May 26, 2020

Via Electronic Submission

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

Re: Release No. 34-88216; File No. S7-03-20

Dear Ms. Countryman:

Cboe Global Markets, Inc. ("Cboe") appreciates the opportunity to comment on the Commission's proposed market data infrastructure rule ("Proposed Rule").[1] The Proposed Rule would: (1) make significant additions to the content that is available on the equities securities information processors ("SIPs") (*e.g.*, odd-lot and depth-of-book information), and (2) replace the exclusive processor model for equities SIPs codified in Regulation NMS with a competing consolidator model. As highlighted in our recent comment letter in response to the proposed and recently adopted SIP governance order ("Governance Order"),[2] Cboe believes that certain enhancements to the content and delivery of market data through the SIPs, such as the inclusion

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1 See Securities Exchange Act Release No. 88216 (February 14, 2020), 85 FR 16726 (March 24, 2020) (File No. S7-03-20).

2 See Securities Exchange Act Release No. 88827 (May 6, 2020), 85 FR 28702 (May 13, 2020) (File No. 4-757).

of odd-lot information and the implementation of distributed SIPs, would be beneficial to investors and the broader market.[3] The SIPs are the backbone of the U.S. equities ecosystem, and thoughtful enhancements to the SIPs have the potential to further empower the millions of investors that rely on the U.S. equities markets. At the same time, consistent with the "do no harm" approach outlined in our recently published document, *Cboe's Vision on Equity Market Structure Reform*,[4] we urge caution against unnecessary tinkering with critical market infrastructure without demonstrating that there are proven benefits for investors. Indeed, the need to carefully evaluate the potential impact of changes to critical market infrastructure is further highlighted in today's market environment, where increased volatility amid concerns around COVID-19 have put this infrastructure to the test.[5]

As discussed in more detail in the sections that follow, the Commission should:

1. Reflect the significant increase in share prices since the introduction of Regulation NMS by implementing the proposed round-lot changes in a phased manner and without amending the definitions of "protected bid" or "protected offer," such that all round lot quotations would continue to benefit from order protection.

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3 See Letter from Patrick Sexton, EVP, General Counsel and Corporate Secretary, Cboe Global Markets, Inc. to Vanessa Countryman, Secretary, Commission dated February 28, 2020, *available at* sec.gov/comments/4-757/4757-6891283-210918.pdf.

4 See Cboe's Vision, Equity Market Structure Reform (January 2020) *available at* https://www.cboe.com/aboutcboe/government-relations/pdf/cboes-vision-equity-market-structure-reform-2020.pdf.

5 See Letter from Edward Tilly, Chairman of the Board, President & Chief Executive Officer, Cboe, to Jay Clayton, Chairman, Commission dated April 30, 2020, *available at* http://www.cboe.com/aboutcboe/government-relations/pdf/covid-19-letter-to-sec.pdf.

2. Provide transparency to all odd-lot quotations that are priced better than the protected bid and protected offer, and five levels of aggregated depth-of-book quotations priced inferior to the protected bid and protected offer, regardless of whether those prices are considered round lots under the Proposed Rule.

3. Implement distributed SIPs in dispersed data centers to reduce geographic latency instead of a competing consolidator model that may reduce the resiliency of critical market infrastructure, and would require individual SRO fees to be determined by the SIP operating committees in contravention of the requirements of the Exchange Act.

Cboe's views on these topics, and other thoughts on the Proposed Rule, are included in the sections that follow. We continue to advocate for SIP enhancements that are designed to facilitate the needs of investors. As a result, we support a number of the changes proposed by the Commission, with certain needed tweaks to promote the needs of the investing public. However, in certain instances the Proposed Rule would add risk to critical market infrastructure. We caution the Commission against making such changes, particularly when the risks are not balanced by any significant countervailing benefits to the investors served by the national market system.[6]

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[6] The Commission is obligated to assess the expected costs and benefits of its actions. See Bus. Roundtable v. SEC, 647 F.3d 1144, 1149 (D.C. Cir. 2011). The Administrative Procedure Act also requires the Commission to provide its "reasons for believing that more good than harm will come of its action." Md. People's Counsel v. FERC, 761 F.2d 768, 779 (D.C. Cir. 1985).

I. The Commission Should Address Significant Ambiguities in the Pending Proposed Rule, and Reconcile Inconsistencies Between the Recently Approved Governance Order and Proposed Rule to Facilitate a Robust Public Comment Process

Before addressing the content of the Proposed Rule, it is necessary to address certain issues that impact the efficacy of the public comment process itself. As an administrative agency subject to the Administrative Procedure Act ("APA"),[7] the Commission is required to provide notice of its proposed rulemakings so that the public can provide meaningful comment on such proposals before they go into effect. As the Commission has itself recognized, this is a critical piece of the regulatory process. Indeed, informed public comment is particularly important when considering fundamental changes to Regulation NMS, itself one of the most impactful pieces of the regulatory framework governing the U.S. equities markets. The ability to provide meaningful comment, however, is thwarted when the public cannot discern the regulator's proposed course of action.

The notice provided by the Commission is deficient in two important respects: (1) the Commission has not addressed significant inconsistencies between the approach contemplated by the Governance Order it recently approved and the Proposed Rule;[8] and (2) certain ambiguities in the Proposed Rule itself impede meaningful public comment on major aspects of the proposal, including ambiguities related to the proposed aggregation of orders to determine the prices actually displayed in depth-of-book information, and ambiguities surrounding the construct for the fees to

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7 5 U.S.C. § 551 *et seq.*

8 The Commission approved the Governance Order during the comment period for the Proposed Rule without clarifying how these conflicting proposals would work together.

be charged by the SROs to competing consolidators and by competing consolidators to investors.[9] The Commission has discussed at length its interest in a robust comment process to facilitate public input on national market system ("NMS") plan filings submitted pursuant to Rule 608 of Regulation NMS,[10] and we sincerely hope that its desire to enact market data enhancements does not prevent it from adhering to related procedural requirements for agency action under the APA.

