

COMMITTEE ON CAPITAL MARKETS REGULATION

March 31, 2023

Secretary
Securities and Exchange Commission
100 F Street NE
Washington, DC 20549-1090

VIA ELECTRONIC MAIL: rule-comments@sec.gov

Re.: File Number S7-29-22 – *Disclosure of Order Execution Information*; File Number S7-30-22 – *Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders*; File Number S7-31-22 – *Order Competition Rule*; File Number S7-32-22 – *Regulation Best Execution*

Dear Sir or Madam:

The Committee on Capital Markets Regulation (the “Committee”) is grateful for the opportunity to provide comments to the U.S. Securities and Exchange Commission (the “SEC”) on the following four proposed rulemakings with respect to equity market structure: (1) Disclosure of Order Execution Information (the “Rule 605 Proposal”), (2) Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders (the “Tick Size Proposal”), (3) Order Competition Rule (the “Auction Proposal”), and (4) Regulation Best Execution (the “Best Execution Proposal”) (each, an “Equity Market Structure Proposal” or “EMS Proposal”).

Founded in 2006, the Committee is dedicated to enhancing the competitiveness of U.S. capital markets and ensuring the stability of the U.S. financial system. Our membership includes thirty-six leaders drawn from the finance, investment, business, law, accounting, and academic communities. The Committee is chaired jointly by R. Glenn Hubbard (Emeritus Dean, Columbia Business School) and John L. Thornton (Former Chairman, The Brookings Institution) and is led by Hal S. Scott (Emeritus Nomura Professor of International Financial Systems at Harvard Law School and President of the Program on International Financial Systems). The Committee is an independent and nonpartisan 501(c)(3) research organization, financed by contributions from individuals, foundations, and corporations.

Our letter is divided into six parts. Part I provides an introduction and presents an overview of competitiveness and execution quality in U.S. equity markets compared to other jurisdictions. Parts II through V address each of the four EMS Proposals individually. Each part describes the relevant EMS Proposal and then assesses the policy rationale for each. Part VI concludes.

Our high-level recommendation is that the Rule 605 Proposal that would enhance execution quality disclosures by retail broker-dealers and Market Data Infrastructure (“MDI”) Rules that would enhance the accuracy of the national best bid and offer (“NBBO”)¹ should be implemented prior

¹ The Tick Size Proposal would accelerate the implementation of the modified definition of “round lot” for purposes of determining the NBBO with respect to a given stock, as contemplated in the SEC’s Market Data Infrastructure

to any further market structure changes. The implementation of the Rule 605 Proposal and the MDI Rules will enable the SEC and the public to better assess market quality for investors, including transaction costs and market liquidity. Indeed, Chair Gensler has repeatedly criticized the lack of accuracy and robustness of the NBBO and existing measures of market quality² and yet the Tick Size Proposal, Auction Proposal and Best Execution Proposal rely on them.³ After reforms to Rule 605 and the MDI Rules are implemented, then the SEC will be in a better position to determine whether additional changes are necessary, and the SEC can then, if warranted, re-propose the other rulemakings. Our support for the Rule 605 Proposal and recommendation that the remaining three proposals not be implemented as proposed are consistent with the recommendations contained in two joint comment letters submitted by an array of market participants of different types, including exchange operators, retail and wholesale broker-dealers, ETF issuers, asset managers, and liquidity providers.⁴

We begin with two overarching issues with the EMS Proposals. First, each EMS Proposal is drafted without meaningful consideration of the overlapping effects from the other EMS Proposals. For example, the Best Execution Proposal does not take into consideration the proposed modifications to tick sizes under the Tick Size Proposal and makes minimal reference to the mandatory order auction system under the Auction Proposal,⁵ even though both such proposals would affect broker-dealer's best execution obligations. Indeed, the EMS Proposals will have numerous overlapping effects. The SEC further provides *no* rationale for why these overlapping effects are not meaningfully considered in the design of the EMS Proposals themselves. On the contrary, when the SEC finalized Regulation National Market System ("Reg NMS") in 2005, it did so as part of a single rule proposal addressing tick size reforms and broker-dealer routing obligations and considering the overlapping effects of each, among other issues.⁶ We therefore recommend that, following the implementation of the proposed reforms to Rule 605 and the MDI Rules, any future changes, if necessary, should be adopted as part of sequential rulemakings that consider overlapping effects from earlier market structure changes.

Second, the SEC's economic analyses are severely flawed, particularly for the Tick Size Proposal and Auction Proposal, as we describe in each of Parts III and IV. As the Committee has noted in

Rules, which were finalized in December 2020 but have not yet been implemented. U.S. SECURITIES & EXCHANGE COMMISSION ["SEC"], Market Data Infrastructure Release No. 34-90610, File No. S7-03-20, <https://www.sec.gov/rules/final/2020/34-90610.pdf>.

² SEC, Chair Gary Gensler, *Prepared Remarks at the Global Exchange and FinTech Conference* (Jun. 9, 2021), <https://www.sec.gov/news/speech/gensler-global-exchange-fintech-2021-06-09>.

³ See, e.g., SEC, *infra* note 140 at 192, Table 7.

⁴ Comment Letter Re. Equity Market Structure Proposals (File Numbers S7-29-22, S7-30-22, S7-31-22, and S7-32-22) submitted by Cboe Global Markets, State Street Global Advisors, T. Rowe Price, UBS Securities LLC, and Virtu Financial, Inc. (Mar. 24, 2023), <https://www.sec.gov/comments/s7-32-22/s73222-20161714-330556.pdf>; Comment Letter Re. Equity Market Structure Proposals (File Numbers S7-29-22, S7-30-22, S7-31-22, and S7-32-22) submitted by NYSE, Charles Schwab, and Citadel Securities (Mar. 6, 2023), <https://www.sec.gov/comments/s7-31-22/s73122-20158677-326603.pdf>.

⁵ SEC, *infra* note 194 at Note 136.

⁶ SEC, *Regulation NMS*, Release No. 34-51808; File No. S7-10-04 (July 9, 2005), <https://www.sec.gov/rules/final/34-51808.pdf>.

recent comment letters,⁷ shortcomings in the CBA are a serious concern because under the National Securities Markets Improvement Act of 1996, the SEC is required “to promote efficiency and capital formation in the financial markets,” and “[w]henver . . . the [SEC] is engaged in rulemaking and is required to consider or determine whether an action is necessary or appropriate in the public interest, the [SEC] shall also consider, in addition to the protection of investors, whether the action will promote efficiency, competition, and capital formation.”⁸

The U.S. Court of Appeals for the District of Columbia Circuit (the “D.C. Circuit”) has held that the statutory language of the Administrative Procedure Act (“APA”) imposes an obligation on the SEC to weigh the costs and benefits of proposed regulation, and to quantify those costs and benefits where possible.⁹ In *Chamber of Commerce v. SEC* (2005), the D.C. Circuit considered the validity of an SEC rule requiring that mutual fund boards be composed of no less than 75% independent directors and be chaired by an independent director. The court found that the proposed rule violated the APA because the SEC had failed to “adequately consider the costs mutual funds would incur in order to comply with the [proposed rule]”¹⁰ and rejected the SEC’s contention that such costs were not practically quantifiable.¹¹ Similarly, in *Business Roundtable v. SEC* (2011), the D.C. Circuit remanded an SEC rulemaking on shareholder proxy access due to inadequate economic analysis, including a failure to quantify the costs of the rulemaking.¹² The court found that the SEC “inconsistently and opportunistically framed the costs and benefits of the rule” and “failed adequately to quantify certain costs of its proposed rule or to explain why the those costs could not be quantified.”¹³ For these and other reasons, the court found that the proposed rule violated the APA.

Therefore, the SEC’s failure to conduct an adequate cost-benefit analysis for its EMS Proposals can subject these rulemakings to a successful judicial challenge and will create costly market uncertainty during the legal process.

⁷ See, e.g., Committee on Capital Markets Regulation [“CCMR”], Comment Letter Re. File Number S7-26-22—Open-End Fund Liquidity Risk Management Programs and Swing Pricing; Form N-PORT Reporting (Feb. 13, 2023), <https://capmksreg.org/wp-content/uploads/2023/02/CCMR-Response-to-Open-End-Fund-Liquidity-Proposal-File-No.-S7-26-22-02.13.23.pdf>; CCMR, Comment Letter Re. File Number S7-17-22 – Enhanced Disclosures by Certain Investment Advisers and Investment Companies About Environmental, Social, and Governance Investment Practices (Aug. 15, 2022), <https://capmksreg.org/wp-content/uploads/2022/08/CCMR-Comment-Letter-on-ESG-Fund-Disclosures-Proposal-08.15.22-1.pdf>.

⁸ National Securities Markets Improvement Act of 1996, Pub. L. 104-290, 110 Stat. 3416 (codified as amended in scattered sections of 15 U.S.C.).

⁹ *Chamber of Commerce v. SEC*, 412 F.3d 133, 144 (D.C. Cir. 2005); see also Paul Rose & Christopher Walker, The Importance of Cost-Benefit Analysis in Financial Regulation, CENTER FOR CAPITAL MARKETS COMPETITIVENESS 24–33 (2013), <http://www.centerforcapitalmarkets.com/wp-content/uploads/2010/04/CBA-Report-3.10.13.pdf>.

¹⁰ *Chamber of Commerce*, 412 F.3d at 136.

¹¹ *Id.* at 143.

¹² *Bus. Roundtable v. SEC*, 647 F.3d, 1144 (D.C. Cir. 2011).

¹³ *Id.* at 1148-49.

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I. Introduction – Competition and Market Structure Performance

Chair Gensler has criticized U.S. equity market structure as lacking in competition and raised issues with the extent of off-exchange trading, stating, for example, that the current market is “less competitive, less transparent, and more concentrated than it should be,”¹⁴ and suggesting that investors may not be getting “the full benefit of competition.”¹⁵ Chair Gensler then asserts that the EMS Proposals are necessary to enhance competition and the efficiency of U.S. equity market structure.¹⁶

However, Chair Gensler’s criticisms regarding the performance of U.S. equity market structure are unfounded. Indeed, it is telling that nowhere in the 1619 pages of the EMS Proposals does the SEC compare the performance of U.S. equity market structure with other highly liquid equity markets, such as China, the E.U., Japan, Hong Kong or the U.K.

In 2020, the Program on International Financial Systems (“PIFS”) conducted such a cross-jurisdictional comparison and found that U.S. equity market structure outperforms all other jurisdictions in the world in terms of providing the lowest transaction costs for investors, as demonstrated by **Figure 1** on the next page.¹⁷ Moreover, PIFS research also found that U.S. equity market structure is highly competitive as transaction costs have been steadily declining over time.¹⁸

¹⁴ SEC, Chair Gary Gensler, *Statement on Proposal to Enhance Order Competition* (Dec. 14, 2022), <https://www.sec.gov/news/statement/gensler-order-competition-20221214>.

