' ability to foster meaningful competition, negatively impacting liquidity. As discussed in more detail below, exchanges commonly use rebates to incentivize market participants to provide on-exchange liquidity. The ability to offer rebates, though, is largely tied to an exchange's ability to collect transaction fees sufficient to pay out a meaningful rebate. In this regard, the granularity of the proposed minimum pricing increments – applied to securities that may not be tick-constrained – challenges the ability to offer liquidity inducing rebates. If this key competitive tool is materially impaired, then the ability of exchanges to offer competitive and unique pricing schedules to their members will become much more difficult, resulting in less competition amongst the exchanges as trading could very likely re-concentrate back to the primary exchanges.

Second, implementing granular tick sizes in this manner is likely to negatively impact on-exchange liquidity and price discovery. For instance, as proposed, a $10 stock with a spread of one cent, and a $.001 tick, would have 10 price levels – $10.001, $10.002, $10.003, $10.004, $10.005, $10.006, $10.007, $10.008, $10.009, $10.01. Although the $.001 tick increment would provide additional increments in a security that, for purposes of this example, is assumed to be tick constrained, the granularity of the 1/10th tick could in fact negatively impact liquidity aggregation as liquidity is dispersed across *ten* price levels, which will also increase the frequency of pennying and flickering quotations. On the whole, the impact is likely to be a decrease in certainty of execution at exchanges. This, in turn, is likely to exacerbate current market dynamics as broker dealers may route order flow to market centers that can provide execution certainty, such as principal dealer platforms.[4]



4 See "A Deep Dive Into U.S. Equities Trading Venues", May 2021, available at, https://www.cboe.com/insights/posts/a-deep-dive-into-u-s-equities-trading-venues/.

While the Commission notes that it is difficult to estimate the number of securities in the $.001 category, it goes on to estimate that 1,707 stocks, making up an estimated 64% of share volume and 37.9% of estimated dollar volume, have an average spread of less than $0.016 (i.e., 1/10th or 2/10th tick increments). In this regard, given the detrimental impact that the proposed increments could have on such an expansive set of securities, a more measured and methodical approach to tick-size reform is warranted.

We strongly believe that an increment of $0.005 for tick-constrained securities is a prudent starting point that will prevent the negative consequences highlighted above.

Access Fee Caps

The Proposal seeks to lower access fee levels established by Regulation NMS as follows: For quotations in NMS stocks priced at $1.00 or more, the access fee cap would be $0.0005 per share for NMS stocks that have a minimum pricing increment of $0.001, and the access fee cap would be $0.001 per share for stocks that have a minimum pricing increment greater than $0.001. Further, for quotations in NMS stocks priced less than $1.00, the access fee cap would be 0.05% of the quotation price. We are not supportive of these changes as they will negatively impact competition, differentiation, and liquidity provision. Price changes should be driven by competitive forces.

As an initial matter, the fee cap proposal under Regulation NMS was controversial, as the Commission acknowledged at the time: "Perhaps more than any other single issue, the proposed limitation on access fees splintered the commenters."[5] A simple concern is that access fee caps represent the imposition of price controls that conflict with the very concept of a market-based system. Importantly, any fees established by an exchange that might create a policy concern as it relates to accessing the best bid or offer can be suspended by the Commission. As such, the adoption of fee caps was ill-advised. The cap level itself was rather arbitrarily selected and has resulted in continued industry disagreement. Compressing the caps further, as currently proposed, will introduce additional concerns with implications for competition and market quality.

As noted by the Commission, exchanges such as Cboe utilize access fees to fund rebates paid to exchange liquidity providers (i.e., maker-taker model) or liquidity takers (i.e., inverted model). Exchanges use these fee constructs as competitive tools to vie for order flow that may otherwise be routed to off-exchange market makers and/or alternative trading systems ("ATSs"), as well as other peer exchanges. The growth in off-exchange trading, in particular, highlights the need to maintain the tools that allow exchanges to compete for order flow.[6] These off-exchange platforms are able to set prices competitively without government constraints. If the reduction of access fees makes the rebate structures offered by exchanges economically infeasible, exchanges' ability to differentiate and attract order flow is considerably hindered. This stifles innovation and dulls competition. The tick and fee structures in the Proposal could reduce liquidity at given price points,

[5] See Regulation NMS, 70 FR at 37502 (January 29, 2005).
[6] See Supra note 4.

and reliance on unproven auctions may be insufficient to secure optimal pricing for inbound marketable order flow. The stakes are too high for market experimentation.

Additionally, the Commission proposes to lower the access fee applicable to securities priced below $1.00 from 0.3% of the quotation price per share to 0.05% simply to "maintain the current proportional structure with the access fee caps on protected quotations that are priced $1.00 or more."[7] In other words, the Commission is reducing fee caps from 0.3% to 0.05% for securities priced below $1.00 based on a proposed reduction from $0.003 to $0.0005 for securities priced at or above $1.00. Simplistic proportionality is not a sufficient justification for this reduction. Analysis of whether there will be proportionate outcomes is necessary to overcome the arbitrary and capricious nature of this reduction. In our view, the negative impact of the proposed access fee caps is much more pronounced for securities priced less than $1.00. The estimated revenue impact to exchanges providing rebates in these securities is not insignificant, and this reduction will very likely impact exchanges' ability to differentiate, as well as materially limit the transaction revenue that exchanges apply towards developing innovative solutions that contribute to the robustness of the U.S. marketplace.