II. The Commission Should Implement Round-Lot Changes with Certain Modifications that Are Designed to Protected Investors

As outlined in *Cboe's Vision on Equity Market Structure Reform*, Cboe has been an advocate for a number of thoughtful changes to U.S. equity market structure.[11] These changes include modifications to round-lot sizes to facilitate both the display of orders in high-priced securities to retail and other investors, and the extension of order protection to a more meaningful percentage of orders in such securities. Round-lot changes, if properly implemented, could improve market quality by tightening spreads, increasing transparency, and extending protection for orders in higher-priced stocks. Although some of these benefits, such as increased transparency, would be achieved by the Proposed Rule, other benefits, such as the tightening of the protected quotation, would not be achieved, and progress could in fact be reversed. Cboe remains committed to round-lot reform, and commends the Commission for making progress on

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9 See Sections III and V infra. We note that the ambiguities surrounding the framework that would be put in place for fees also impairs the ability for the Commission to perform the analysis of costs and benefits of its proposal required under the APA.

10 See Securities Exchange Act Release No. 87193 (Date), 84 FR 54794 (October 11, 2019) (File No. S7-15-19) (Proposed Rule on Rescission of Effective-Upon-Filing Procedure for NMS Plan Fee Amendments).

11 See supra note 4.

this front. Ultimately, we believe that round-lot reform is needed and will help ensure that the national best bid and offer ("NBBO") quotation reflects odd-lot interest that today makes up an increasing proportion of orders entered in the public market. At the same time, we believe that the Commission should amend the Proposed Rule to: (1) continue to provide order protection to all round-lot quotations, consistent with the definitions of protected bid and protected offer currently codified in Regulation NMS;[12] (2) continue to permit aggregation across multiple price levels to determine when there is sufficient quantity to form a protected bid or protected offer; (3) specify that the size disseminated in SIP quotations be displayed as actual shares rather than the number of round lots; and (4) implement the proposed changes to round-lot sizes in a phased manner, starting with a handful of higher-price securities (*e.g.*, those priced greater than $500 per share).

A. *The Commission Should not Amend the Definitions of Protected Bid and Protected Offer to Exclude Round Lots of Less Than 100 Shares*

The Proposed Rule would change the round-lot size for a large number of securities to better reflect the increase in share prices and consequent increase in trading of unprotected odd lots since Regulation NMS was adopted in 2005. With the overall increase in stock prices, and the decrease in the number of declared stock splits, a one hundred share round lot reflects a much more significant notional value than it did at that time. The average price of a stock included in the S&P 500 Index was $44.86 at the end of 2005, compared to $140.47 at the end of 2019. Consequently, an investor would have to enter an order with a notional value that is more than three times higher, on average, to be deemed a protected quotation pursuant to Rule 611 of Regulation NMS (the "Order Protection Rule") today than when the Commission originally deemed a 100 share "round

[12] 17 CFR § 242.600(b)(61).

lot" to be worthy of protected quote status. Changing the round-lot size could solve this issue, but only if the Commission continues to consider all round-lot bids and offers to be protected quotations. The Proposed Rule rightly addresses concerns around reduced transparency in light of changed market conditions but would degrade the protected quote. We therefore urge the Commission to make its proposed round-lot changes without unnecessary and potentially harmful changes to definitions of protected bid and offer in Regulation NMS.

The proposed amendments to these definitions would negate the benefits that round-lot changes are intended to facilitate in the first instance – *i.e.*, tighter markets and improved execution quality for investors – and risk undercutting Regulation NMS itself. The Commission introduced the Order Protection Rule to encourage the display of limit orders and facilitate the execution of marketable orders at the best prices available in the public market.[13] Without continuing to provide protection to all round-lot bids and offers, investors would not be guaranteed the better prices the Commission has proposed to include in the NBBO, nor would market participants displaying orders at the NBBO be guaranteed an execution prior to being traded-through by other orders at inferior prices. If the Commission is interested in improving outcomes for investors through its proposed round-lot reform, removing protection for round-lot orders is antithetical to this goal.

The creation of two distinct quotations, *i.e.*, the NBBO and the Protected BBO, also raises a number of important questions that the Commission has not addressed, and which should be reviewed in a context where applicable market structure implications can be given appropriate

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[13] Strengthening the public quotation through the display of limit orders has also animated other Commission rules, including, for example, the limit order display rule, as adopted in 1996 and incorporated into Regulation NMS. See Securities Exchange Act Release No. 37619A (September 6, 1996), 61 FR 178 (September 12, 1996) (File No. S7–30– 95).

consideration. The protected quotation is one of the centerpieces of the national market system, and changes to the definitions of "protected bid" and "protected offer" would impact certain other rules under Regulation NMS. For example, Rule 610(d)(1)(i) of Regulation NMS, which prohibits the display of quotations that lock or cross any protected quotation, would not prohibit locking or crossing the NBBO, potentially leading to more frequent locked or crossed markets. Although the Commission could ultimately determine to re-evaluate these protections if it no longer believes that they are necessary for the protection of investors, such impact should be carefully analyzed and assessed before making fundamental changes that broadly impact Regulation NMS.