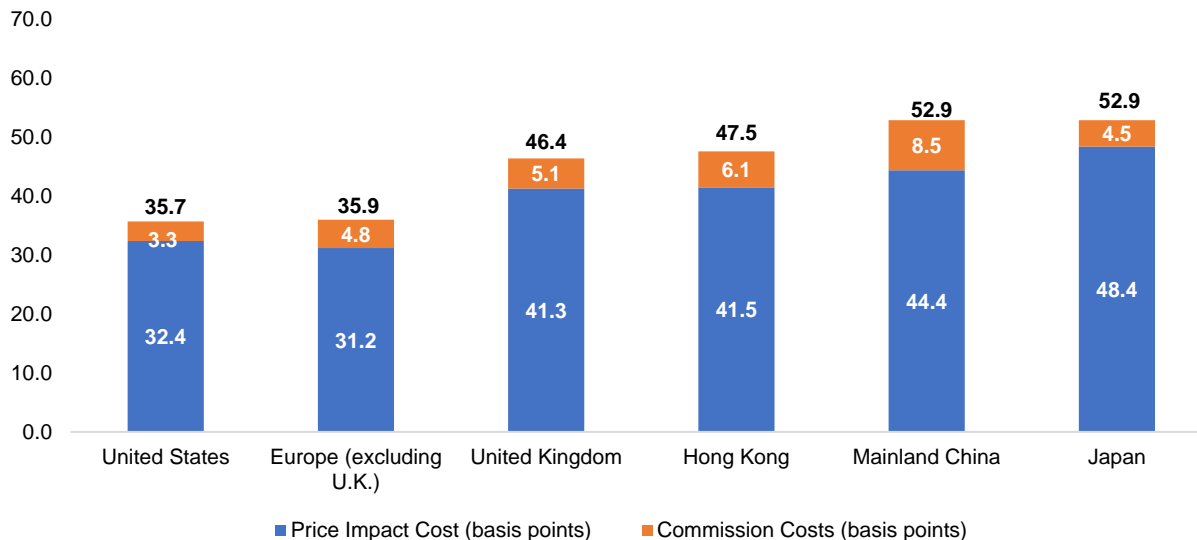
¹⁵ Jennifer Sor, *Retail Investors Need More Competition Among Market Makers: Gary Gensler* MARKETS INSIDER (Feb. 22, 2023), <https://markets.businessinsider.com/news/stocks/retail-investors-day-trading-stocks-sec-competition-gary-gensler-regulation-2023-2>.

¹⁶ SEC, Chair Gary Gensler, “*Market Structure and the Retail Investor:*” *Remarks Before the Piper Sandler Global Exchange Conference* (June 8, 2022), <https://www.sec.gov/news/speech/gensler-remarks-piper-sandler-global-exchange-conference-060822>.

¹⁷ PROGRAM ON INTERNATIONAL FINANCIAL SYSTEMS [“PIFS”], *INTERNATIONAL REVIEW OF EQUITY MARKET STRUCTURE REGULATION, PHASE III: BEST PRACTICES FOR REGULATING EQUITY MARKET STRUCTURE* (2021), <https://www.pifsinternational.org/wp-content/uploads/2022/08/PIFS-EMS-Phase-III-05.12.2021-1.pdf>.

¹⁸ PIFS, *INTERNATIONAL REVIEW OF EQUITY MARKET STRUCTURE REGULATION, PHASE II: QUANTITATIVE ANALYSIS* (2020), <https://www.pifsinternational.org/wp-content/uploads/2022/08/PIFS-EMS-Quantitative-Report-10-08-2020.pdf>.

Figure 1: Trading Costs by Market (as of 2020)



It is noteworthy that the United States and E.U. market structures are the most efficient by a wide margin, as demonstrated by **Figure 1**. The PIFS report also found that the United States and E.U. are the only jurisdictions where off-exchange trading is common, with off-exchange trading in the E.U. exceeding the United States.¹⁹ Indeed, it is likely that the lower transaction costs in the E.U. and United States are due in large part to the competition among different types of trading venues, including off-exchange trading venues, as compared to other developed markets such as Japan and Hong Kong where equities trading is exchange-dominated.²⁰ Chair Gensler’s concerns regarding the extent of off-exchange trading are therefore belied by the strong relative performance of U.S. and E.U. equity market structure for investors.

Another sign of the competitiveness of U.S. equity markets is that they are highly distributed – that is, there are numerous trading venues in which transactions to buy or sell a given share can and do occur. The ability of market participants to select among these different trading venues allows market participants to select for venues that will process their transactions more efficiently. This in turn means that trading venues will compete to lower trading costs to attract more order flow.²¹ **Figure 2** on the next page demonstrates that there are 18 trading venues with more than 1% market share that collectively represent 85% of average daily trading volume, as of December

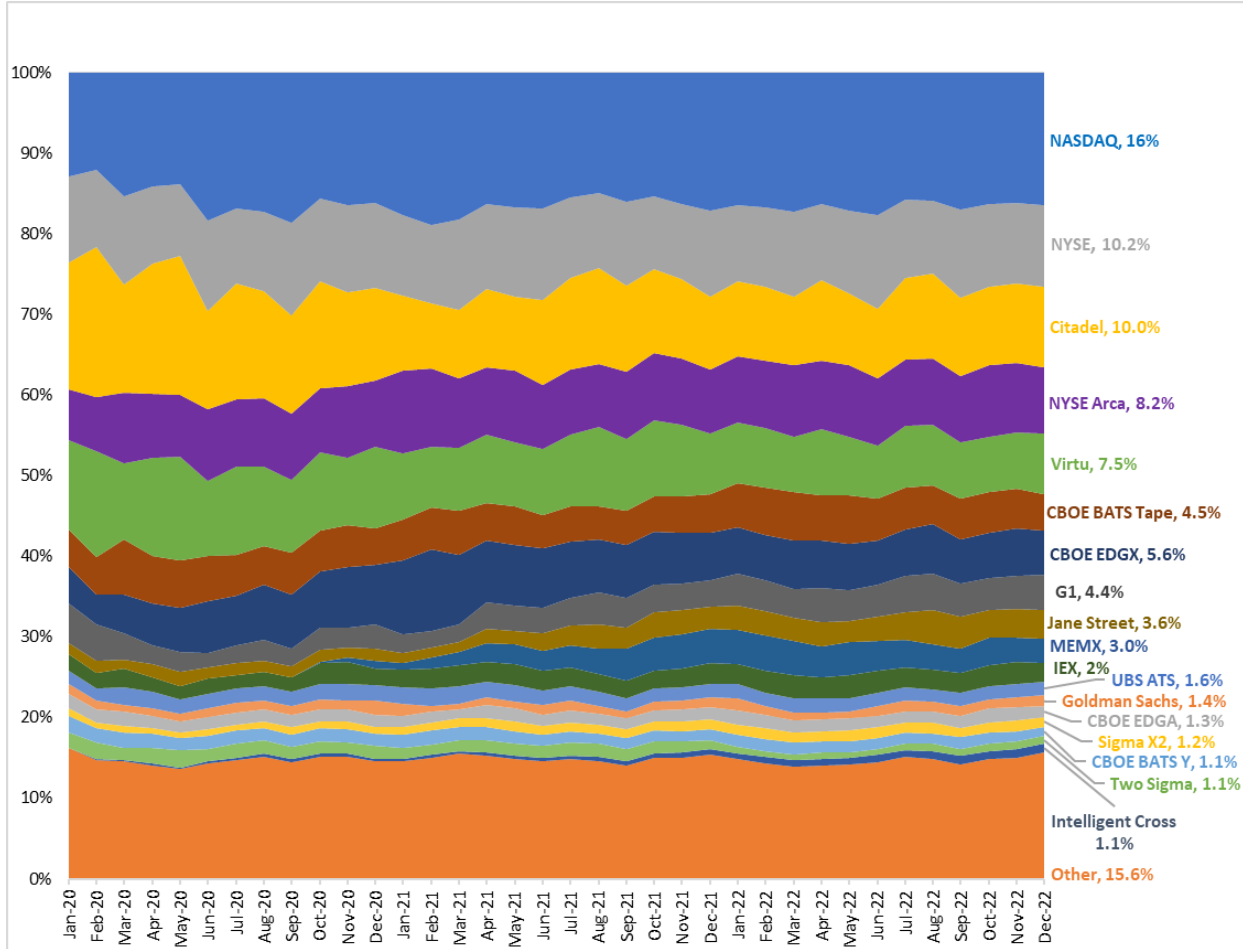
¹⁹ *Id.*

²⁰ PIFS, *supra* note 17.

²¹ See, e.g., Maureen O’Hara & Mao Ye, JOURNAL OF FINANCIAL ECONOMICS, *Is Market Fragmentation Harming Market Quality?* (2011), <https://www.sciencedirect.com/science/article/abs/pii/S0304405X11000390> (“[T]he addition of new trading venues has increased competition, forcing traditional exchanges to lower trading charges and other fees.”); Peter Gomber et al., *Competition Between Equity Markets: A Review of the Consolidation Versus Fragmentation Debate*, SAFE Working Paper No. 35 (2016) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2362216.

2022. The remaining 15% of trades are represented by the “other” category and represent over two-hundred trading venues, each with very limited market share.

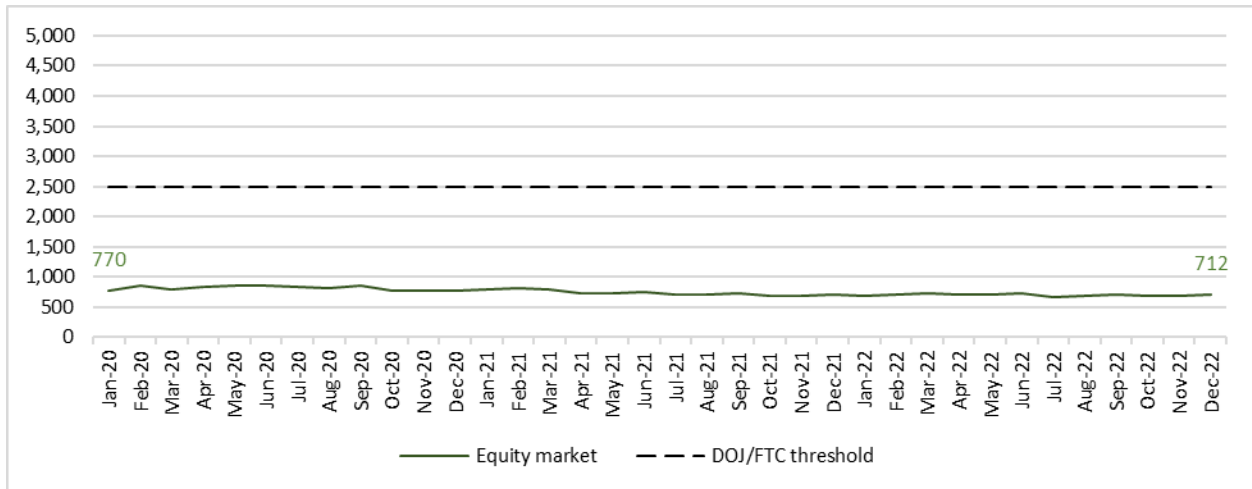
Figure 2: Share of U.S. Equity Market Trading Volume by Trading Venue²²



The Herfindahl-Hirschman Index (“HHI”) is a commonly used measure of industry concentration. For example, the Federal Trade Commission and Department of Justice use the HHI to assess whether an industry is competitive for purposes of approving a merger or acquisition and use an HHI of 2,500 as a threshold for a concentrated marketplace. **Figure 3** on the next page demonstrates that the concentration of the U.S. equity market structure is well below that threshold.

²² Figures 2 through 8 are based on analysis of Bloomberg equity market data accessed through the Bloomberg terminal. Figure 2 displays data based on share volume. Data based on notional/dollar volume are unavailable.