The Commission suggests the impact of this decline in liquidity will be mitigated, reasoning that as the price of transacting declines, liquidity demanders will seek to trade on exchanges more often and market participants will step in to satisfy such demand. However, we believe off-exchange platforms will actually gain momentum, especially single dealer platforms or other automated principal trading market centers, due to the lack of differentiated pricing on public markets. The Commission underestimates the value that dedicated liquidity providers contribute to on-exchange activity, and the role they play in the public price discovery process. This logic also optimistically presupposes that market participants, other than market makers, will step in to fill the liquidity gap. The soundness of this reasoning is unclear because in the absence of market makers, institutional investors (presumed to be the market participants most capable of supplying liquidity) typically limit their provision of displayed liquidity (often utilizing non-displayed order types). In times of market stress and difficult market conditions institutional investors are typically not the type of market participants that step in to provide liquidity.

If the Commission dismisses these real concerns and further constrains access fees for securities priced at or greater than $1.00, the access fee should not be reduced below $.0015 for tick-constrained securities with a $0.005 increment. For securities priced less than $1.00, the access fee cap must remain unchanged to support competition, differentiation, and liquidity provision.

The Commission also proposes to prohibit exchanges from imposing fees or rebates for NMS stocks unless the fee or rebate can be determined at the time of execution. This aspect of the Proposal is, amongst other things, intended to reduce order routing incentives that are based on achieving a threshold in order to gain a specific fee or rebate. This Proposal, though, disrupts existing economic incentives without justification. Indeed, we believe there is more aggregate

[7] Tick Size Proposal at 80290.

liquidity in the marketplace because of the incentives provided by exchange rebate tiers. Minimizing the benefits of this framework will negatively impact exchange liquidity provision and drive even more liquidity to off-exchange venues.

Round Lots and Odd Lots
Cboe has long been a proponent of both round lot and odd lot reform. In our January 2020, "Cboe's Vision for Equity Market Structure Reform" paper,[8] as well as our 2022 Odd Lot Proposal comment letter,[9] we advocated for reduction of the standard round lot size from 100 shares to 10 shares or 1 share for high-priced securities, as well as for enhanced odd lot transparency through the dissemination of top-of-book odd lot quotation data through the Securities Information Processors ("SIPs"). We continue to support such reforms, and believe that these changes will enhance price discovery, and help to further reduce spreads.

The case for adding odd lots to the SIPs is a strong one. In October 2021, Cboe examined the growth of odd lot activity and how odd lots benefit the overall equities market.[10] Our study showed that odd lots are indeed an integral and valuable part of today's U.S. equities market and provide a meaningful source of liquidity across all trading sessions and stocks, representing 54.8% of all trades in the U.S. financial markets, up from 43% at the beginning of 2020. More recently, as of February 2023, we found that this percentage increased, with odd lots comprising 57.3% of all trades in the U.S. financial markets. Yet, despite the prevalence of odd lots, odd lot quotations are not currently disseminated by the SIPs. As the central public source for U.S. equities market data, which millions of investors rely on daily to inform their investment decisions, the inclusion of odd lot quotations on the SIPs is long overdue.

Cboe supports the Commission's proposed amendments regarding best odd-lot orders ("BOLO"). Specifically, the Commission proposes that for each NMS stock, the BOLO to buy would mean the highest priced odd-lot order to buy that is priced higher than the national best bid, and the best odd-lot order to sell would mean the lowest priced odd-lot order to sell that is priced lower than the national best offer. Furthermore, for each odd-lot quotation submitted to the SIPs at the same price, the SIPs would be required to determine the BOLO and disseminate such quotation to the marketplace. We agree with the Commission that these Proposals would enhance the usefulness of odd lot-information and help to enhance the transparency to investors of the best-priced liquidity available in the marketplace.

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8 See "Cboe's Vision Equity Market Structure Reform", January 2020, available at, https://cdn.cboe.com/resources/government_relations/cboes-vision-equity-market-structure-reform-2020.pdf

9 See Cboe's comment letter, "Re: Proposal to Add Consolidated Odd Lot Quotation Data ("Odd Lot Quotations") to the UTP and CTA/CQ Data Feeds" in response to the SIP Operating Committees of the CTA and UTP Plans' ("OCs") request for feedback on a proposal for the current CTA and UTP Securities Information Processors ("SIPs") to disseminate certain consolidated Odd Lot quotation data as ancillary information on the SIP data feeds, available at, https://www.ctaplan.com/publicdocs/ctaplan/Cboe_Comment_Letter_2022_Odd_Lot_Proposal.pdf.

10 See "An In-Depth View Into Odd Lots", October 27, 2021, available at, https://www.cboe.com/insights/posts/an-in-depth-view-into-oddlots/#:~:text=Odd%20lots%20currently%20make%20up,the%20beginning%20of%20the%20year.