The proposed changes to the protected quotation would also increase complexity and regulatory uncertainty in the U.S. equities market, without any corresponding benefit to investors. For example, how should broker-dealers use the NBBO and Protected BBO when determining how to execute customer orders? Do best execution obligations require that customer orders be executed at or better than the NBBO, notwithstanding the fact that the NBBO may not be protected, or would firms be permitted to execute such orders at inferior prices? Should firms display the protected quotation to retail or other investors to inform their trading decisions?[14] What issues may arise when investors whose orders may be traded at prices inferior to the NBBO are not informed of the Protected BBO? These are all important questions that are raised by the Proposed Rule, and ones that we believe increase market complexity with no corresponding benefit to public investors.

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[14] Rule 603(c) of Regulation NMS ("Vendor Display Rule") generally requires a "consolidated display," which would include an NBBO based on the revised round-lot sizes, in a context in which a trading or order routing decision can be implemented but would not require the display of valuable information about the protected quotation.

Finally, despite the claim that the Proposed Rule would merely preserve the status quo with respect to order protection, it would actually have a significant impact on securities that already have a smaller round-lot size today. For example, consider the case of Berkshire Hathaway Inc. Class A ("BRK.A") shares. BRK.A currently trades at more than $250,000 per share and has a round-lot size of one share, meaning that an order for a single share would be considered protected pursuant to current rules.[15] The Proposed Rule would instead require an investor to enter an order for a staggering $26 million notional before being considered a protected quotation in BRK.A. Needless to say, this could have a significant negative impact on investors trading this particular security and other securities that have smaller round-lot sizes today. We therefore believe that the right course of action is for the Commission to exercise its judgment to determine which orders are of sufficient notional value to be considered round-lots given the general increase in share prices, and then allow round-lot quotations to qualify for order protections based on such revised definitions.

B. *The Commission Should Continue to Permit the Aggregation of Orders Across Multiple Price Levels When Determining the Protected Bid or Protected Offer*

Today, U.S. equities exchanges typically aggregate better-priced odd-lot orders when determining the price of any protected bid or offer, and the number of shares that are protected. For example, a buy order for 60 shares displayed at $100.01 could be aggregated with another buy order for 40 shares at $100, resulting in a protected bid for 100 shares at $100. Although the Proposed Rule would continue to allow aggregation at a single price point for purposes of

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15 BRK.A closed at a price of $261,906 on May 21, 2020. See https://www.wsj.com/market-data/quotes/BRKA.

determining the protected bid or protected offer (*e.g.*, two orders at $100), it would preclude today's standard practice of aggregating orders at multiple price points.[16] The Commission's stated rationale for this change is that "aggregating odd-lots across multiple price points for purposes of determining protected quotations would effectively extend trade-through protection to quotes of less than 100 shares at different prices."[17] This is paradoxical – 60 shares to buy at $100.01 and 40 shares to buy at $100 is categorically better than 100 shares to buy at $100. Further, it would lead to widening protected quotes and thereby disadvantage public investors, including millions of retail investors whose orders may be executed at inferior prices as a result.[18] Cboe therefore believes that the Commission should amend the Proposed Rule so that it would continue to allow for better-priced orders to be included in the calculation of protected bids and offers. Continuing to allow the protected quotation to be determined in this manner would not, as implied by the Commission, "extend" trade-through protection in the sense that more quotes would be protected than are protected currently under Regulation NMS. Rather, the change we recommend would allow investors to continue to reap the benefits of better prices quoted in the public market, as they do today, rather than degrading those benefits by reducing the bids and offers that are protected.

Despite the importance of this proposed change, the Proposed Rule does not contain any substantive analysis of the impact it would have on spreads between the protected bid and offer

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16 The Proposed Rule would continue to allow aggregation at multiple price levels when determining the NBBO but somewhat oddly would disallow this practice when determining whether a bid or offer constitutes a protected quotation.

17 See Proposed Rule, supra note 1 at 16737.

18 In addition to establishing the upper and lower bounds for trading, the protected quotation is used as a valuable reference price for broker-dealers, including those that execute and/or handle orders on behalf of retail investors. For example, broker-dealers often use the protected quotation to determine execution quality for larger orders.

within which investors' orders may be executed.[19] Given that such spreads directly impact the prices at which retail and other investors trade, we believe that a careful analysis is needed to ensure that any changes that have the potential to widen such spreads are consistent with the protection of investors and the public interest.

To better understand the potential harm to investors, Cboe reviewed quotations on Cboe BZX Exchange, Inc. ("BZX") during regular trading hours for the month of April 2020, and compared the actual spread for securities traded on BZX using the current aggregation methodology with what the spread would have been if the Proposed Rule were in effect. We've included the results of that analysis below, separated into the five share price categories that the Proposed Rule would follow for the proposed changes to round-lot sizes. The results speak for themselves.

Share Price	**Time-Weighted Average Spread Widening Under Proposed Rule** [20]
$50.00 or less per share	$0.0003
$50.01 to $100.00 per share	$0.0088
$100.01 to $500.00 per share	$0.0604
$500.01 to $1,000.00 per share	$0.5103
$1,000.01 or more per share	$1.4883

19 The Proposed Rule does seek analysis from commenters on this point. See Proposed Rule, supra note 1, at 16831. We hope that the Commission uses the analysis provided below, and reconsiders making a change that would ultimately harm investors.

20 To avoid picking up temporary price dislocations that could skew this data, Cboe filtered out quotations that were wider than 20% of the previous day's closing price.