Figure 3: Total Equity Market HHI



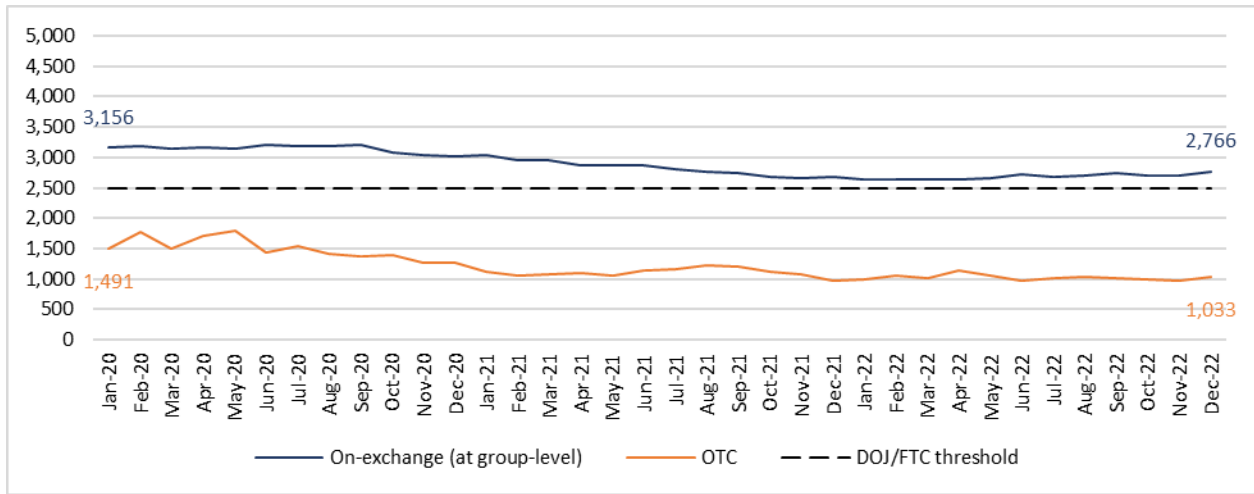
Chair Gensler’s stated concerns with market concentration have largely been focused on the off-exchange market, which includes alternative trading systems (“ATs”) and wholesale broker-dealers.²³ We therefore compare the HHI for on-exchange trading with the HHI for off-exchange trading. We find that the market for on-exchange trading is substantially more concentrated than the off-exchange market, as demonstrated by **Figure 4** on the following page. Indeed, nearly 90% of on-exchange trading takes place through one of three exchange groups—CBOE, NASDAQ, or NYSE.²⁴ The market for on-exchange trading is also higher than the DOJ/FTC threshold for a concentrated market. This is particularly noteworthy considering that the EMS Proposals are intended to increase on-exchange trading.²⁵

²³ SEC, Chair Gary Gensler, “Market Structure and the Retail Investor:” Remarks Before the Piper Sandler Global Exchange Conference (June 8, 2022), <https://www.sec.gov/news/speech/gensler-remarks-piper-sandler-global-exchange-conference-060822>.

²⁴ CBOE, U.S. Equities Market Volume Summary, 5 Day Average (accessed Mar. 14, 2023), https://www.cboe.com/us/equities/market_statistics/.

²⁵ See, e.g., SEC, *infra* note 63 at 80,274 (“The Commission is seeking to address concerns about the competitive dynamic between exchanges/ATs and OTC market makers because the ability of OTC market makers to more readily trade in finer sub-penny increments than exchanges and ATs factors into the increasing percentage of equity volume that is executed off-exchange.”).

Figure 4: Concentration of On-Exchange and Off-Exchange Trading (HHI)



Finally, we evaluate the degree of concentration of a subset of the off-exchange market — the market for wholesale broker-dealers that execute retail orders (referred to in this Part I as “retail wholesalers”).²⁶ Chair Gensler has focused his concentration and competition criticisms on this market segment.²⁷ **Figure 5** shows the concentration of the market for retail wholesalers; and, more importantly, **Figure 6** compares the HHI of the market for retail wholesalers with the HHI of on-exchange trading. We find that the market for on-exchange trading is *more concentrated* than the market for retail wholesalers and that the market for retail wholesalers is *below* the FTC/DOJ threshold for a concentrated marketplace.

²⁶ Our classification is intended to be coextensive with the broker-dealers that Bloomberg data classify as “retail wholesalers.”

²⁷ See, e.g., Transcript, Senate Banking, Housing, and Urban Affairs Committee, Hearing on Oversight of the U.S. Securities and Exchange Commission, Testimony of Chair Gary Gensler (Sept 21, 2021) (“There’s one wholesaler that has 50 percent of the market share in the retail market.”).

Figure 5: Retail Wholesaler Market Share²⁸

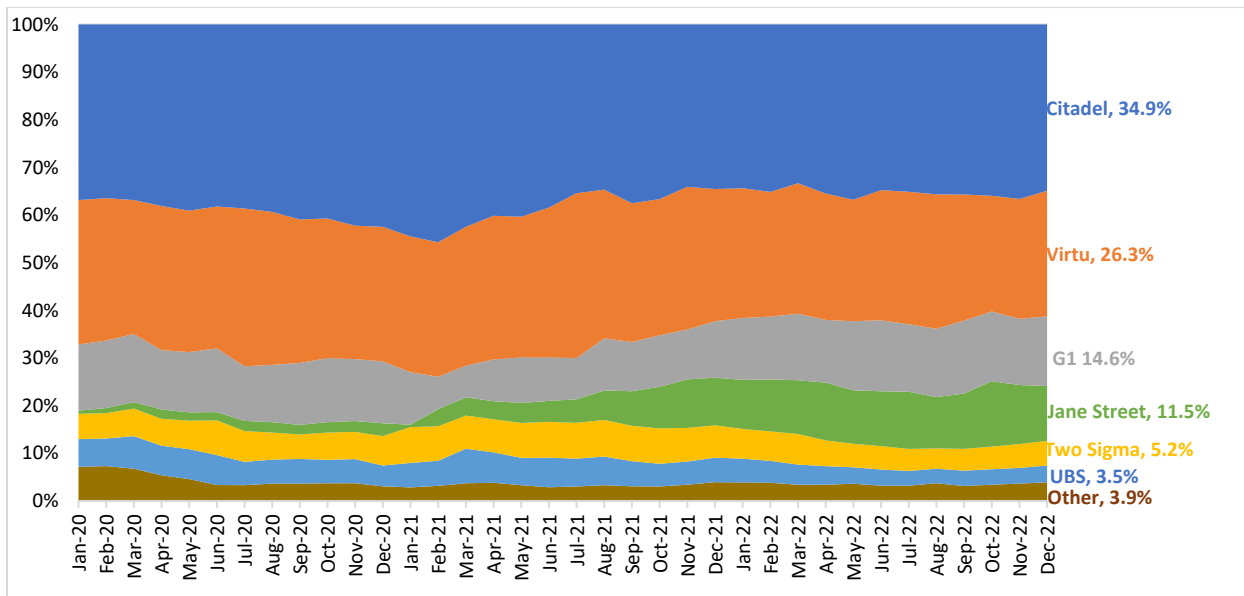
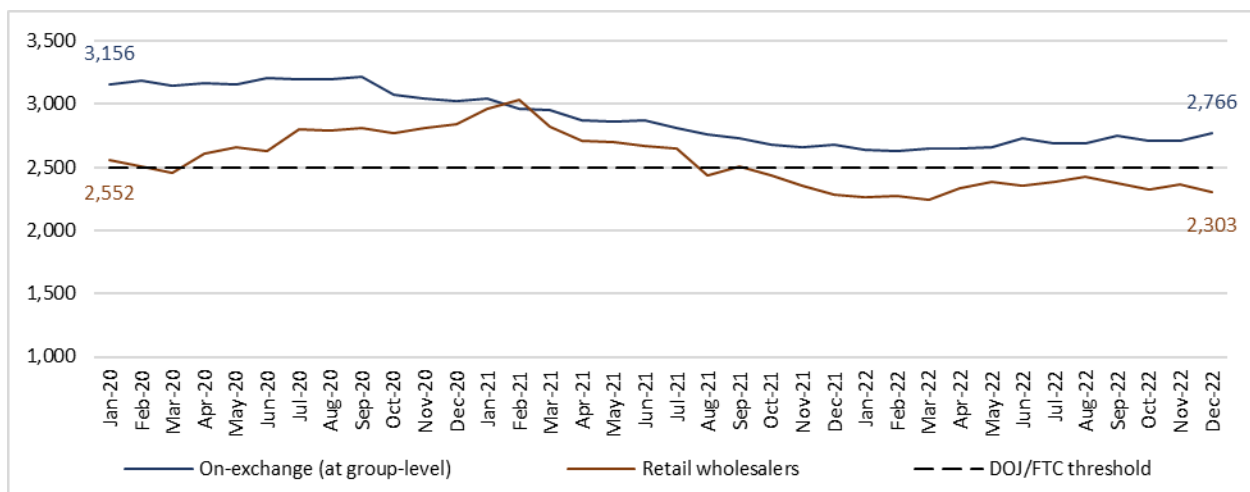


Figure 6: Comparison of Concentration of On-exchange Trading and Retail Wholesalers



Chair Gensler’s stated concerns regarding the “efficiency” and “competition” of U.S. equity market structure that gave rise to this sweeping set of proposals are therefore lacking in empirical support. We now shift our attention to a summary and analysis of each rulemaking.

²⁸ The “Other” category consists of Morgan Stanley, JPMorgan, Bank of America, and Hudson River Trading.

II. Disclosure of Order Execution Information (File Number S7-29-22) (the “Rule 605 Proposal”)

The Rule 605 Proposal²⁹ would require that more detailed information be included in the monthly reports that “market centers” are required to file regarding execution quality and require that retail broker-dealers file such reports for the first time.

1. Overview of the Rule 605 Proposal

i. Requiring more detailed execution quality information

Presently, all “market centers” are required to file monthly publicly available reports disclosing information containing various execution quality metrics (“Rule 605 Reports”). “Market center” is defined as “any exchange market maker, OTC market maker, ATS, national securities exchange, or national securities association.”³⁰ Retail broker-dealers are generally not required to file execution quality metrics.

These execution quality metrics include statistics on average effective spread at the time of order receipt and average realized spread five minutes after the time of order execution. The average effective spread measures the execution cost paid by investors. The average realized spread is intended to be a measure for the potential short-term profit realized by a dealer taking the other side of the order.³¹ Market centers are also required to disclose the cumulative number of shares executed with price improvement, and the average amount of price improvement per share, allowing for a calculation of the total dollar amount of price improvement that a market center achieved.³² Price improvement is measured by the difference between the execution price and the national best bid (in the case of a sell order) or national best offer (in the case of a buy order).³³

The Rule 605 Proposal would expand the scope of information required to be included in Rule 605 Reports to enhance the reporting of execution quality statistics.

For example, average effective and average realized spread, which are currently required to be calculated only for certain market and limit order types, would be required to be reported for additional orders. Both average effective spread and average realized spread, which are currently calculated only in dollar terms, would also be required to be reported as percentages, to account for differing underlying stock prices and better facilitate comparisons of spread statistics across different time periods and securities. In addition, average realized spread, which is currently calculated as of five minutes after order receipt, would instead be required to be calculated as of both 15 seconds and one minute after order receipt. These shorter intervals are intended to reflect

²⁹ SEC, *Disclosure of Order Execution Information* 88 FED. REG. 3786 (Jan. 20, 2023), <https://www.federalregister.gov/documents/2023/01/20/2022-27614/disclosure-of-order-execution-information>.

³⁰ 17 CFR § 242.600(b)(46).

³¹ SEC, OFFICE OF ECONOMIC ANALYSIS, REPORT ON THE COMPARISON OF ORDER EXECUTIONS ACROSS EQUITY MARKET STRUCTURES (2001), <https://www.sec.gov/news/studies/ordrxmkt.htm>.

³² 17 CFR § 242.605(a).