Cboe notes, however, that the proposed 90-day time frames for implementation is unrealistic given the level of development work required by the exchanges and firms that want to process odd lots. Additionally, round lot conversion to actual share size will likely require considerable work by industry participants to their processing and display systems. While Cboe remains supportive of these reforms, we encourage the Commission to reconsider the operational and technological complexity associated with these changes, for exchanges, industry participants, and the SIPs, and provide additional time for implementation.

Order Competition Rule

The proposed rule prohibits restricted competition trading centers from internalizing segmented orders in NMS stocks until after the order has been exposed at a specified limited price in a qualified auction.

We appreciate efforts to increase competition for retail orders; however, we do not believe mandating the use of qualified auctions and effectively halting price improvement from an important segment of the market is advisable. The data included in the Proposal shows there is currently meaningful price improvement, speed and certainty of execution.[11] Our own internal analysis of Rule 605 statistics confirms that effective/quoted spreads for market orders are approaching the midpoint.[12] We do not believe mandating auctions for small held orders is the most prudent way to accomplish more midpoint trading. The tick size reforms, with our recommended modifications, will meaningfully increase order competition opportunities available to retail orders in tick-constrained symbols. In addition, allowing Cboe to disclose price and size of orders pursuant to our Retail Price Improvement program would similarly bring additional order competition and visibility for retail orders. We expect other venues will also propose competitive offerings that will benefit investors if they are allowed to bring them to market in a timely fashion.

To the extent the Commission proceeds with imposing a mandated auction regime in the equities market, we encourage the Commission to extensively modify the qualified auction framework to allow for two-sided auctions (auctions where an initiator can submit an order as well as contra-side interest that serves as a backstop for the order). We also think it is important to address regulatory harmonization as it relates to establishing, changing and pricing qualified auctions. Indeed, regulatory harmonization is more urgently needed than tick harmonization.

Two-Sided Auctions
The Commission makes clear that the specified limit price proposed to be included in a qualified auction is specifically not a "reserve price" or "backstop" requirement and states that, as proposed, segmented orders "would not have certainty of an execution in a qualified auction at a price equal to the NBBO or better[.]" This does not benefit investors. Allowing two-sided auctions whereby the specified limit price can be (but is not required to be) a reserve price or backstop price does not favor wholesalers over auction respondents. It favors investors who will be guaranteed an execution at the NBBO or better. Exchanges do not trade as principal and cannot guarantee NBBO

[11] See e.g., Table 7, 10, and 11 of the Order Competition Rule.
[12] In 2022, for orders between 100-499 shares in S&P 500 stocks, the average EFQ was 22.56 on a scale of 0 (midpoint executions) to 100 (executions at the bid/ask).

fills or freely accommodate changes to aberrant execution prices. Those are valuable services provided by market participants that should not be overlooked.

While we do not believe qualified auctions should be mandated, we also disagree with any implication that exchange auction auto-match and allocation guarantees are faulty or reduce competition.[13] Electronic auction mechanisms that offer these features encourage order competition while facilitating backstop NBBO fills for investors. If the Commission moves forward, these auction features should be allowed in qualified auctions because they ensure customer orders will execute while also exposing them to valuable order competition.

Also of significant concern is that the proposed auctions will necessarily delay executions; combine this with the dissemination of auction messages to all industry participants and delays associated with returning orders to the order submitters and there is an increased likelihood that many customer orders go unfilled. This could be hugely detrimental to investor execution quality and unnecessarily neutralizes the sizable price improvement that exists in today's markets. Ultimately, we recommend the Commission reconsider moving forward with the auction proposal. However, if proceeding is a certainty, the Commission should focus on increased order competition that maintains meaningful levels of execution certainty by allowing qualified auctions to be two-sided auctions.

Open Competition Trading Centers

The Proposal would allow only open competition trading centers to offer qualified auctions. Exchanges or NMS Stock ATSs may be considered open competition trading centers if they meet certain conditions, such as minimum ADV requirements. The Commission proposes to apply the same minimum ADV threshold to exchanges and NMS Stock ATSs, which suggests the Commission is seeking to place exchange-provided and ATS-provided auctions on equal footing. We support the intent, but the Commission does not address the significant differences between the regulatory framework applicable to exchanges vs. ATSs. If this Proposal is adopted exchanges will once again be at a competitive disadvantage vs. ATSs. Exchange rule filings to adopt qualified auctions will be subject to the lengthy 19(b) rule filing process, which does not apply at all to ATSs. This regulatory difference enables ATSs to move more quickly and efficiently to adopt qualified auctions and, more importantly, to expeditiously amend features of these auctions in the future. The obvious solution to this mismatch is to ensure applications for qualified auction proposals are reviewed by the SEC in the same manner – whether proposed by an exchange or ATS. A related and equally important policy objective is to allow exchanges to operate ATSs without unnecessary barriers to sensible integration (indeed, such barriers do not exist in most jurisdictions around the world).

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13 See Order Competition Proposal at 231 and 232 (stating that auctions with auto-match pricing or allocation guarantees could result in competitive advantages for some bidders over others and result in less competition among market participants to supply liquidity to individual investor orders and worse execution quality.).