Based on these results, we believe that the Commission's proposed change to the aggregation methodology used for determining protected quote status would cause a meaningful widening of spreads, particularly in high- and medium-priced securities. For the highest-priced securities, the protected quotations on the BZX exchange would widen by nearly *a dollar and a half*. And, the securities with the largest widening of spreads – GOOG ($1.87), AMZN ($1.84), and GOOGL ($1.47) – are all highly traded and are of significant interest to retail investors. For securities in the medium tier bucket that includes securities priced at $100.01 to $500.00 per share, a grouping that includes the average priced security included in the S&P 500 Index, protected quotations on the BZX exchange would widen by six cents. In fact, the only share price category that would not see an average widening of spreads by at least half a tick is the grouping of lowest-priced securities where the Commission has proposed to keep the round-lot size at 100 shares.

Overall, our analysis shows that the proposal could cause protected quotations on BZX to widen by at least five cents in more than one hundred and fifty securities, and by at least one cent in more than four hundred securities.[21] Similar results are likely to hold for other national securities exchanges. We therefore believe that the proposed change to the aggregation methodology for protected quotations runs contrary to the Commission's desire to improve spreads for investors in such securities, including through proposed changes to applicable round-lot sizes. Ultimately, this unnecessary widening of spreads would be harmful to millions of retail and other investors that may trade at significantly worse prices as a direct result of this proposed change. While the Commission may have a range of different reasons for proposing various market structure changes,

[21] Specifically, time-weighted average spreads in our analysis widened by at least five cents in 152 securities, and by at least one cent in 411 securities.

the protection of investors must be central to its regulatory efforts. As shown by our analysis, this change would degrade market quality, and therefore does not meet that standard.

We acknowledge that continuing to aggregate across price levels could result in orders displayed at better prices also being included in the size available in the protected quotation. To prevent any potential confusion due to double counting, we suggest that the SIPs disseminate a separate flag that identifies whether a price establishes a protected bid or offer, and the number of shares that would be considered protected. Thus, in the example previously discussed where there is a buy order for 60 shares displayed at $100.01, and another buy order for 40 shares displayed at $100, we recommend that the following information be disseminated by the SIPs:

Bid Price	**Shares** [22]	**Protected Bid (Shares)**
$100.01	60	
$100	40	Yes (100)

C. *The Commission Should Take Appropriate Measures to Avoid Potential Harm to Investors During the Implementation of its Round-Lot Changes*

There are also two implementation issues that the Commission should address in any final rule that adopts round-lot changes. First, the Commission should ensure that any changes to round-lot sizes would be transparent to investors. Today, the size disseminated on the SIPs reflects the number of round lots not the number of shares. For example, 200 shares at the NBB would be shown as a "2" indicating the number of round lots available at that price. Although this method of displaying size works when all but twelve listed equity securities have a round lot of 100 shares,

[22] As discussed in the section that follows, we recommend displaying the number of actual shares rather than the number of round lots to avoid potential investor confusion.

it is likely to pose significant issues for investors in connection with the proposed round-lot revisions. The Proposed Rule partially addresses these concerns by requiring the dissemination of a field that would indicate the round-lot size. Given the downstream systems changes that may need to be made to facilitate this information being made available to public investors, however, the Commission should also specify that the size displayed by the equities SIPs be shown as actual shares, rather than the number of round lots. This would ensure that the information provided to investors from day one is suitable for their needs. We do not believe that it is reasonable or prudent for retail or other investors to need to know the specific round-lot size associated with specific price ranges under the Proposed Rule in order to be able to participate in the public market.[23]

Second, the Commission should introduce these round-lot changes with a phased implementation to ensure that investors are receiving the necessary round-lot size information prior to changing the applicable round-lot size for the bulk of U.S. equity securities. In our publication, *Cboe's Vision on Equity Market Structure Reform*,[24] we recommended a phased approach, starting with approximately twenty-five securities priced above $500. Cboe believes that this is a sensible starting point, and would allow broker-dealers and market data vendors to educate their customers about these changes, and make appropriate updates to downstream systems to ensure that all necessary round-lot size information is actually made available to investors prior to making significant changes that would impact trading in a large number of securities.

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[23] For example, it seems patently unreasonable to require that a retail investor know that a "2" represents 40 shares if the prior calendar month's average closing price for the security was $50.01, or 200 shares if the average closing price was instead $50.00.

[24] See supra note 4.

III. The Commission Should Provide Transparency for Odd-Lot and Depth-of-Book Quotations Without Unnecessarily Limiting Such Transparency to Round-Lots

Cboe has been an advocate for improvements to the SIPs that are beneficial to investors, and supports additional transparency for odd lot and depth-of-book quotations. Given the importance of the SIP as the central source of market data for investors, enhancements should be made to the content available on the SIPs to ensure that those investors have the information that they need to inform their trading decisions. At the same time, we believe that a handful of changes to the Proposed Rule are needed to ensure that meaningful information is actually disseminated to investors, and that important information is not unnecessarily withheld. Specifically, Cboe recommends that the Commission amend its proposal to eliminate the disparate treatment of round-lot quotations, which the Commission has proposed to make transparent to investors, and odd-lot quotations, which would only be made transparent if aggregated to form a round lot.

Rather than enforce this arbitrary distinction, the Commission should amend the Proposed Rule to require the dissemination of: (1) all quotations displayed at a price that is better than the Protected BBO, regardless of the size associated with those quotations, and (2) depth-of-book quotations aggregated at each of the first five price levels where a displayed order is available to trade, again regardless of the associated size displayed at those prices. As it stands, the Proposed Rule would withhold valuable information from investors, particularly in the case of odd-lot quotations priced better than the Protected BBO, which for many retail investors may be more reflective of the market for their orders than the share sizes contemplated by the proposed round lot changes. Our recommendations would fill this gap and ensure that important information is made available to the millions of investors that rely on the public market data stream.