³³ 17 CFR § 242.600(b)(36).

the increased speed of equity markets relative to 2000, when the existing 5-minute interval was set.³⁴

Price improvement statistics, which are currently required only for certain market and limit orders, would be required with respect to additional order types. Including additional order types in price improvement statistics is thus likely to provide more accurate information about the total amount of price improvement that a market center achieves.³⁵

The Rule 605 Proposal would also require the reporting of a new price improvement statistic, the average “effective over quoted” (“E/Q”) spread – that is, the effective spread divided by the quoted spread.³⁶ The E/Q spread would be intended as a measure of the amount of price improvement orders received. As the Rule 605 Proposal explains, an E/Q of 100% means a buy order was executed at the national best offer or a sell order was executed at the national best bid, thus a lower E/Q indicates an execution closer to the midpoint, and thus a greater degree of price improvement. For example, an E/Q of 50 means the trader paid a price half of the quoted spread.

ii. Supplementing price improvement metrics to take partial account of size improvement

Rule 605 reports presently indicate whether an order was executed at a price better than the best displayed quote (“price improvement”). They do not however presently indicate whether the size of such an order exceeded the number of shares available at the best displayed quote (“size improvement”).³⁷ In addition to the expanded execution quality information described above, the Rule 605 Proposal would supplement Rule 605’s price improvement metrics to include a measure of size improvement. More specifically, the Rule 605 Proposal would require that Rule 605 reports include a size improvement “benchmark metric” that indicates the extent to which the size of the executed order exceeded the cumulative number of shares of the full displayed size of the protected bid or protected offer, as applicable. The Rule 605 Proposal explains that this metric “can be combined with information about the number of shares that a market center or broker-dealer executed at or above the quote” to measure such broker-dealer’s or market center’s “ability to offer customers execution at the quote (or better), even when an order’s full size at the quote is not available.”³⁸ For example, if a market center executes a 500-share order to buy at a price better than the national best offer, but there are only 200 shares available at the national best offer, the size improvement benchmark metric would indicate 300 shares (i.e., $500 - 200 = 300$ shares).³⁹

However, the size improvement benchmark metric would indicate only whether and the number of shares for which size improvement was achieved. It would not indicate whether and to what extent such size improvement increased the amount of price improvement. For example, if in the example above the national best offer is \$10.00 per share and the order is executed at \$9.99 per share, but the best available offer with respect to the 300 shares in excess of the 200 available at the public quote is \$10.01 per share, the proposed size improvement statistic would show that size

³⁴ Proposing Release at 3,814.

³⁵ 17 CFR § 242.600(b)(36).

³⁶ Proposed Rule § 242.600(b)(9).

³⁷ Proposing Release at 3,817.

³⁸ *Id.*

³⁹ *Id.*

improvement was achieved for 300 shares but would not report that the actual price improvement with respect to those 300 shares was \$0.02 per share, not the \$0.01 implied by the publicly displayed quote.

iii. Expanding the filing obligation to larger broker-dealers

Broker-dealers are generally, under the existing Rule 605, only included in the definition of “market center” if they execute customer orders internally.⁴⁰ A retail broker-dealer, such as Robinhood or Charles Schwab, that accepts orders from customers and routes those orders to other venues for execution but does not execute orders internally does not fall within this definition and is thus not presently required to file 605 Reports.⁴¹

The Rule 605 Proposal would extend the scope of entities that must file Rule 605 reports to include broker-dealers with at least 100,000 customer accounts (“large retail broker-dealers”), regardless of whether such broker-dealers are “market centers.”⁴² This change is intended to “increase transparency into the differences in execution quality achieved by [retail] broker-dealers when they route customer orders to execution venues” and thus “make the execution quality statistics more useful to market participants.”⁴³ The SEC also notes that it expects the change to “increase competition among broker-dealers by providing information that market participants can use to evaluate and compare [retail] broker-dealers’ execution quality.”⁴⁴ In particular, the SEC notes that requiring retail broker-dealers to disclose execution quality metrics with respect to retail orders that they route is intended to incentivize such broker-dealers to “base more of their routing decisions on the execution quality of market centers, rather than on which market centers are more likely to benefit them (e.g., because of higher [payment for order flow] or lower access fees).”⁴⁵

The proposed 100,000-customer threshold is intended to “balance the benefits of having broker-dealers produce execution quality statistics with the costs of implementation and continued reporting.”⁴⁶ The SEC states that presently approximately 85 retail broker-dealers have more than 100,000 customer accounts and these broker-dealers together handle over 98% of customer accounts.⁴⁷

2. Analysis of the Rule 605 Proposal

We support the Rule 605 Proposal’s implementation of mandatory Rule 605 reporting by retail broker-dealers and its modifications to and expansions of the information required to be included in Rule 605 Reports. We also support the Rule 605 Proposal’s addition of a “size improvement” metric, because of its significant impact on transaction costs for retail investors. However, we

⁴⁰ *Id.* at 3,788.

⁴¹ *Id.*

⁴² *Id.* at 3,795.

⁴³ *Id.* at 3,796.

⁴⁴ *Id.*

⁴⁵ *Id.* at 3,873.

⁴⁶ *Id.* at 3,797.

⁴⁷ *Id.*

further recommend that the SEC reconsider expanding the proposal further to require the reporting of “real price improvement.”

i. Requiring Retail Broker-Dealers to File Rule 605 Reports Will Provide Retail Investors with Important Information on Execution Quality Achieved by Their Broker-Dealers

As the Committee has explained in several prior reports, execution quality is an important measure by which retail investors should be able to evaluate retail broker-dealer performance.⁴⁸ Retail investors should therefore be provided the information necessary to compare the execution quality that they might receive for their orders across different retail broker-dealers. Presently, such mandatory disclosures do not exist as part of Rule 605 disclosures as to execution quality.

Requiring that each large retail broker-dealer produce publicly available standardized reports under Rule 605 with respect to orders that it routes will allow retail investors to determine the execution quality of their orders. Such disclosures would likely enhance competition among retail broker-dealers based on price improvement and overall execution quality.

As we noted in our 2021 report, such disclosures would also enable the public and SEC to better determine the impact of payment for order flow (“PFOF”) arrangements on investors, whereby wholesale broker-dealers pay retail broker-dealers to route customer orders to them.⁴⁹ However, although additional disclosure would be beneficial for competition, it is important to note that there are already rules in place that ensure that PFOF arrangements do not unduly influence broker-dealers’ routing decisions. In particular, retail broker-dealers are required to disclose their PFOF arrangements under Rule 606 and are prohibited by the duty of best execution from sending retail orders to a wholesale broker-dealer primarily on the basis of PFOF;⁵⁰ and, in practice, retail broker-dealers that receive PFOF from wholesale broker-dealers charge the same PFOF rates to all wholesale broker-dealers.⁵¹ Thus, wholesale broker-dealers compete with each other and with exchanges and ATSS to receive retail order flow on the basis of execution quality, not by offering to pay a higher PFOF rate to retail broker-dealers for more order flow. Moreover, the aggregate amount of price improvement that broker-dealers achieve far outweighs the aggregate amount of PFOF. The SEC estimates that total PFOF for stocks in Q1 2022 was approximately \$300 million.⁵² As shown in Figure 8 in Part IV and according to existing Rule 605 disclosures, the amount of price improvement that wholesale broker-dealers achieved in Q1 2022 for stock orders was \$965.52 million, more than three times the amount of PFOF.⁵³ Moreover, this estimate of price improvement does not account for size improvement. As discussed further below, accounting for

⁴⁸ CCMR, THE U.S. EQUITY MARKETS – A PLAN FOR REGULATORY REFORM (2016), https://capmksreg.org/wp-content/uploads/2022/11/07_27_FINAL_DRAFT_EMS_REPORT-1.pdf; CCMR, ENHANCING U.S. EQUITY MARKET STRUCTURE FOR RETAIL INVESTORS (2021), <https://capmksreg.org/wp-content/uploads/2022/11/CCMR-Enhancing-Retail-Equity-Market-Structure-09.01.2021-2.pdf>.

⁴⁹ Rule 10b-10(d)(8) under the Exchange Act defines “payment for order flow” as “any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration to a broker-dealer in return for the routing of customer orders by such broker or dealer to any broker or dealer, national securities exchange, registered securities association, or exchange member for execution.” 17 C.F.R. § 240.10b-10(d)(8).

⁵⁰ 17 C.F.R. § 242.606; *see also* SEC Institutional Order Handling Release, Note 397.

⁵¹ CCMR, ENHANCING U.S. EQUITY MARKET STRUCTURE FOR RETAIL INVESTORS, *supra* note 48.

⁵² Proposing Release, Table 12.

⁵³ Figure 8, *infra*.

size improvement would likely increase the measures of price improvement by a factor of two to three, which would mean that price improvement actually outweighs PFOF by a factor of six to nine.

Expanding Rule 605 disclosures to cover retail broker-dealers would further solidify the existing protections that have ensured that PFOF arrangements have not unduly influenced broker-dealers' routing decisions and provide further evidence that concerns that PFOF may compromise broker-dealers' best execution obligations are unfounded. That is because the execution quality metrics disclosed by retail broker-dealers under the Rule 605 Proposal would necessarily take into account PFOF as part of the execution quality statistics. Moreover, if PFOF is in fact indirectly limiting the amount of price improvement provided by a wholesale broker-dealers, then this should be evident from comparing the disclosures of execution quality by retail broker-dealers that do not accept PFOF against disclosures of execution quality by otherwise similar retail broker-dealers that do accept PFOF.

We strongly support the Rule 605 Proposal's expansion of Rule 605 reporting obligations to retail broker-dealers.

ii. *The Rule 605 Proposal Should More Closely Consider the Benefits and Costs of Requiring Real Price Improvement Metrics*

As noted above, Rule 605 disclosures measure price improvement by comparing the execution price for an order against the prevailing NBBO at the time of execution. However, Rule 605 disclosures presently fail to consider that there is limited size available at the NBBO on exchanges and thus fail to account for "size improvement." For example, suppose only 100 shares are available for sale at the national best offer of \$10.00. If a 200-share retail buy order comes into a wholesale broker-dealer, and the wholesale broker-dealer executes the order for \$9.99, then the current Rule 605 reports would measure total price improvement as \$2.00 (i.e., the \$0.01 difference between the NBBO and execution price multiplied by 200 shares), because the current definition of price improvement assumes that there are 200 shares available for sale at \$10.00 when in fact such liquidity does not exist, and executing the full 200 shares on an exchange would be more costly. While 100 shares of the buy order would be executed at \$10.00, the other 100 shares would have to be executed at the next best available sale price (e.g., \$10.01). Thus, in reality, the wholesale broker-dealer has provided *more* price improvement on the second 100 shares than the first 100 shares, as price improvement for the first 100 shares should be calculated as \$10.00 minus \$9.99 (1 cent of price improvement/share) and price improvement for the second 100 shares should be calculated as \$10.01 minus \$9.99 (2 cents of price improvement/share). Price improvement should therefore be measured with reference to the average price obtainable for the full order on the exchange, not just with reference to the NBBO (achieving price improvement for an order that exceeds the number of shares available at the displayed quote is commonly referred to as "size improvement," and the modified measure of price improvement that takes account of the average price obtainable for the full order is commonly referred to as "real price improvement").

A 2021 report by Virtu found that measuring real price improvement by accounting for size improvement increased the measure of the price improvement that Virtu alone achieved in 2020

from \$953 million to \$3.06 billion.⁵⁴ And the Committee’s 2021 report found that, assuming that size improvement resulted in a similar increase in total price improvement for other wholesale broker-dealers during the same time period, then total real price improvement provided to retail investors in 2020 would exceed \$11 billion rather than the \$3.7 billion in price improvement reported by Rule 605 disclosures.⁵⁵ A 2022 analysis by Battalio and Jennings found that adjusting for size improvement “more than doubled” their estimate of total price improvement achieved by wholesale broker-dealers for internalized orders.⁵⁶

The Rule 605 Proposal explains that it does not require that real price improvement statistics be included because the complete set of consolidated depth of book information (i.e., information on the number of shares available on exchanges at quotes that are not the national best bid or offer, as applicable) that would be necessary to compute such statistics “is not available from public data sources” and would thus require market centers and reporting broker-dealers to “subscribe to all exchanges’ proprietary depth-of-book data feeds, which would entail a significant cost for those reporting entities that do not already subscribe to these feeds.”⁵⁷

As part of its analysis of potential alternatives to the current proposal, the SEC sought to analyze whether real price improvement statistics would provide meaningful execution quality information beyond what is included in the benchmark size improvement statistic that is included in the current proposal. The SEC concluded that the correlation between these two measures is “only moderate,” and that therefore “the implication is that [real price improvement] does contain information that is not contained by the proposed benchmark metric.”⁵⁸ However, the SEC nonetheless declines to require that this information be included because “it is not clear that the cost of requiring reporting entities to have access to full set of consolidated depth information would justify the benefit to market participants of having access to this additional information about size improvement.”⁵⁹ The SEC does not however quantify these costs or benefits.