Access Fees in Qualified Auctions

The Proposal imposes a $0.0005 access fee cap on executed auction responses and does not allow a fee to be charged for submitting auction responses or the submission or execution of segmented orders. The Commission states that "because the auctions are required for certain segmented orders prior to internalization, there remains the possibility that this requirement could lead to access fees being set above those that would occur in the absence of such a requirement. Due to this *market failure* [emphasis added], setting a maximum fee may be necessary."[14] Access fees are not a market failure. Access fees and rebates are critical competitive tools that allow exchanges to differentiate and compete. There is no reason to stifle innovation and hinder competition in this manner.

Separately, the Proposal contemplates priority for displayed book orders over auction responses. We agree. However, to the extent the Commission moves forward with restrictive qualified auction fees as proposed, the economics applicable to booked orders (rebates and access fee) should remain intact. Rebates incentivize the posting of liquidity. This is good for markets. Disrupting the economics of posting liquidity by applying the restrictive qualified auction fees is unhelpful and unnecessary.

Regulation Best Execution

The proposed rule would require a broker or dealer when transacting for a customer to obtain the most favorable price (i.e., "use reasonable diligence to ascertain the best market for the security, and buy or sell in such market so that the resultant price to the customers is as favorable as possible under prevailing market conditions") and to maintain policies and procedures setting forth, among other things, how the broker or dealer:

- obtains and assesses reasonably accessible information (e.g., information on price, volume, execution quality, and markets trading the security);
- identifies material potential liquidity sources;
- determines the best market and makes routing or execution decisions for customer orders by assessing best displayed prices, opportunities for price improvement, including midpoint executions, and order exposure opportunities;
- assesses attributes of customer orders (size; likelihood of executions; accessibility of market);
- for conflicted transactions, obtains and assesses additional information about price, volume and execution quality, in identifying markets beyond material potential liquidity sources.

As Cboe has historically expressed, we believe more clarity on the duty of best execution will help foster consistency, transparency, competition and improved price discovery – all to the benefit of investors. It is, however, worth examining whether investors are better served by an entirely new rule or whether targeted amendments to existing, fully integrated best execution rules, such as FINRA Rule 5310, might not be more beneficial. To the extent the Commission adopts the Proposal it is also worth considering whether additional clarity is necessary with respect to the interplay between the separate, potentially conflicting regimes of FINRA Rule 5310 and the new

14 Order Competition Proposal at 235.

SEC rule. Regardless, the below considerations are relevant with respect to this Proposal and existing best execution standards.

Best Execution Framework

We support the ability of brokers or dealers to incorporate a multitude of relevant factors into their best execution policies. Not all customers are alike – neither are the products, orders, venues or market conditions. Customer needs vary. How brokers achieve best execution will also vary. However, the best execution framework should be buttressed by public disclosures that allow customers to review a broker's best execution and order handling policies, including with respect to how a broker incorporates fee considerations.[15]

Routing Instructions

We are encouraged by the inclusion of Rule 1100(c) that enables customer to instruct a broker-dealer to route an order to a particular market or type of venue for execution. We would encourage authorities, such as FINRA, to issue additional guidance on the potential risks and opportunities associated with directing orders in order to inform and empower investors.

Digital Asset Securities

It is clear that additional guidance will be most beneficial with respect to emerging markets such as digital asset securities. On a whole, as the Commission notes, it is difficult to ascertain what the current practices are with respect to best execution and order handling in digital asset securities markets. We respectfully suggest that the adoption of an adaptive SEC-registration model for digital asset securities venues could bring the unregulated into the regulated fold, providing more visibility into the practices and execution quality in digital asset securities markets.[16] Venue regulation aside, customers would benefit from increased attention on execution quality in digital asset securities markets. In addition, the best execution rule applied to digital asset securities should allow broker-dealers to consider more than what is the most favorable price. In an evolving market, broker-dealers should have the flexibility to prioritize venues that reduce customer risks. As it relates to digital asset securities, we believe broker-dealers should be encouraged to prioritize:

- Execution quality
- Exchanges that do not take proprietary positions against customers – a conflict that is antithetical to exchanges;
- Exchanges that provide central clearing;
- Exchange resiliency;
- Breadth of liquidity

15 See e.g., https://virtu-www.s3.amazonaws.com/uploads/documents/Disclosures-for-Clients-of-Virtu-Americas-LLC-September-2020_BCP.pdf and https://business.bofa.com/content/dam/flagship/global-markets/high-touch-electronic-trading/documents/Guide-to-US-Cash-Equities-Electronic-Trading-Services.pdf.

16 *See* Cboe's Path Forward for Digital Asset Trading Regulation, available at, https://cdn.cboe.com/resources/government_relations/A_Path_Forward_for_Digital_Asset_Trading_Regulation.pdf.

Equities – Tick sizes and Opportunities for Price Improvement

We agree that brokers may route to market centers where there is a likelihood of price improvement. Our recommendations with respect to tick-constrained securities will increase price improvement opportunities on exchanges in a prudent and targeted manner for those securities. Additionally, exchange-led programs like Cboe's Retail Price Improvement Program ("Cboe's RPI") would also enhance the visibility of better priced orders that are available on exchanges and allow brokers to better secure quality executions for a broader set of securities. In fact, allowing exchanges to display retail held orders in $0.005 increments (or finer) pursuant to a targeted retail program would increase price improvement opportunities for this important segment without the negative implications of broader tick-size reform. Currently, Cboe's RPI program is not able to display price and size which creates uncertainty when routing to our market despite the benefits for all market participants. Allowing beneficial enhancements to Cboe's RPI program could provide intermediaries and retail investors with knowledge of meaningful price improvement opportunities.