It would also eliminate the complex and potentially confusing computations required to calculate round lot quotes and resolve ambiguity around how such quotations are to be displayed on the SIPs. The Proposed Rule would require the SIPs to disseminate "depth of book data" for each national securities exchange, including: (1) bids and offers between the best bid or offer and the protected bid or offer; and (2) five price levels of depth below the protected bid and above the protected offer. The concept of a "round lot" is embedded in the definitions of "bid" and "offer" in Regulation NMS, and depth-of-book information would therefore be limited to round lots. There is some ambiguity, however, with respect to the determination of round lot prices that would be displayed. Ultimately, Cboe interprets the definition of "core data" in Proposed Rule 600(b)(20) to require that odd-lots at multiple price levels be aggregated to determine what price would actually be displayed to investors in depth of book data, as illustrated in the 2nd column of the table that follows. That said, the definition of "depth of book data" in Proposed Rule 600(b)(25) references the display of quotation sizes "aggregated at each price at which there is a bid or offer," and could be read to require that a round lot bid or offer be available at a particular price for that price level to be eligible for display. That is, such prices would be displayable only because a "bid" or "offer" defined to be a round lot under Regulation NMS exists independently at that price without aggregating orders at better prices. That alternative reading, which we believe is less compelling than the first, is illustrated in the 3rd column in the table below. Although this ambiguity should be resolved conclusively by the Commission to facilitate robust public comment, we believe that there are significant issues with either possibility. Consider the example below:

Exchange Bids	Shown on Depth [25]	
	Proposed Rule 600(b)(20): Aggregate Size to Determine Round Lot Price (Cboe Interpretation)	Proposed Rule 600(b)(25): Aggregate Size "at Price at which there is a Bid or Offer"
100 shares @ $75.40 (Protected Bid)		
10 shares @ $75.39		
10 shares @ $75.38	20 shares = "1" @ $75.38	
5 shares @ $75.37		
3 shares @ $75.36		
11 shares @ $75.35		
1 share @ $75.34	20 shares = "1" @ $75.34	
4 shares @ $75.31		
8 shares @ $75.30		
5 shares @ $75.29		
11 shares @ $75.28	28 shares = "1" @ $75.28	
44 shares @ $75.24	44 shares = "2" @ $75.24	112 shares = "5" @ $75.24
20 shares @ $75.20	20 shares = "1" @ $75.20	20 shares = "1" @ $75.20
40 shares @ $75.15		40 shares = "2" @ 75.15

Although the release publishing the Proposed Rule for public comment is a staggering 595 pages, it does not contain a single example. Commission staff routinely require that examples be

[25] For illustration these examples show both the number of actual shares and the number of round lots. As explained in Section II.C., we believe the Commission should amend the Proposed Rule to require the display of the number of actual shares rather than round lots.

included in exchange rule filings to facilitate understanding of our proposals. The same standards should be applied to the Commission's own rulemaking, particularly in the case of rulemaking that is as complex and significant as this one. The example above is meant to illustrate the potential ambiguity in the Proposed Rule, and we hope that the Commission takes it as an opportunity to include similar examples in any re-proposal or other clarifying document that it may issue.

In the interim, this example highlights a couple of things that we believe are critical to understanding the impact of Proposed Rule. First, requiring a price to independently establish a bid or offer to be shown on depth-of-book data would compromise the value of that data for investors. As shown in the example, the first price displayed under this interpretation (3rd column) is ten price levels below the best price to buy after the Protected Bid. Not showing any indication of those better prices would significantly reduce the value of this information to investors. Second, allowing aggregation across multiple price levels to determine whether there is a round lot bid or offer at a particular price, as we interpret the Commission to mean (2nd column), would create significant computational issues, and potentially lead to a deceptive view of market activity that raises concerning issues related to investor protection. For instance, in the example above assume that a single share is cancelled at $75.39, reducing the size at that price to nine shares:

Exchange Bids	**Proposed Rule 600(b)(20): Aggregate Size to Determine Round Lot Price**	
	Original Prices Shown	Prices Shown After One Share is Cancelled at $75.39
100 shares @ $75.40 (Protected Bid)		
10 shares @ $75.39		
10 shares @ $75.38	20 shares = "1" @ $75.38	

5 shares @ $75.37		24 shares = “1” @ $75.37
3 shares @ $75.36		
11 shares @ $75.35		
1 share @ $75.34	20 shares = “1” @ $75.34	
4 shares @ $75.31		
8 shares @ $75.30		27 shares = “1” @ $75.30
5 shares @ $75.29		
11 shares @ $75.28	28 shares = “1” @ $75.28	
44 shares @ $75.24	44 shares = “2” @ $75.24	60 shares = “3” @ $75.24
20 shares @ $75.20	20 shares = “1” @ $75.20	20 shares = “1” @ $75.20
40 shares @ $75.15		40 shares = “2” @ $75.15

Although only a single share was cancelled at a price level immediately below the protected bid, the SIP would have to conduct a series of computations to recalculate every single depth-of-book price displayed to investors. And this series of computations would be required constantly throughout the trading day, across all symbols, potentially resulting in diminished SIP performance and higher capacity requirements for downstream users of the data. Perhaps even more importantly, this recalculation and display of revised depth-of-book prices could create a deceptive impression of market activity at prices that are nowhere near current market prices, potentially resulting in investor confusion and/or trading based on such information. Not only would this generally decrease the value of the information shared with investors, it could actively harm retail or other investors by propagating fictitious and misleading market information. Our recommendation, which is to display five price levels of depth-of-book information without regard

to whether those price levels are round lots, would suffer from none of these complexities, and would ensure that both meaningful and accurate information is shared with investors.