Because of the fundamental relevance of execution quality to assessing equity market structure, including for the purpose of assessing whether modifications to equity market structure are necessary, and the significant potential impact that real price improvement is likely to have on measures of execution quality, we recommend that the SEC undertake a more detailed analysis of the costs and benefits of requiring real price improvements statistics in Rule 605 reports. If this analysis indicates that the benefits of requiring real price improvement metrics outweigh the costs, then the Rule 605 Proposal should require the reporting of such information.

⁵⁴ VIRTU FINANCIAL, MEASURING REAL EXECUTION QUALITY (2021), https://virtu-aws.s3.amazonaws.com/uploads/documents/virtu-real-pi_20210827.pdf.

⁵⁵ CCMR, ENHANCING U.S. EQUITY MARKET STRUCTURE FOR RETAIL INVESTORS, *supra* note 48.

⁵⁶ Robert H. Battalio & Robert H. Jennings, *Why Do Brokers Who Do Not Charge Payment for Order Flow Route Marketable Orders to Wholesalers* 5 (2022), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4304124.

⁵⁷ *Id.*

⁵⁸ Proposing Release at 3,894.

⁵⁹ *Id.*

III. Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders (File Number S7-30-22) (the “Tick Size Proposal”)

Rule 612 of Regulation NMS presently establishes minimum pricing increments (“MPIs”, also referred to as “tick sizes”) for stocks.⁶⁰ More specifically, it prohibits any “national securities exchange, national securities association, alternative trading system, vendor, or broker or dealer” from “display[ing], ranking[ing], or accept[ing] from any person” any “bid or offer, order, or indication of interest” in any stock that is “priced in an increment smaller” than the applicable MPI.⁶¹ Currently, Rule 612 sets the MPI for stocks priced at or above \$1.00 per share at \$0.01.

Rule 612 applies only to the displaying, ranking, and accepting of quotes and orders, and thus permits the execution of trades in pricing increments smaller than the applicable MPI.⁶² For example, assume the best publicly displayed price for a stock on an exchange is \$10.00/share. If sub-penny trading was prohibited, then an investor seeking to buy that stock would have to pay \$10.00/share. However, sub-penny trading allows for trades to be executed at better prices, such as \$9.995, providing the investor with \$10.000 - \$9.995, or \$0.005, in cost savings/share. Although these sub-penny increments may be small savings for each share traded, they are large in the aggregate.

The NBBO represents the best quoted price to buy or sell a stock across all exchanges and must therefore be priced with a one-cent tick size. The amount by which trades that are executed at a better price than the NBBO is generally referred to as price improvement.

The Tick Size Proposal⁶³ would amend Rule 612 to (A) establish narrower MPIs for certain NMS stocks priced at or above \$1.00, and (B) prohibit trade executions at increments smaller than the applicable MPI subject to certain exceptions, including executions at the midpoint of the spread.

1. Description of the Tick Size Proposal

The MPI or tick size for a stock is important because MPIs that are either too narrow or too wide can increase investor transaction costs. An MPI that is too narrow (e.g., one-tenth of a cent) can cause “flickering quotations” in which the quotes on the exchange that is displaying the best quote for a stock are rapidly changing. Flickering quotations complicate broker-dealer routing decisions and can hinder their ability to obtain the best prices for investors.⁶⁴ MPIs that are too narrow can also enable “stepping ahead,” whereby a trader uses an economically insignificant improvement in a quote to gain execution priority over an existing order. Stepping ahead can therefore

⁶⁰ An “NMS stock” is any “NMS security other than an option.” 17 CFR § 242.600(b)(55). An NMS security is “any security or class of securities for which transaction reports are collected, processed, and made available pursuant to an effective transaction reporting plan, or an effective national market system plan for reporting transactions in listed options.” *Id.* § 242.600(b)(54).

⁶¹ 17 CFR § 242.612.

⁶² *Id.*

⁶³ SEC, *Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders* 87 FED. REG. 80,266 (Dec. 29, 2022), <https://www.govinfo.gov/content/pkg/FR-2022-12-29/pdf/2022-27616.pdf>.

⁶⁴ CCMR, THE U.S. EQUITY MARKETS - A PLAN FOR REGULATORY REFORM, *supra* note 48, at 99-100.

disincentivize the public display of orders and increase bid-ask spreads.⁶⁵ On the other hand, an MPI that is too wide may set an artificial constraint on permissible bids and offers, which can result in an unnecessarily wide spread that can also increase transaction costs for investors. Regulation NMS acknowledged these risks of MPIs that are too narrow or too wide,⁶⁶ and the Committee has raised these risks in its past reports.⁶⁷

i. Reducing MPIs

The SEC asserts that most of the current trading volume in NMS stocks is attributable to stocks that have an average quoted spread of 1.1 cents or less.⁶⁸ The SEC reasons that when a stock's average spread is the same as its MPI, then competitive market forces would otherwise drive the average spread to a level below 1 cent but for the constraint of the current 1-cent MPI – that is, the stock is “tick constrained.” The SEC concludes that the MPI for such stocks may therefore be “too large,” causing the pricing of such stocks to be “artificially constrained” and that trading in such stocks “would be improved if competitive market forces could establish prices in sub-penny increments, which could reduce quoted spreads.”⁶⁹

The Tick Size Proposal would thus amend Rule 612 to narrow the MPIs for certain NMS stocks priced at or above \$1.00 per share. Under the Tick Size Proposal, the MPI for any NMS stock priced at or above \$1.00 per share would vary from a maximum of 1 cent to a minimum of 1/10 of cent depending on the spread for that stock over the prior quarter.⁷⁰ The narrower the past spread, the narrower the new MPI.⁷¹

The table on the next page summarizes the MPIs that currently apply and the modified MPIs that would apply to stocks with spreads of four cents or less under the Tick Size Proposal. These narrower MPIs would be implemented via a three-stage process, whereby stocks with a spread of less than 4 cents in the last quarter before initial implementation would move to the 1/2 cent MPI for the first quarter after initial implementation; and then for the second quarter, all stocks with a spread of 1.6 cents or less would move down to a 1/5 cent MPI. Finally, in the third quarter, all stocks with a spread of 8/10 of a cent or less would move to the 1/10 cent MPI.⁷²

⁶⁵ *Id.* at 100.

⁶⁶ SEC, *Regulation NMS*, Release No. 34-51808; File No. S7-10-04 (July 9, 2005), <https://www.sec.gov/rules/final/34-51808.pdf>.

⁶⁷ CCMR, *THE U.S. EQUITY MARKETS – A PLAN FOR REGULATORY REFORM*, *supra* note 48; CCMR, *ENHANCING U.S. EQUITY MARKET STRUCTURE FOR RETAIL INVESTORS*, *supra* note 48 at 10.

⁶⁸ Proposing Release at 80,268.

⁶⁹ *Id.*

⁷⁰ Proposed Rule § 612(c)(1)-(4). The “Time Weighted Average Quoted Spread” would be formally defined as “the average dollar value difference between the NBB and NBO during regular trading hours where each instance of a unique NBB and NBO is weighted by the length of time that the quote prevailed as the NBB or NBO. *Id.* 612(a). The “Evaluation Period” would be formally defined as “the last month of a calendar quarter (March in the first quarter, June in the second quarter, September in the third quarter and December in the fourth quarter) of a calendar year during which the primary listing exchange shall measure the Time Weighted Average Quoted Spread of an NMS stock that is priced equal to, or greater than, \$1.00 per share to determine the minimum pricing increment to be in effect for an NMS stock for the next calendar quarter . . .” *Id.*

⁷¹ Proposing Release at 80,282.

⁷² *Id.* at 80,284.

NMS stocks priced at \$1.00 or more		
<i>Spread</i>	<i>MPI under current rules</i>	<i>MPI under Tick Size Proposal</i>
Less than or equal to \$0.04 (4 cents) and greater than \$0.016 (1.6 cents)	\$0.01 (1 cent)	\$0.005 (1/2 cent) ⁷³
Less than or equal to \$0.016 (1.6 cents) and greater than \$0.008 (8/10 cent).	\$0.01 (1 cent)	\$0.002 (1/5 cent) ⁷⁴
Less than or equal to \$0.008 (8/10 cent)	\$0.01 (1 cent)	\$0.001 (1/10 cent) ⁷⁵

ii. Application of MPIs to trade executions

As noted above, Rule 612 currently permits trade executions in increments smaller than the applicable MPI, thus allowing for price improvement. However, the SEC asserts that such price improvement is practically confined to OTC markets because exchanges and ATSS largely cannot process trade executions in increments that differ from the quoted increment.⁷⁶ The SEC attributes the increasing percentage of trading that occurs in OTC markets to the ability of OTC market participants to process sub-penny executions and thus achieve price improvement that is unavailable in exchange and ATS trading.⁷⁷

Notwithstanding the benefits to investors of such price improvement, the SEC is “concerned about the increase of orders that are executed OTC in price increments that exchanges and ATSS cannot practically provide.”⁷⁸

The Tick Size Proposal would thus “harmoniz[e] the minimum pricing increment for quoting and trading across venues” by expanding the application of MPIs to trade executions.⁷⁹ In other words, all venues would be prohibited from executing trades at increments that are narrower than the MPI, subject to certain exceptions.⁸⁰ Most importantly, the Tick Size Proposal would except trades that are executed at the midpoint of the NBBO.⁸¹ The midpoint of the NBBO is half of the spread, so, assuming the Tick Size Proposal is implemented and in effect, for a stock with a spread of 0.5 cents (e.g., \$9.995 bid and \$10.000 ask), the midpoint of the spread would be 0.5 cents divided by 2 or 0.25 cents (e.g., \$9.9975).

⁷³ *Id.* § 242.612(c)(3).

⁷⁴ *Id.* § 242.612(c)(2).

⁷⁵ *Id.* § 242.612(c)(1).

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ Proposing Release at 80,283.

⁷⁹ *Id.*

⁸⁰ Proposing Release at 80,269.

⁸¹ Proposed Rule § 242.612(e).

iii. Amendments to Rule 610: Maximum access fees

Rule 610(c) of Regulation NMS establishes maximum fees that trading centers are permitted to charge for the execution of orders against protected quotations.⁸² Protected quotations are the best publicly displayed bid and offer quotes for a stock on each exchange and ATS reported to the Alternative Display Facility operated by FINRA.⁸³ The SEC explains that these “access fee caps” are intended to “help ensure the fairness and accuracy of displayed quotations by establishing an outer limit on the cost of accessing such quotations.”⁸⁴ Currently, for stocks priced at or more than \$1.00 per share, access fees cannot exceed 30 cents/100 shares.⁸⁵

Most exchanges currently determine the applicable access fees based on a “maker taker” model. Maker-taker is a pricing system whereby exchanges pay a per share rebate to market participants who provide (“make”) liquidity in a stock, by submitting limit orders, and assess on them an access fee to remove (“take”) liquidity.⁸⁶ Exchanges use the revenue from their access fees to fund the rebates they provide to liquidity providers, and exchanges earn the difference between the fee and the rebate.⁸⁷ The purpose of the maker-taker pricing system is to attract liquidity providers and increase trading volumes.⁸⁸ Exchanges therefore compete to provide large rebates to liquidity providers, which drives the access fees that they charge liquidity takers up to the maximum under Rule 610.⁸⁹

The Tick Size Proposal would lower the maximum access fees under Rule 610(c). For stocks priced at \$1.00 or more, the maximum access fee would vary based on the MPI of the stock as determined under the Tick Size Proposal’s amended version of Rule 612 described above. The following table summarizes the maximum access fees that currently apply and those that would apply under the Tick Size Proposal.

Quotations of \$1.00 or more per share		
<i>Applicable MPI</i>	<i>Maximum access fee under current rules</i>	<i>Maximum access fee under Tick Size Proposal</i>
\$0.001(1/10 cent)	\$0.0030 (3/10 cent) per share	\$0.0005 (1/20 cent) per share
Greater than \$0.001 (1/10 cent)	\$0.0030 (3/10 cent) per share	\$0.001 (1/10 cent) per share

As the Tick Size Proposal explains, reducing MPIs without reducing access fees could permit fees “to become a higher percentage of the [MPI],” and because fees are not part of the displayed

⁸² *Id.* § 242.610(c).