Equities – Reasonably Accessible Information and Best Displayed Prices

We agree that brokers should be analyzing displayed prices for purposes of best execution. We note that it is not a requirement today nor is it a requirement under this proposed rule for intermediaries to directly access every exchange or consume market data feeds from every exchange. We agree with this structure. It is advantageous for customer orders to have the ability to interact with liquidity on major markets, but the notion that in all cases best execution requires direct access to every possible venue is unhelpful and does not serve investors. With respect to the proposed rule we encourage the Commission to explicitly state that the consolidated tapes represent reasonably accessible information and are generally sufficient to satisfy this requirement to analyze best displayed prices. Direct feeds from venues are not required in most cases.

Listed Options – Price Improvement and Auctions

We agree that it is appropriate for broker-dealers to consider the competitiveness between auctions to determine which auction and execution mechanism may yield the best result. We disagree with any implication that certain auction features (such as allocation guarantees, auto-match pricing or auction fees) may create a less competitive environment for order competition. These auction features allow options exchanges to develop an ecosystem that enhances opportunities for price improvement, and the price improvement provided by these mechanisms is meaningful. To illustrate, Cboe Options Exchange's automated improvement mechanism (AIM) (a paired order auction) achieved in Q1 price improvement for approximately 80% of single-leg customer orders submitted to AIM; for complex order AIM auctions, approximately 92% of customer orders received price improvement; and the complex order auction (COA) achieved price improvement for approximately 86% of customer COA orders.

Listed Options – Exchange-Traded Options vs. OTC Look-a-Like Options

We believe over-the-counter markets can sometimes provide benefits not available on exchange-traded markets. However, with respect to OTC option contracts with substantially identical terms to standardized listed options, it is worth exploring whether in many cases customers may be better served by transacting in the listed market. Listed-options markets offer meaningful price discovery and opportunities for price improvement, not to mention trade reporting and reduced counterparty credit risk provided by central clearing. We encourage the Commission to take this opportunity to review the order handling practices for OTC look-a-like options markets to ensure best execution is achieved when institutional customers are steered into OTC option contracts. We are also supportive of additional transparency with respect to the trading of OTC options and encourage the Commission to consider requiring OTC options transactions to be reported in a similar manner to exchange-traded options as this would better inform customers and the markets with respect to whether best execution is being attained.[17]

Listed Options – Material Potential Liquidity Sources

Although trading floor dynamics have evolved, it is undeniable that open outcry trading floors can and do offer meaningful price improvement opportunities and meaningful liquidity. Trading floors with meaningful liquidity deserve consideration as material potential liquidity sources. We accept that broker-dealers need not have access to every trading floor for every product for purposes of best execution compliance, but it is reasonable to expect broker-dealers to consider robust trading floors when adopting policies and procedures designed to achieve best execution.

Disclosure of Order Execution Information: Rule 605

Cboe has long been a proponent of providing meaningful data to market participants and believes that targeted improvements to Rule 605 Reports will increase transparency, which ultimately enhances the investor experience. In fact, Cboe published recommendations related to Rule 605 Reports in our August 2021, "Targeted Equity Market Structure Improvements",[18] which included a suggestion that brokerage firms produce Rule 605 Reports publicly in an accessible format. Cboe believes that the proposed changes to the Rule 605 Reports could ultimately provide enhanced execution quality statistics to investors, and that prior to implementing wholesale changes to equity market structure, the Commission should begin by refining Rule 605 Reports as proposed to obtain more relevant data points from which to base its analysis related to potential future market enhancements.

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It is clear that tremendous effort has gone into these Proposals. We appreciate the Commission and staff's time and attention to these important matters. It is clear that the Commission is laser focused on improving outcomes for investors. Cboe shares that objective. We believe it is best achieved by proceeding deliberately. Imposing major market overhauls is not advisable. The U.S. equities market currently serves investors incredibly well. We know the Commission is seeking to gather important feedback across all market participants to inform next steps. We believe our

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[17] See Cboe's comment letter in support of FINRA's proposed trade reporting requirements for OTC options transactions, available at, https://cdn.cboe.com/resources/government_relations/comment_letters/Cboe_Response_to_FINRA_RFC_re_OTC_Options_Reporting_9-20-22.pdf.

[18] See "Cboe's Vision Targeted Equity Market Structure Improvements," August 2021, available at, https://cdn.cboe.com/resources/government_relations/comment_letters/Cboe_USE_TargetedMarketStructureImprovementsReport_0721_v1.0.7.pdf.

recommendations, if adopted, will help ensure that the equities market continues to greatly benefit investors. We welcome further discussions with the Commission.