Exchange Bids	**Cboe Recommendation: Depth-of-Book Information** [26]
100 shares @ $75.40 (Protected Bid)	
10 shares @ $75.39	10 shares @ $75.39
10 shares @ $75.38	10 shares @ $75.38
5 shares @ $75.37	5 shares @ $75.37
3 shares @ $75.36	3 shares @ $75.36
11 shares @ $75.35	11 shares @ $75.35
1 share @ $75.34	
4 shares @ $75.31	
8 shares @ $75.30	
5 shares @ $75.29	
11 shares @ $75.28	
44 shares @ $75.24	
20 shares @ $75.20	
40 shares @ $75.15	

[26] Our recommendation is shown as actual shares. As discussed, Cboe believes that actual shares should be disseminated to investors. See Section II.C. supra.

IV. The Commission Should Expand the Definition of "Auction Information" to Include Information Disseminated by Competing Opening or Closing Crosses

The Proposed Rule would include "auction information" generated by a national securities exchange leading up to and during an auction, including opening, re-opening, and closing auctions (*e.g.*, auction imbalance information) within the definition of "core data" to be disseminated to investors through the SIPs. Cboe agrees with the Commission's assessment that auction information is valuable to investors, particularly given the continued growth of volume in opening and closing auctions as a percentage of total consolidated volume. We therefore support including this information within the definition of "core data" that the SIPs must disseminate. At the same time, we believe the definition should be expanded to incorporate data on competing crosses offered by national securities exchanges other than the listing market. Cboe recently launched its Cboe Market Close ("CMC") product to provide a cost effective alternative to primary listing market auctions for investors seeking an execution at the official closing price.[27] We believe information about competing mechanisms for the execution of orders at official opening or closing prices should also be included in the definition of "auction information" so that investors have a full view of exchange trading in such mechanisms.[28]

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

28 We note that the question of where information would be disseminated about shares matched in CMC came up in the public comment process for the filing to introduce CMC. See Securities Exchange Act Release No. 88008 (January 21, 2020), 85 FR 4726 (January 27, 2020) (SR-BatsBZX-2017-34). If permitted to do so, Cboe remains committed to facilitating the dissemination of this information through the SIPs so that it is readily available to all investors.

V. Distributed SIPs Would Offer the Same Latency Benefits as Competing Consolidators While Maintaining Resiliency of Critical Market Infrastructure

As discussed in *Cboe's Vision on Equity Market Structure Reform* and our recent comment letter on the Governance Order,[29] Cboe believes that distributed SIPs would be of significant benefit to investors. The current processors have both made significant strides in terms of reducing processor latency over the last decade. The UTP SIP, for example, has managed to reduce its systems latency to ~16 microseconds for quotes and ~17 microseconds for trades.[30] Similarly, the CTA/CQ SIP has reduced its systems latency to ~61 microseconds for quotes and ~66 microseconds for trades,[31] and is currently in the process of migrating to a new technology platform that is intended to bring this latency substantially in line with that of the UTP SIP. That said, geographic latency accounts for the vast majority of the latency experienced by the SIPs today and is therefore still a significant concern for certain market participants that require faster access to market information. Distributed SIPs would bring meaningful latency reductions for those market participants and should be implemented in addition to changes to SIP content.

Consider, for example, a quotation posted on BZX in a Tape C security listed on The Nasdaq Stock Market LLC ("Nasdaq"). A firm that is located at the same data center facility as BZX, which maintains its trading systems in Secaucus, NJ, may have to wait ~416 microseconds to receive a revised quotation. Of that ~416 microseconds, ~400 microseconds, or 96%, can be

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29 See note 4 supra.

30 See UTP Q1 2020 Quote and Trade Metrics, *available at* www.utpplan.com/DOC/UTP_Website_Statistics_Q1-2020-March.pdf.

31 See CTA/CQ Q1 2020 Quote and Trade Metrics, *available at* https://www.ctaplan.com/publicdocs/CTAPLAN_Processor_Metrics_1Q2020.pdf.

attributed to the time it takes to send the revised quotation to the UTP SIP located in Carteret, NJ and back to BZX's location in Secaucus, NJ. The introduction of distributed SIPs, which would involve the implementation of SIP instances in multiple geographically dispersed locations, would solve geographic latency concerns by allowing market participants to receive market data from the SIPs at the location it is produced. In addition, this model would provide significant resiliency benefits that cannot be overlooked in today's market environment.

The Commission has framed the proposed competing consolidator model, in part, as a means of broadly improving SIP latency.[32] And, to be sure, a competing consolidator model could produce some of the same benefits as distributed SIPs in terms of addressing *geographic latency*, as competing consolidators would be free to establish SIP instances in locations of their choosing. That said, it is unlikely to offer any further improvements in processor latency. As discussed, the vast majority of the latency experienced by the SIPs is geographic, and both distributed SIPs and competing consolidators would be on even footing in terms of reducing that form of latency. Meanwhile, any benefits in terms of systems latency are likely to be insignificant by comparison. Let's consider again the example above of a revised BZX quotation in a Tape C listed security. With geographic latency accounting for 96% of overall SIP latency, even a hypothetical competing consolidator with best-in-class technology that could somehow eliminate all system latency (which is, of course, impossible) would be limited to providing at most a 4% improvement.