⁸³ *Id.* § 242.600(b)(70)-(71); CCMR, THE U.S. EQUITY MARKETS – A PLAN FOR REGULATORY REFORM, *supra* note 48, at 39-40. Currently, there are no active Alternative Display Facility participants. FINRA, Alternative Display Facility (ADF), <https://www.finra.org/filing-reporting/alternative-display-facility-adf> (last visited Mar. 28, 2023).

⁸⁴ Proposing Release at 80,287.

⁸⁵ 17 CFR § 242.610(c).

⁸⁶ CCMR, THE U.S. EQUITY MARKETS – A PLAN FOR REGULATORY REFORM, *supra* note 48, at 92-93.

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.*

quotation, this could potentially “undermine price transparency” by causing the displayed price to become less reflective of the actual price paid by the investor.⁹⁰ The proposed reductions to the maximum access fees are thus intended to “help to ensure that the fees charged to access a protected quotation do not distort the true price that is available to investors,” in view of the proposed narrowing of MPIs described above.⁹¹

iv. Accelerating implementation of the Market Data Infrastructure Rules

The Tick Size Proposal would also accelerate the implementation of the modified definition of “round lot” for purposes of determining the NBBO with respect to a given stock, as contemplated in the SEC’s Market Data Infrastructure Rules (“MDI Rules”). The MDI Rules were finalized in December 2020 but have not yet been implemented.⁹²

The NBBO for a stock is determined by bids and offers of “round lots” of that stock.⁹³ Round lots are defined as 100 share orders. However, many stocks have high prices and as a result a significant percentage of orders in those stocks are smaller than 100 shares. Therefore, the NBBO for certain stocks with high per share prices currently omits a significant percentage of orders for the stock. For example, an SEC analysis of trading activity found that “around 91% of the trades that occurred in the two largest securities by market capitalization that have share prices greater than \$1,000” were not included in the NBBO.⁹⁴

The MDI Rules would address this concern by revising the definition of a round lot for high-priced stocks, such that orders for NMS stocks with higher prices would be considered round lots at lower numbers of shares. The NBBO would therefore be a more accurate measure of the supply and demand for orders to buy or sell a stock and a more accurate measure of whether a broker has achieved best execution and the extent of any price improvement.⁹⁵

The following table illustrates the tiers that would apply under the new MDI Rules:

<i>Price per share</i>	<i>Round lot size</i>
\$250 or less	100 shares
\$250.01-\$1,000	40 shares
\$1,000.01-\$10,000	10 shares
\$10,000.01 or more	1 share

The SEC would accelerate the implementation of this modified definition from approximately mid-2025 or later to 90 days after the finalization of this rulemaking in the Federal Register.⁹⁶

⁹⁰ Proposing Release at 80,290.

⁹¹ *Id.*

⁹² SEC, *Market Data Infrastructure* Release No. 34-90610, File No. S7-03-20, <https://www.sec.gov/rules/final/2020/34-90610.pdf>.

⁹³ 17 CFR § 242.600(b)(10), (11), (50).

⁹⁴ Proposing Release at Note 240.

⁹⁵ *Id.* at 103.

⁹⁶ *Id.* at 80,295, 80,298.

2. Analysis of the Tick Size Proposal

We support accelerating the implementation of Regulation MDI revised round lot definition that would enhance the accuracy of the NBBO for high-priced stocks. However, we do not otherwise support the Tick Size Proposal at this time. We offer comments on five specific issues concerning the Tick Size Proposal. If these concerns were addressed and an updated economic analysis demonstrated that narrower tick sizes, such as 0.5 cents, for certain highly liquid stocks would reduce transaction costs and improve market quality for retail and institutional investors, then the Committee would support such revised reforms.

First, the proposed MPI of 1/10th of a cent is too narrow, as shown in both theoretical and empirical research on tick sizes, and would, as a result, potentially *increase* spreads thereby increasing transaction costs for investors.⁹⁷ Second, the Tick Size Proposal’s framework for determining whether the MPI for a stock should be reduced fails to consider the depth of liquidity available at the spread. The empirical literature clearly demonstrates that narrowing tick sizes reduces the depth of liquidity and reduced depth can *increase* overall transaction costs, particularly for large orders.⁹⁸ Thus, proposals to reduce tick sizes should only apply to stocks with substantial depth at the best publicly available prices. Third, market quality effects from modifications to tick sizes are historically difficult to predict in the United States and in other jurisdictions. We therefore recommend that tick size modifications should generally be adopted as part of pilot programs so that they can be studied and readily changed if necessary. Fourth, the Tick Size Proposal would largely prohibit trading venues from providing price improvement subject to certain exceptions, such as the midpoint of the spread. We strongly oppose such a prohibition, as doing so would unnecessarily restrict price improvement that may be small on a share-by-share basis but significant in the aggregate. Fifth, we raise issues with the impact of reducing access fees on market liquidity and transaction costs. Finally, we review certain shortcomings of the SEC’s economic analysis.

i. The Proposed Tick Sizes are Too Narrow and Would Increase Spreads

According to the economic literature, the optimal tick size involves the balancing of several tradeoffs. As originally noted by Harris (1991) and reinforced by Angel (1997), smaller tick sizes can decrease transaction costs for investors by allowing for a narrower spread.⁹⁹ However, smaller tick sizes will not always result in a narrower spread. As tick sizes get narrower, they can result in “undercutting” or “stepping ahead,” which disincentivizes market makers from providing liquidity thereby widening spreads.¹⁰⁰

In a theoretical model, Werner et. al (2021) examine the effect of undercutting and illustrate how smaller tick sizes makes undercutting relatively cheaper, thus reducing the willingness of market

⁹⁷ See, e.g., Harris *infra* note 99; Angel, *infra* note 99.; Werner, *infra* note 101.

⁹⁸ O’Hara et al., *infra* note 102.

⁹⁹ Lawrence Harris, *Stock Price Clustering and Discreteness* 4(3) THE REVIEW OF FINANCIAL STUDIES 389 (1991), <https://www.acsu.buffalo.edu/~keechung/MGF743/Readings/Stock%20price%20clustering%20and%20price%20discreteness.pdf>; James J. Angel, *Tick Size, Share Prices, and Stock Splits*, 52(2) JOURNAL OF FINANCE 655 (1997), <https://www.jstor.org/stable/2329494>.

¹⁰⁰ Harris *supra* note 99; Angel, *supra* note 99.

makers to provide liquidity by posting limit orders.¹⁰¹ The negative consequences of undercutting are further exacerbated by an adverse selection problem. O’Hara, Saar & Zhong (2019) explain that undercutting “imposes adverse selection on resting limit orders in the book,” since informed traders will only undercut when it is profitable to do so.¹⁰² The result is that resting limit orders become less attractive to liquidity providers (since adverse selection reduces the potential profits from market making) and overall liquidity in the market will suffer.¹⁰³

Several researchers have conducted studies to quantify the optimal tick size that would result in the narrowest spread. They generally find that the optimal tick size is that which constitutes approximately **two ticks** within the average bid-ask spread. For example, if the average spread of a stock is 1 cent, then the ideal tick size for that stock would be 0.5 cents as there are two 0.5 cent ticks within the 1-cent spread.

For example, Li & Ye (2022) identify a “two-tick rule,” finding that individual stocks can achieve their minimal percentage spread when their bid-ask spread is two ticks wide.¹⁰⁴ Li & Ye (2022) examine U.S. equity trading from 2003 through 2020, finding evidence that stock splits move the bid-ask spread of a firm’s equity closer to the two-tick optimum.¹⁰⁵ In addition, the study finds that 90% of stocks splits can be explained by the adjustment of price closer to a two-tick spread, providing further evidence for the optimality of a two-tick spread.¹⁰⁶ The findings of Kyle and Obizhaeva (2016) similarly imply that optimal liquidity occurs when the spread is at two ticks.¹⁰⁷

In a 2013 submission to the SEC’s Roundtable on Tick Size, the *Autorité des marchés financiers* (“AMF”) found that the optimal bid-ask spread is between 1.4-2 ticks.¹⁰⁸ In evaluating the optimal tick size, the AMF notes the tradeoffs discussed above and, in particular, the concerns that a tick size that is too small relative to the bid-ask spread (i.e., several ticks within the spread) can make undercutting too cheap, thus discouraging market makers from posting limit orders and harming liquidity.¹⁰⁹ A bid-ask spread of 1.4-2 ticks strikes the appropriate balance between transaction costs and trading constraints. ESMA recently implemented tick sizes within this range for certain stocks.¹¹⁰

¹⁰¹ Ingrid Werner et al., *Tick Size, Trading Strategies and Market Quality*, Working Paper, (2021).

¹⁰² Maureen O’Hara et al., *Relative Tick Size and the Trading Environment*, THE REVIEW OF ASSET PRICING STUDIES (2019).

¹⁰³ *Id.*

¹⁰⁴ Sida Li & Mao Ye, *Discrete Price, Discrete Quantity, and the Optimal Nominal Price of a Stock* (2022), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3763516.

¹⁰⁵ *Id.* at 41.

¹⁰⁶ *Id.* at 2.

¹⁰⁷ Albert S. Kyle & Anna A. Obizhaeva, *Dimensional Analysis and Market Microstructure Invariance* (2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2823630.

¹⁰⁸ AMF Submission for the purpose of the US Securities and Exchange Commission’s roundtable on tick sizes, Feb. 5, 2013.

¹⁰⁹ *Id.* at 3.

¹¹⁰ Commission Delegated Regulation (EU) 2017/588 of 14 July 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards on the tick size regime for

Bonart (2017) examines NASDAQ trading in the U.S. equity market to determine the optimal tick size.¹¹¹ The study looks at the costs of adverse selection imposed by undercutting and finds that “the tick size should be chosen so that the observed average spread lies roughly around 1.5 ticks,” which represents the average optimal tick size across the study’s dataset.¹¹² And Mackintosh (2022) summarizes in a recent report for NASDAQ: “[S]tudies by academics, market makers, us and even regulators in Europe have found that the best tick leaves a stock trading with a spread between 1 and 2 ticks wide.”¹¹³

The Tick Size Proposal would instead set ticks that are likely too narrow—as many as 8 ticks within the spread, as demonstrated by the “Ticks within the spread” column in the below table. The empirical literature clearly suggests that this would result in undercutting, wider spreads and higher transaction costs as a result. Our view is that the SEC should generally target two ticks within the spread consistent with the economic literature.

Spread	Tick Current Rule	Proposed	Ticks within the spread
Less than \$0.008	\$0.01	\$0.001	1 - 8
\$0.008 to \$0.016	\$0.01	\$0.002	4 - 8
\$0.016 to \$0.04	\$0.01	\$0.005	3 - 8

ii. *The Tick Size Proposal Wrongly Ignores the Impact of Narrower Ticks on Market Depth.*

Economic studies such as Bessembinder (2003)¹¹⁴ and Chakravarty et al. (2004)¹¹⁵ find that lowering tick sizes reduces market depth at the best publicly available price. Reduced market depth can have negative effects for investors, including higher price volatility and increased transaction costs.¹¹⁶ Market depth is particularly important for institutional investors that need to execute large orders.¹¹⁷ Indeed, some studies find that lower tick sizes do *not* reduce trading costs for institutional

shares, depositary receipts and exchange-traded funds, C/2016/4389 (09/04/2019), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.087.01.0411.01.ENG&toc=OJ:L:2017:087:TOC.

¹¹¹ Julius Bonart, *What is the Optimal Tick Size? A Cross-Sectional Analysis of Execution Costs on NASDAQ*(2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2869883.

¹¹² *Id.* at 4.

¹¹³ Phil Mackintosh, NASDAQ *Getting Ticks Right Improves Valuation*, (2022), <https://www.nasdaq.com/articles/getting-ticks-right-improves-valuations>.