Sincerely,

Patrick Sexton
EVP, General Counsel & Corporate Secretary

CC: The Honorable Gary Gensler, Chairman, SEC
The Honorable Caroline A. Crenshaw, Commissioner, SEC
The Honorable Hester M. Peirce, Commissioner, SEC
The Honorable Jaime Lizárraga, Commissioner, SEC
The Honorable Mark T. Uyeda, Commissioner, SEC
Director Haoxiang Zhu, Division of Trading and Markets

Appendix A

Last fall, Cboe published a tick reduction framework designed to identify securities that were tick-constrained to facilitate implementation of a targeted tick reform model that minimized operational complexity and unintended consequences associated with a large-scale sweeping increment change. In light of the Commission's December 2022 Proposal on Regulation NMS: Minimum Pricing Increment, Access Fees, and Transparency of Better Priced Orders, we are reintroducing our framework with refreshed data from the fourth quarter of 2022.

Our proposed framework is flexible. Below we provide multiple thresholds that can be utilized to support identification of a suitable subset of tick-constrained stocks. Cboe believes the most important consideration is to use an objective methodology to apply any reduced tick size regime to a smaller pilot universe of symbols before making it more expansive to avoid any negative unintended consequences for equity market structure and investors. Our updated framework is outlined in detail, below.

Designing Objective Criteria

The first principle of the proposed framework selects candidates based on an objective set of criteria. We propose that a security is a candidate for the tick-size-reduction regime if it satisfies the following top-down framework:

1. Constraint: Tight average inside quoted spread

We believe these securities are being quoted at such tight spreads that there are possible benefits to be gained from exploring whether these securities should be quoted in finer increments.

2. Cost: High quote-size-to-trade-size ratio (Quote-Trade Ratio)

The Quote-Trade Ratio calculates the daily average of each security's inside quote-size-to-trade-size ratio. We consider this criterion an objective signal that shows even though there is an abundance of liquidity, the current $0.01 tick constraint disincentivizes investors to cross the spread due to high costs, resulting in a lack of trade executions.

3. Liquidity: High average daily notional turnover (Notional Turnover Ratio)

The Notional Turnover Ratio calculates the daily average of each security's notional value traded divided by its daily market capitalization. We believe this criterion is appropriate as an objective signal because it focuses the tick-reduction effort on high turnover securities that would benefit from the ability to be traded in finer increments. Conversely, we do not believe thinly traded securities in proportion to their market capitalization—which would have low notional turnover—should be the focus of a tick-reduction effort.

Refining Parameters

For the quoted spread factor, we believe it is most appropriate to set a parameter of 1.1 cents, selecting securities with an average daily quoted spread at or below 1.1 cents as candidates for a tick-reduction regime.

Next, we observed the distribution of these securities' quote-trade ratios. We focused on securities on those with high Quote-Trade Ratios. To highlight how our proposal can be flexible, we calculated the 75, 65, and 50th percentiles for the Quote-Trade Ratio parameter.

Consequently, for the Notional Turnover Ratio, we selected the top 75, 65, 50th percentiles as the objective threshold for consistency with the selection method for Quote-Trade Ratio.

Nimble Approach to Tick-Reduction

We propose that the selected parameters—such as spreads below 1.1 cent and top 75 to 50th percentiles of ratios—remain fluid. This means the values of the parameters should be periodically reviewed and calibrated on a quarterly or bi-annual basis to reflect changes in market conditions. We believe nimble policies ensure that potential market structure reforms keep pace with changing market conditions and in turn, facilitate continued fair, orderly and efficient markets for the benefit of all investors.

75th Percentile (Figure 1)

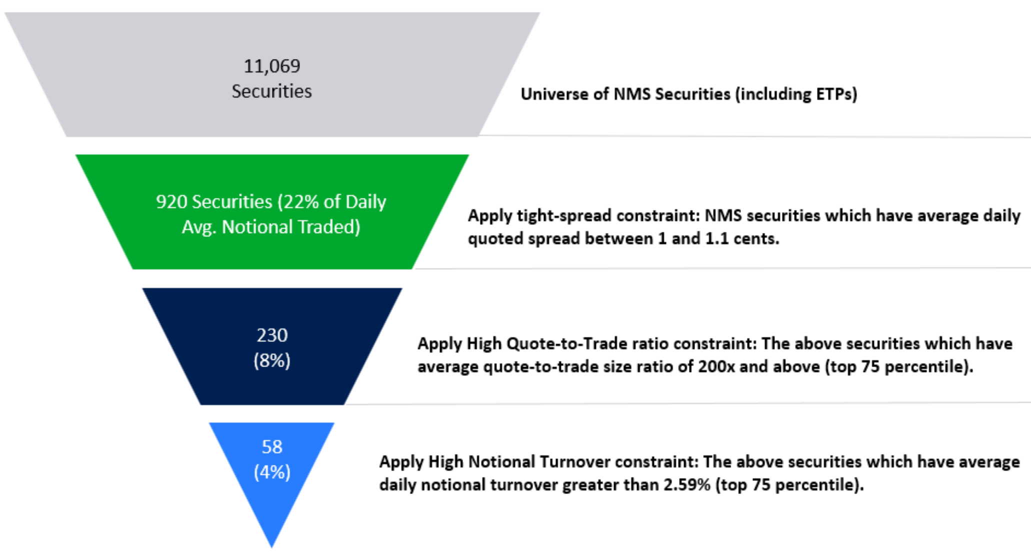


Figure 1 above, summarizes an objective universe selection framework of a tick-reduction regime using the 75th percentile for the Quote-Trade Ratio and Notional Turnover Ratio – identical to Cboe's published proposal. With an objective, selective and nimble framework, the potential universe of true tick-constrained securities is much smaller than previously believed. The objectiveness of this framework enables potential regulatory applications to be much more selective, and focused on actual market inefficiencies and needs, rather than a one-size-fits-all policy, which could potentially be harmful to market structure.