At the same time, a competing consolidator model would introduce meaningful costs for investors. This includes both costs associated with the upkeep of a number of competing

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32 See Proposed Rule, supra note 1 at 16772.

consolidators, estimated by the Commission itself to be upwards of $60 million annually,[33] and unquantifiable costs associated with a reduction of operational resiliency of critical market infrastructure. As the Commission determines whether to make significant structural changes to the centerpiece of U.S. equity market structure, it needs to weigh the purported (and mostly speculative) benefits of such changes with the risk that these changes pose to market integrity. Indeed, the risks to market integrity are highlighted by the evolving COVID-19 situation, which has illustrated both the resiliency enjoyed by our critical market infrastructure today, as well as potential issues that could be experienced by opening up the operation of such infrastructure to market participants that do not have the experience or operational capability to ensure its smooth operation it in times of significant market stress. When the next crisis hits, the Commission will have to ask itself whether it has enhanced or reduced the resiliency of our national market system, and we hope the answer will be a reassuring one. It is no exaggeration to say that the continued health of the U.S. equities market depends on it.

Debate around SIP infrastructure has historically focused largely on how to improve latency. As explained, we believe that there are significant latency benefits to be achieved through the implementation of distributed SIPs. However, it is short sighted to view SIP infrastructure as

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33 The Commission preliminarily estimates that there would be about twelve competing consolidators, and that the direct costs to each would include around $5.12MM to $5.14MM in ongoing annual costs. See Proposed Rule, supra note 1, at 16843. The total cost to the industry may also be significantly higher, as such competing consolidators would likely need to earn some profit for operating in this business.

It is difficult to assess the actual costs that would be associated with the competing consolidator model because the proposal fails to explain basic information about the construct for the fees to be charged to investors. For example, would competing consolidators be allowed to charge additional fees for SIP content, or would they only be permitted to charge for the delivery of the data? The Proposed Rule is deficient in not answering even these basic questions in a manner that would allow interested parties, or even the Commission, to appropriately estimate the costs of this proposed rulemaking.

purely a latency issue. The current equity SIPs have been incredibly resilient and have uptime of close to 100% over the last several years. The Commission has previously acknowledged the importance of a robust and resilient SIP that can continue to serve the needs of investors in times of disruption.[34] With the implementation of distributed SIPs, market participants would be able to seamlessly connect to and receive market data from another SIP instance in the event of a systems failure. The distributed SIP model therefore comes with significant resiliency benefits that are important as we work to ensure the continued integrity of the U.S. equities markets.

Despite the Commission's conclusory statements to the contrary,[35] however, these benefits are not shared by the competing consolidator model, as each competing consolidator would have to be contracted with separately, would have their own systems that market participants would have to code to, and would have to be connected to independently. What's more, any competing consolidator with a substantial customer base would be a potential single point of failure, with the potential for market-wide trading halts being declared due to systems issues. The Commission estimates that there may be twelve competing consolidators that would register under its proposal. That is, there would be twelve independent sets of systems, the failure of any one of which could pose a substantial risk to the national market system. Although the Commission notes that its proposed introduction of competing consolidators may eliminate a potential single point of failure

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34 See Securities Exchange Act Release No. 73639 (November 14, 2014) 79 FR 72251, 72278 (December 5, 2014) (Regulation SCI Adopting Release) ("Systems directly supporting the provision of consolidated market data are also critical to the functioning of the U.S. securities markets and represent potential single points of failure in the delivery of important market information").

35 See Proposed Rule, supra note 1 at 16774 ("[T]he introduction of multiple competing consolidators may bring additional resilience to the collection, consolidation, and distribution of consolidated market data, as there would be redundant systems performing these functions rather than one exclusive SIP creating a single point of failure.").

in the national market system,[36] it manifestly fails to account for the effect of replacing that model with *multiple* single points of failure, where firms may not be able to quickly and easily switch to another consolidator in the event of a failure.[37] In fact, rather than take steps to address resiliency issues, the Proposed Rule would instead relax regulatory obligations under Regulation SCI such that competing consolidators – unlike the current exclusive processors – would not be subject to the more stringent requirements for "critical SCI systems."[38] This only further exacerbates our resiliency concerns as the new competing consolidators would not be held to the same standards of robustness that are required of the exclusive processors today. The resiliency of critical market infrastructure is of the utmost importance, and the Commission should be cautious before making significant changes that could imperil the resiliency of the U.S. equities market. The distributive SIP alternative would provide the benefits the Commission is seeking from the competing consolidator approach, and would do so without adding new resiliency concerns. We know that market integrity is something that the Commission has historically taken seriously, and we are concerned that the Commission's desire to enact market data enhancements, as reflected in aspects of the Proposed Rule discussed above, may impede the Commission's primary goal of ensuring the continued health of the national market system.

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36 Id.

37 Although firms could switch to a different competing consolidator in the event of a long-term outage, this transition would be time consuming and potentially costly. To be able to respond in a timely manner to a short-term outage, firms may have to contract with multiple competing consolidators (and pay their fees) in advance of such issues.

38 For example, competing consolidators would be relieved from the requirement to implement plans reasonably designed to achieve two-hour resumption of trading in the event of a wide-scale disruption.