¹¹⁴ Hendrick Bessembinder, *Trade Execution Costs and Market Quality After Decimalization* 38(4) JOURNAL OF FINANCIAL & QUANTITATIVE ANALYTICS 747 (2003), <https://www.jstor.org/stable/4126742>.

¹¹⁵ Sugato Chakravarty et al., *Decimals and Liquidity: A Study of the NYSE* (2003), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=390420.

¹¹⁶ Abdourahmane Sarr & Tonny Lybek, INTERNATIONAL MONETARY FUND, *Measuring Liquidity in Financial Markets*, Working Paper (2002), <https://www.imf.org/external/pubs/ft/wp/2002/wp02232.pdf>; Edwin Hu et al, SEC, *Tick Size Pilot Plan and Market Quality*, White Paper, Jan. 31, 2018, https://www.sec.gov/files/dera_wp_tick_size-market_quality.pdf.

¹¹⁷ Letter from Craig S. Tyle, General Counsel, Investment Company Institute, to Johnathan G. Katz, Secretary of the Securities and Exchange Commission, dated November 20, 2001, citing *The Impact of Decimalization on the Nasdaq Stock Market: Final Report to the SEC*, dated June 11, 2001; *The Impact of Decimalization at the Boston Stock*

investors due to reductions in market depth.¹¹⁸ Reductions in market depth are particularly costly for investors when market depth was low to begin with.¹¹⁹

However, the Tick Size Proposal does not consider market depth when determining whether stocks should be subject to more narrow tick sizes. This is despite the fact that market depth varies widely for stocks that would be subject to narrower tick sizes as part of the Tick Size Proposal.¹²⁰ Our view is that requirements to reduce tick sizes should consider market depth and likely only apply to the stocks with significant market depth to minimize the risk that a narrower tick size results in increased transaction costs for investors.

iii. *Tick Sizes Should be Adjusted with Pilot Programs.*

Changes to tick sizes that are not properly calibrated can create significant risks for measures of market quality, including transaction costs and liquidity. As a result, policymakers in Asia, Europe, and North America, among others, sometimes initially adjust their minimum tick sizes on a provisional basis and then subsequently refine those adjustments based on the observed results of the initial adjustment. For example, Europe modified tick sizes as part of its MiFID II finalization on multiple occasions: In 2016, ESMA published initial rules establishing the methodology for the calculation of tick sizes. After several months of the application of these rules, ESMA noted that these rules were creating challenges for market participants that threatened to undermine the liquidity of trading in certain shares. ESMA thus subsequently published amendments to the initial rules in 2018 and 2019 that modified the methodology for calculating tick sizes.¹²¹ And, as recently as 2015, the SEC, as part of a pilot program (the “Tick Size Pilot”), widened tick sizes for small-cap stocks in an attempt to *increase* liquidity in those stocks.¹²² But, on the contrary, the SEC

Exchange, dated September 26, 2001 (larger institutional investors are now being forced to split large orders into numerous smaller transactions at various price points); *Philadelphia Stock Exchange Decimal Pricing Impact Study for Equities and Options*, dated September 7, 2001 (penny increments have resulted in multiple executions for larger orders and orders to be broken into smaller orders)).

¹¹⁸ Sugato Chakravarty et al. *Decimal Trading and Market Impact* (2001), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=266877; Sugato Chakravarty et al., *Did Decimalization Hurt Institutional Investors* (2005), <https://www.sciencedirect.com/science/article/abs/pii/S1386418105000157>; Ingrid Werner, *Execution Quality for Institutional Orders Routed to NASDAQ Dealers Before and after Decimals* (2003), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=463061; SEC, REPORT TO CONGRESS ON DECIMALIZATION (2012), <https://www.sec.gov/files/decimalization-072012.pdf>.

¹¹⁹ JEAN-EDOUARD COLLIARD & PETER HOFFMANN, EUROPEAN CENTRAL BANK, FINANCIAL TRANSACTION TAXES, MARKET COMPOSITION, AND LIQUIDITY (2017), <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp2030.en.pdf>.

¹²⁰ This is apparent from the SEC’s own data that shows large discrepancies between stocks share volume and dollar volume as organized by quoted spread. See Proposing Release at Table 4 (showing, for instance, that on average 2,500 stocks have a quoted spread great than \$0.15, with these stocks making up 4.8% of share volume and 21.6% of dollar volume, suggesting varying depths amongst those 2,500 stocks). See also Alexandre Aidov & Olesya Lobanova, *The Relation Between Intraday Limit Order Book Depth and Spread*, INTERNATIONAL JOURNAL OF FINANCIAL STUDIES, (2021), <https://www.mdpi.com/2227-7072/9/4/60>.

¹²¹ European Securities and Markets Authority, MiFID II Review Report, ESMA70-156-4572 at 77 (2021), https://www.esma.europa.eu/sites/default/files/library/esma70-156-4572_mifid_ii_final_report_on_algorithmic_trading.pdf.

¹²² SEC, Joint Industry Plans; Order Approving the National Market System Plan To Implement a Tick Size Pilot Program by BATS Exchange, Inc., BATS Y-Exchange, Inc., Chicago Stock Exchange, Inc., EDGA Exchange, Inc., EDGX Exchange, Inc., Financial Industry Regulatory Authority, Inc., NASDAQ OMX BX, Inc., NASDAQ OMX PHLX LLC, The Nasdaq Stock Market LLC, New York Stock Exchange LLC, NYSE MKT LLC, and NYSE Arca,

learned that market quality, including liquidity for those small-cap stocks, was harmed by widening tick sizes and did not implement wider tick sizes on an ongoing basis.¹²³

Our view is that due to the risks to market quality of adopting untested tick sizes, any drastic changes to tick sizes would best be done as part of a pilot program. While pilot programs still entail significant costs and operational risks, they enable regulators to assess the effects of tick size modifications through controlled studies, as the Tick Size Pilot did, and are thus preferable to the sweeping adoption of new untested tick sizes, as the Tick Size Proposal would entail.¹²⁴ For example, as with the Tick Size Pilot, such a study would involve creating at least two groups of stocks each with similar spreads and market depth. The pilot program would then reduce the tick size for one group but not for the control group and then compare the resulting market quality effects for each group. If transaction costs and market liquidity are improved in the group with reduced tick sizes then the modifications could be implemented on an ongoing basis and expanded to include the control group. Furthermore, if the tick size modifications implemented as part of a pilot were found to harm market quality, as was the case for the Tick Size Pilot, then the cost of these modifications for investors would have been lower, since they were only applied to a smaller subset of stocks; and the pilot program could also be unwound more readily than a final rule that would need to be changed through another final rulemaking subject to the public notice and comment process.

iv. Prohibiting Certain Sub-Penny Price Improvement

The Tick Size Proposal would generally prohibit the execution of trades at sub-pennies that are not at the NBBO or midpoint of the NBBO. According to the Tick Size Proposal, this is necessary because only wholesale broker-dealers can typically execute trades in sub-pennies as exchanges and ATSS cannot practically do so. Therefore, the Tick Size Proposal would “level the playing field” for competition between different types of trading venues.¹²⁵ It is important to note that we are focused here on trade execution and *not* the minimum tick size for publicly displayed orders.

However, exchanges and ATSS can and do allow for trades in sub-pennies that are not at the midpoint of the NBBO. Most obviously, exchange access fees result in sub-penny trade execution. For example, assume an order on an exchange is priced at \$10.000/share and a \$0.003/share access fee is charged to a broker-dealer for executing that order. The effective price for each share is \$10.003, which is sub-penny trade execution.¹²⁶ Moreover, exchange programs that are designed for retail orders explicitly allow for sub-penny trading in their rules.¹²⁷ The SEC’s proposed changes are therefore not necessary to level the playing field.

Inc., as Modified by the Commission, for a Two-Year Period 80 FED. REG. 27514 (May 6, 2015), <https://www.govinfo.gov/content/pkg/FR-2015-05-13/pdf/2015-11425.pdf>.

¹²³ Proposing Release at 80,273.

¹²⁴ SEC, *supra* note 122.

¹²⁵ Proposing Release at 80,339.

¹²⁶ Bloomberg Professional Services, Sub-Penny Pricing (May 30, 2013), <https://www.bloomberg.com/professional/blog/sub-penny-pricing/>.

¹²⁷ NYSE, The New York Stock Exchange’s Retail Liquidity Program, https://www.nyse.com/publicdocs/nyse/markets/liquidity-programs/RLP_Fact_Sheet.pdf; Nasdaq, BX Retail Price Improvement, <https://www.nasdaqtrader.com/content/BXRPIfs.pdf>.

Most importantly, prohibiting certain sub-penny trade executions would by design *increase* transaction costs for investors. For example, suppose a stock has a one-cent spread with \$10.00 as the best bid to buy and \$10.01 as the best offer to sell. The Tick Size Proposal would allow for an exchange or broker-dealer internalizer to fill an order to buy at the midpoint of the spread (\$10.005) but it would generally *prohibit* the exchange or internalizer from filling that order at an even better price of \$10.004 or \$10.003, because those *better* prices are not at the midpoint. Although the price differences in this example and in practice are only tenths of a cents, these small differences will have a significant impact on investors in the aggregate and long-run.

The Tick Size Proposal would therefore *increase* transaction costs in an unnecessary effort to facilitate competition that already exists, and we therefore oppose such restrictions on sub-penny price improvement.

v. Changing Access Fees

The Tick Size Proposal would reduce access fees from 30 cents/100 shares to 10 cents/100 shares or 5 cents/100 shares, depending on the applicable MPI. As we have explained, exchanges typically charge access fees to liquidity takers and use these access fees to provide rebates to liquidity providers on the exchange. Exchanges typically set access fees slightly higher than rebates and profit from the difference. Critically, reducing the access fees that exchanges can charge would also reduce the ability of exchanges to provide rebates to liquidity providers. Indeed, the SEC estimates that exchanges would provide \$3.72 billion less in rebates to liquidity providers due to the Tick Size Proposal.¹²⁸

We are concerned that such a significant decrease in rebates for liquidity providers would reduce their incentive to provide liquidity and thereby have a negative impact on overall market liquidity that could increase transaction costs. Indeed, it is well established in the economic literature that reducing the potential returns from trading activity results in less trading activity and that lower market liquidity results in higher transaction costs.¹²⁹ Nonetheless, the Tick Size Proposal does not estimate the potential effects on market liquidity from reducing access fees.

As with modifications to tick sizes, we believe that any drastic changes to access fees should be only adopted as part of a pilot program to allow for a study of the effects on market quality prior to widespread and final implementation.

vi. Issues with the SEC's Flawed Economic Analysis

The most glaring flaw with the SEC's economic analysis is that it entirely fails to study the effects of recent tick size modifications in the E.U. and Japan and instead wrongly relies on the SEC's

¹²⁸ Proposing Release at 80,327.

¹²⁹ See, e.g., Yakov Amihud et al., *Liquidity and Asset Prices* (2005), <https://pages.stern.nyu.edu/~lpederse/papers/LiquidityAssetPricing.pdf>; Marek Kocinski, *Transaction Costs and Market Impact in Investment Management* (2014), <https://www.econstor.eu/bitstream/10419/147111/1/824447751.pdf>.

2015 Tick Size Pilot to support the purported benefits to investors from the proposed sub-penny tick sizes.¹³⁰

The Tick Size Pilot does not provide support for the potential benefits of sub-penny tick sizes for several reasons. First, the Tick Size Pilot only studied small-cap low volume stocks, whereas the Tick Size Proposal would apply to large-cap high volume stocks.¹³¹ Second, the Tick Size Pilot focused on stocks that had wide spreads and were not trading at a one-cent spread whereas the Tick Size Proposal is focused solely on stocks that are always trading at or close to a one-cent spread.¹³² Third, the unwinding of the Tick Size Pilot involved reducing tick sizes from 5 cents back to 1 cent, not reducing tick sizes from 1 cent to sub-pennies as now proposed by the SEC. The economic literature finds that the narrower the tick size the more likely there will be “stepping ahead” with negative impacts on transaction costs.¹³³ Thus, there is greater risk of such negative effects from moving to sub-pennies from one-cent ticks than moving from 5-cent tick sizes to one cent. On the other hand, tick size modifications in the E.U. and Japan applied to stocks that were much more similar to the stocks covered by the Tick Size Proposal in terms of liquidity and spread.¹³⁴ Tick size modifications in the E.U. and Japan also involved sub-penny tick sizes.¹³⁵ Nonetheless, the SEC does not study the market quality effects from recent tick size modifications in the E.U. and Japan.