65th Percentile (Figure 2)

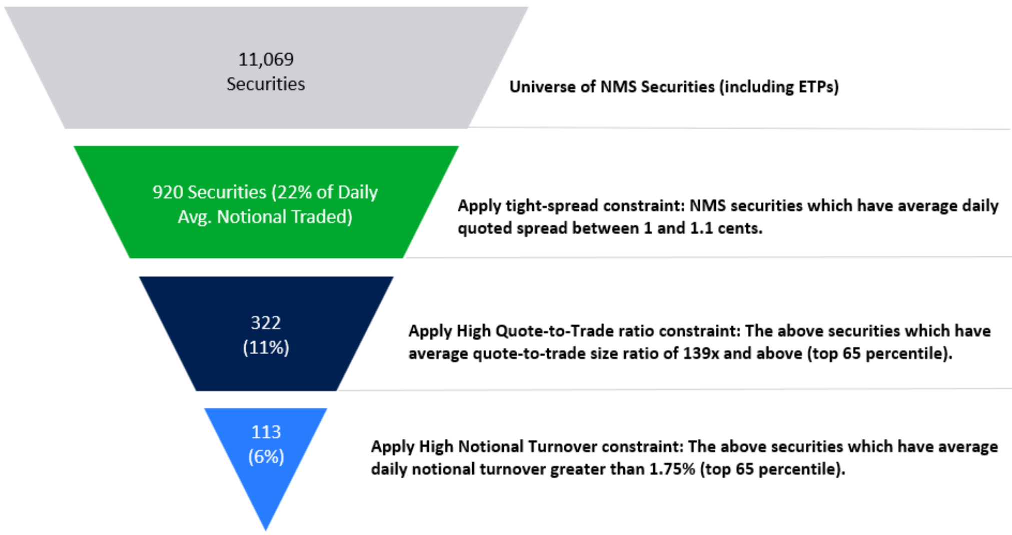


Figure 2 above applies the same framework as the original proposal, however calculates the Quote-Trade Ratio and Notional Turnover Ratio using the 65th percentiles instead of 75th. The purpose is to prove that our empirically driven framework is nimble and able to adjust based on market conditions. With the 65th percentile constraint, we see more securities would be considered tick constrained, although still a much smaller subset of securities than the Commission's proposal.

50th Percentile (Figure 3)

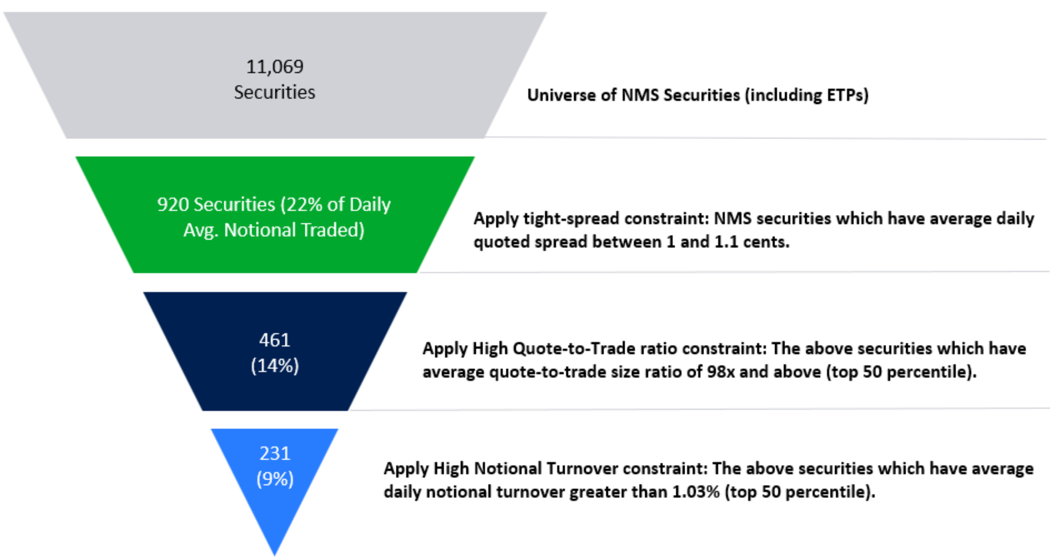


Figure 3 above shows the 50th percentile of the Quote-Trade Ratio and Notional Turnover Ratio calculations.

Conclusion

We recommend that potential regulatory amendments seeking to address market inefficiencies be empirically driven and narrowly tailored. Cboe prefers identifying symbols consistent with Figure 1 above coupled with a more conservative initial tick-reduction to 0.5 cents, but we are open to constructs set forth in Figures 2 and 3. The framework should be reevaluated quarterly or bi-annually for the parameters to remain nimble to changing market conditions.