VI. Requiring the Operating Committee to Approve and File Fees that Individual SROs Charge for their Proprietary Market Data is Inconsistent with the Exchange Act

One additional and critical aspect of the competing consolidator proposal is worth independent discussion as it would be a clear and fundamental violation of the Exchange Act. It appears that the Proposed Rule would authorize the operating committees of the Plans approve the fees charged by individual self-regulatory organizations ("SROs") for their proprietary market data, and that the Plans file such fees with the Commission as Plan amendments pursuant to Rule 608 of Regulation NMS,[39] instead of the SROs themselves filing those fees with the Commission as SRO rule filings as required pursuant to Section 19(b) of the Exchange Act.

The Proposed Rule would require that each U.S. equities exchange provide proprietary market data to competing consolidators and self-aggregators that is sufficient for them to calculate the data elements that would comprise "consolidated market data." This information would be disseminated to such firms directly from the systems of the SRO, through the same connectivity options that the SRO offers to its other customers, and without any involvement of the Plans. Indeed, as the Commission appears to recognize, a number of U.S. equities exchanges may comply with this requirement by providing competing consolidators and self-aggregators access to their current proprietary depth-of-book offerings. In fact, although the Commission muses that an

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[39] See, e.g., Proposed Rule, supra note 1 at 16792 ("[T]he participants of the effective national market system plan(s) for NMS stocks would develop and file with the Commission the fees for SRO data content required to be made available by each SRO to competing consolidators and self-aggregators for the creation of proposed consolidated market data, including fees for SRO market data products that contain all of the components of proposed consolidated market data as well as the fees for market data products that contain only a subset of the components of proposed consolidated market data.").

exchange could create a distinct offering for competing consolidators and self-aggregators, as a practical matter order-by-order depth-of-book products are likely to be the only way to enable the creation of consolidated market data, as defined, unless the exchange itself were to perform the necessary consolidation on behalf of these firms. Authorizing the Plans' operating committees to set the fees charged for proprietary market data products offered by individual SROs, and to control the filing of those fees with the Commission, is fundamentally inconsistent with the requirements of the Exchange Act and the streamlined process that Congress determined was appropriate for SRO fee filings in the Dodd Frank amendments to that statute.

Section 19(b) of the Exchange Act governs the filing of proposed SRO rule changes with the Commission.[40] Specifically, Section 19(b) provides that "[e]ach self-regulatory organization shall file with the Commission… copies of any proposed rule or any proposed change in, addition to, or deletion from the rules of such self-regulatory organization."[41] It is undisputed that fees for exchange facilities, including proprietary market data products, are considered a part of the rules of the SRO, and are therefore subject to the filing process described in Section 19(b). Thus, although the Proposed Rule contemplates that the Plans' operating committees would determine pricing and file an associated Plan amendment with the Commission, the clear language of the Exchange Act *requires* that such determination and filing be made by the SRO. Indeed, an SRO would run afoul of the Exchange Act if it charged certain classes of customers a price for its proprietary market data products that is different from the pricing established pursuant to its effective fee schedule. Yet, this is exactly what the Proposed Rule would mandate by enabling the Plans' operating committees to determine pricing for the products of individual SROs when used

40 15 U.S.C. § 78s.

41 Id.

by competing consolidators and self-aggregators. If the Commission determines that SROs must provide their proprietary market data to competing consolidators and self-aggregators, the applicable pricing must be established by the individual SROs, and included on those SROs effective fee schedules, as filed pursuant to Section 19(b).

The Commission confronted similar questions when it chose not to introduce a competing consolidator model as part of Regulation NMS. The approach suggested by the Commission now is completely at odds with the statutory standards that it understood to be applicable when it last considered the issue. At that time, the Commission was concerned that the purported benefits of a competing consolidator model would be muted by the fact that every competing consolidator would be required to procure market data from each SRO, and would therefore be subject to pricing established by those SROs, as filed pursuant to SRO rule filings:

> "As a practical matter, payment of every SRO's fees would be mandatory, thereby affording little room for competitive forces to influence the level of fees. Consequently, far from freeing the Commission from involvement in market data fee disputes, the multiple consolidator model would require review of at least ten separate fees for individual SROs and Nasdaq."[42]

As the Commission understood, the competing consolidator model is subject to the SRO filing process established by Section 19(b). The Proposed Rule is inconsistent with the requirements of that section, as interpreted by the Commission itself. When the Commission last considered this model, it acknowledged that the fees charged to competing consolidators would be

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42 See Securities Exchange Act Release No. 51808 (June 9, 2005), 70 FR 37495, 37559 (June 29, 2005) (S7-10-04) ("Regulation NMS Adopting Release").

subject to SRO fee filings, and found this potentially problematic. Now that the Commission appears to support introducing competing consolidators, the Proposed Rule addresses the problem it previously identified by ignoring clear statutory constraints. However, the fact that the Commission is now more receptive to the competing consolidator model does not change the underlying statutory analysis, or the plain requirements of the Exchange Act.

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We appreciate the Commission's interest in enhancing the SIPs. The SIPs are critical market infrastructure for the U.S. equities markets, and enhancing the content available to investors, and the delivery of that content, would benefit the millions of investors that rely on the public market data stream. Cboe therefore supports the inclusion of odd-lot, depth-of-book, and auction information on the SIPs, as well as other related changes, such as revisions to applicable round-lot sizes. That said, there are critical gaps and ambiguities in the Commission's content proposals that warrant further review and consideration. We therefore believe that changes are needed to reduce complexity, ensure that meaningful information is actually disseminated to investors, and address key concerns related to potential widening of protected quotations. Finally, we have significant concerns with the proposed implementation of a competing consolidator model that is inconsistent with the Exchange Act, and ultimately inferior to a distributed SIP approach.

Sincerely,

/s/ Patrick Sexton

Patrick Sexton
EVP, General Counsel & Corporate Secretary