Cboe believes empirically driven and targeted equity market structure reforms are important to maintain fair, competitive, robust and resilient markets that are inclusive of all investors. We are committed to working toward a solution in partnership with our regulators and industry peers and welcome discussion regarding this proposal.

Appendix B

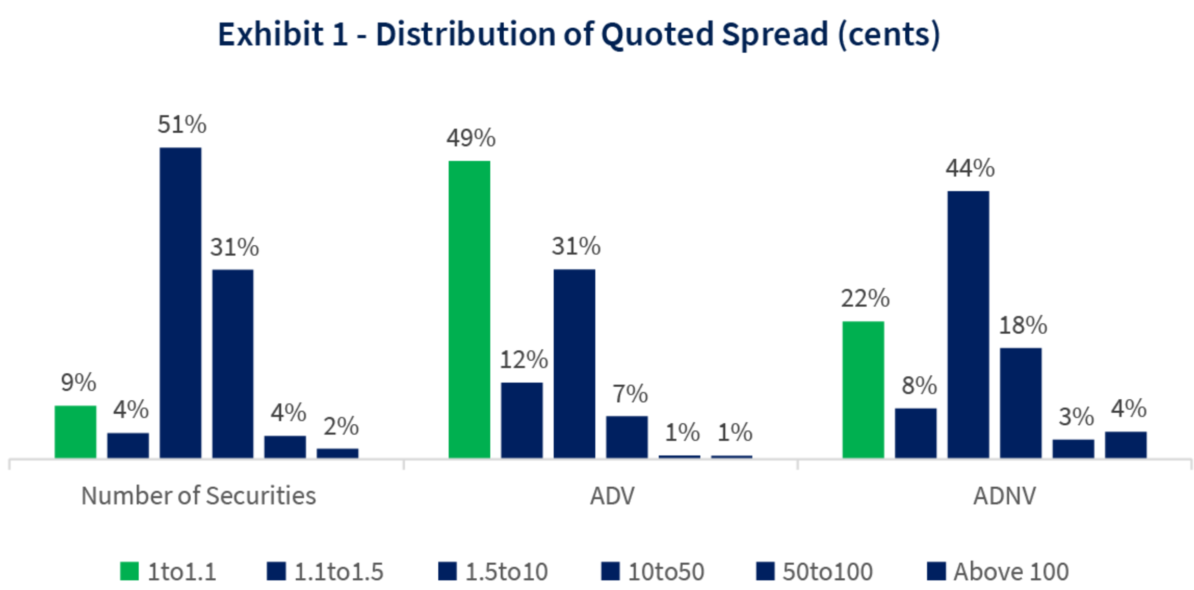
The below analysis demonstrates that most securities are not tick-constrained. Rather than one-size-fits-all tick-reform, Cboe again recommends that any tick-size regime reform should instead focus on developing an objective methodology to identify securities that are appropriate candidates for tick reduction. The proposed one-size-fits-all approach risks creating a structure that attempts to solve a problem that does not exist for most securities. Therefore, doing so is likely to introduce roadblocks to liquidity aggregation and the price discovery process, as displayed liquidity would needlessly be spread across more price increments, and increase the risk of stepping ahead.

In support of this view, we note the following from our September 2022 Tick-Size Reduction Framework:

- Of 10,125 NMS securities, we found that only 9% (877) should be considered preliminarily tick-constrained – those with average quoted-spreads of 1.1 cents or less (See Exhibit 1, below).

  When analyzing these securities' traded notional values, we found that these 877 securities represented 49% of the average daily volume (ADV) and 22% of the average notional value (ADNV) traded.
- For both ADV and ADNV, our analysis showed that 88% of NMS stocks are quoted at spreads at or above 1.5 cents.

- Looking at the right-hand chart in Exhibit 1, below, our analysis showed that 37% of securities representing 25% ADNV are quoted at spreads above 10 cents.



- To assess the impact of a one-size-fits all tick-reform, such as that proposed by the Commission, Cboe used forward stock splits as a proxy. A forward stock split is a corporate action event that increases the number of outstanding shares while the total notional value of those shares, as well as the $.01 tick size, remain unchanged. As a result, the price of the security is artificially reduced, reducing its inside quoted spread.
    - We analyzed 34 NMS securities that underwent forward splits between January 3, 2022 and July 23, 2022. We used the effective date of the stock split as the benchmark date, and an event window for comparison of one-month before and one month after the benchmark date.
    - Our results showed that each of the 34 securities we analyzed experienced an average reduction in spread of 31 cents. This is contrary to the claim that all securities are tick-constrained by Rule 612 $.01 minimum tick size.
    - If the claim that all securities are tick-constrained had merit we would have expected these securities' quote-size-to-trades-size ratios to decrease, and their Notional Turnover Ratios to increase. However, post-split we observed an increase in their quote-size-to-trade-size ratios and a decrease in their notional turnover ratios.
    - Empirical evidence also showed that some stocks benefit from narrower spreads while some stocks do not. This indicates that universal spread reduction could impact non-constrained stocks negatively.
    - Accordingly, we do not believe that empirical evidence supports a claim that all securities are constrained by the $.01 tick-size increment. Rather, the evidence shows the necessity for an objective, nimble framework for identifying tick-constrained securities