Another major issue with the SEC’s economic analysis is that it fails to take account of the likely reactions of issuers to changes to the tick sizes for their stocks.¹³⁶ There is evidence that issuers have sought to adjust their per share prices via stock splits to set their tick sizes at optimal levels relative to bid-ask spreads.¹³⁷ For example, Angel (1997) found that companies tend to split their stock so that the institutionally mandated minimum tick size relative to the stock price reaches a postulated optimal level.¹³⁸ More recently, Li & Ye (2022) found that firms generally use stock

¹³⁰ SEC, *supra* note 122.

¹³¹ Proposed Rule § 242.612(b) (applying MPIS to all “NMS stock[s]”).

¹³² Proposing Release at Note 17 (defining “tick constrained” as stocks that “have a time weighted quoted spread of \$0.011 or less calculated during regular trading hours”).

¹³³ See, e.g., David Weild, Edward Kim, et al., Grant Thornton, *The Trouble with Small Tick Sizes* (2012), <http://www.capitalmarketexperts.org/wp-content/uploads/2012/10/The-Trouble-With-Small-Tick-Sizes-2-David-Weild-Edward-Kim-Lisa-Newport.pdf>; Hendrik Bessembinder, *Tick Size, Spreads, and Liquidity: An Analysis of Nasdaq Securities Trading Near Ten Dollars* 9 JOURNAL OF FINANCIAL INTERMEDIATION 213 (2000), <https://www.acsu.buffalo.edu/~keechung/MGF743/Readings/G4.pdf> Michael Aitken & Carole Comerton-Forde, *Do Reductions in Tick Sizes Influence Liquidity?* (2005), <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-629x.2004.00128.x>.

¹³⁴ Commission Delegated Regulation, *supra* note 110; Japan Exchange Group, Action Program for Strengthening the Functions of the Cash Equity Market, (Jan. 30, 2022), <https://www.jpx.co.jp/english/corporate/news/news-releases/0060/20200130-01.html>.

¹³⁵ PIFS, INTERNATIONAL REVIEW OF EQUITY MARKET STRUCTURE REGULATION 63-64, 79-80 (2019) https://www.pifsinternational.org/wp-content/uploads/2022/08/PIFS-International-Review-of-Equity-Market-Structure-Reg_Oct2019.pdf.

¹³⁶ James J. Angel, Letter to SEC Re. Tick Study Mandated by the JOBS Act (Jun. 19, 2012), <https://www.sec.gov/comments/jobs-title-i/tick-size-study/tick-size-study-1.pdf>; James J. Angel, Letter to SEC Re. File 4-657 (Dec. 22, 2024), <https://www.sec.gov/comments/4-657/4657-86.pdf>.

¹³⁷ Li, *supra* note 104.

¹³⁸ James J. Angel, *Tick Size, Share Prices, and Stock Splits*, 52(2) JOURNAL OF FINANCE 655 (1997), <https://www.jstor.org/stable/2329494>.

splits to move bid-ask spreads closer to a postulated optimal level of two ticks.¹³⁹ While we do not endorse a rule whereby issuers are entitled to select their own tick sizes, by failing to consider the propensity of issuers to engage in such actions, the economic analysis fails to take full account of the likely effect of the proposed modifications.

¹³⁹ Li, *supra* note 104.

IV. Order Competition Rule (File Number S7-31-22) (the “Auction Proposal”)

The Auction Proposal¹⁴⁰ would create a new rule requiring that certain retail orders for NMS stocks be submitted to auctions conducted by a qualifying exchange or ATS before a broker-dealer is permitted to execute the order internally.

1. Overview of the Auction Proposal

As we explained in our 2021 report, retail broker-dealers send virtually all orders received from their customers to wholesale broker-dealers.¹⁴¹ Wholesale broker-dealers then determine whether to execute those orders internally against their own inventory or route those orders for execution to another market center, such as an exchange or ATS.¹⁴² As we explained in Part II, retail broker-dealers and wholesale broker-dealers are both subject to the duty of best execution in doing so.¹⁴³ Wholesale broker-dealers compete for order flow from retail brokers by attempting to offer the most price improvement.¹⁴⁴ Wholesale broker-dealers do not compete with each other by offering more PFOF, given that each retail broker-dealer charges the same amount of PFOF to all of their wholesale broker-dealers.¹⁴⁵

Wholesale broker-dealers are able to offer better pricing when executing retail orders because the risk of adverse selection from retail orders is less than that of the general market.¹⁴⁶ Retail investor order flow is generally small in size, not correlated with other large incoming orders and overall balanced in terms of the number of buy and sell orders arriving over different time intervals. Retail orders generally also are less informed - that is, they are less likely to reflect the trader’s possession of private information or expertise in processing public information.¹⁴⁷ By contrast, when a broker-dealer acting as a market maker is displaying quotes on a public exchange that are available to anyone on the marketplace there is less randomness in the nature of the order flow that is going to come in and interact with the displayed quote.¹⁴⁸ In practice, there is a higher degree of adverse selection due to correlated (i.e., non-random) order flow.¹⁴⁹ For example, orders coming in for execution against a market maker’s displayed quotes could be from a large institutional asset

¹⁴⁰ SEC, *Order Competition Rule* 88 FED. REG. 128 (Jan. 3, 2023), <https://www.federalregister.gov/documents/2023/01/03/2022-27617/order-competition-rule>.

¹⁴¹ CCMR, ENHANCING U.S. EQUITY MARKET STRUCTURE FOR RETAIL INVESTORS *supra* note 48, at 2.

¹⁴² *Id.*

¹⁴³ *Id.*

¹⁴⁴ *Id.* at 4. Karl Strauss, When and Where Are Informed Traders? What Is Their Relationship with Analysts in the Price Discovery Process (Digest Summary), 47(6) CFA INSTITUTE JOURNAL REVIEW (2017), <https://www.cfainstitute.org/en/research/cfa-digest/2017/06/when-and-where-are-informed-traders-what-is-their-relationship-with-analysts-in-the-price-discovery-process>.

¹⁴⁵ CCMR, *supra* note 141.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

manager that is sending one small part of a larger trade, with more price impacting orders to follow.¹⁵⁰

i. The Auction Proposal In General

The Auction Proposal would replace the existing retail equity market structure with a new order auction procedure. The Auction Proposal would cover any stock order from a retail investor that trades on average fewer than 40 times per month, which the Auction Proposal defines as a “segmented order.”¹⁵¹ The proposed 40-trade threshold is intended to exclude orders from investors pursuing “short-term trading profits by buying and selling on a continuous basis,” and which have greater “adverse selection costs” for liquidity providers. Segmented orders of \$200,000 or greater in size would also be exempt, in view of the “heightened liquidity needs of large orders that often may be more appropriately addressed outside of a qualified auction.”¹⁵²

The proposed auction process is advertised as creating “order-by-order” competition by providing market participants an “opportunity to compete to trade with individual investor orders by offering the most favorable price for each order based on the particular characteristics of the order, including the nature of the NMS stock, the size of the order, and market conditions at the time the order is submitted.”¹⁵³ The process would be similar to the auctions that currently operate in listed options markets.

ii. The Restricted Role of Wholesale Broker-Dealers

Under the Auction Proposal, a retail broker-dealer may, as now, route a covered segmented order to a wholesale broker-dealer, which the Auction Proposal defines as a “restricted competition trading center.”¹⁵⁴ However, the Auction Proposal restricts the ways in which the wholesale broker-dealer is permitted to fulfil these orders. The broker-dealer may only execute the retail order at the midpoint of the spread between the national best bid and national best offer, or at a better price.¹⁵⁵ For example, if the NBBO is \$30.00 bid and \$30.10 ask, a wholesale broker-dealer may execute an incoming retail buy order at \$30.05 or less but may not charge \$30.07. If the wholesale broker-dealer cannot fill the order at \$30.05 or less, it must send the order to a “qualified auction” run by an “open competition trading center,” where it must be “exposed to competition.”¹⁵⁶

The Auction Proposal would define an “open competition trading center” that could host an auction as a national securities exchange or ATS that handles one percent or more of consolidated equity market volume.¹⁵⁷ The SEC anticipates that only 6 exchanges and 3 ATSs could offer qualified auctions.¹⁵⁸

¹⁵⁰ *Id.*

¹⁵¹ Proposed Rule § 242.600(91).

¹⁵² *Id.* § 242.615(b)(2),(4).

¹⁵³ Proposing Release at Note 1.

¹⁵⁴ Proposed Rule § 242.600(87).

¹⁵⁵ *Id.* § 242.615(b)(4).

¹⁵⁶ Proposed Rule § 242.615(a).

¹⁵⁷ *Id.* § 242.600(64).

¹⁵⁸ Proposing Release at 221.

As the Auction Proposal acknowledges, wholesale broker-dealers currently achieve midpoint or better price improvement with respect to 44.57% of shares,¹⁵⁹ so the Auction Proposal is intended to apply to the majority of retail orders.

iii. How Auctions Work

Auctions would be conducted on an order-by-order basis, with each individual retail order being subject to its own separate auction. The broker-dealer that submits the retail order to the auction would be required to choose a “limit price” for retail market orders in a manner consistent with the broker-dealer’s duty of best execution.¹⁶⁰ The minimum pricing increment for retail orders would be \$0.001 (1/10 of a cent).¹⁶¹ The minimum pricing increment for all retail order auctions would be the same as it would be for the stocks with the most narrow minimum pricing increments under the Tick Size Proposal.

The broker-dealer handling the retail order would determine the exchange or ATS that would host the auction in a manner consistent with its duty of best execution. The auction would then be announced via a message disseminated in consolidated market data.¹⁶² The announcement would specify the exchange or ATS hosting the auction as well as the size and limit price for the retail order and the identity of the retail broker-dealer.¹⁶³ The auction must then remain open for at least 100 milliseconds and end not more than 300 milliseconds after the announcement of the auction.¹⁶⁴ Market participants would submit responses to the auction to execute the retail order and the auction response with the best priced response to buy or to sell would win the auction and execute against the retail order.¹⁶⁵ While the Auction Proposal explains that a “full range of market participants” including “institutional investors” could potentially submit responses to an auction, it also acknowledges that respondents would need to have the “technological capability of responding to a fast (sub-second) auction.”¹⁶⁶ Indeed, due to the fast timing of these auctions, responses would necessarily be automated and driven by high-speed models.

iv. Auction Fees and How Exchanges and ATSs Will Compete to Host Auctions

The Auction Proposal would prohibit charging any fees to broker-dealers submitting retail orders to an auction. Charging fees to broker-dealers submitting responses to the auction would also be generally prohibited. However, charging fees to the broker-dealer that wins the auction would be permitted. These exchange auction fees would be capped at \$0.0005 per share. An exchange that hosts auctions must charge the same fee for all auctions, which would presumably require that the same rates be charged for auctions with respect to different stocks.¹⁶⁷

¹⁵⁹ *Id.* at Table 7.

¹⁶⁰ *Id.*

¹⁶¹ Proposed Rule § 242.615(c)(3).

¹⁶² *Id.* § 242.615(c)(1)(i).

¹⁶³ *Id.*

¹⁶⁴ *Id.* § 242.615(c)(2).

¹⁶⁵ *Id.* § 242.615(c)(5)(i).

¹⁶⁶ Proposing Release at 147.

¹⁶⁷ *Id.* § 242.615(c)(4).

Rebates for the submission or execution of a segmented order or for the submission or execution of a broker-dealer responding to the auction would also be permitted but would be capped at \$0.0005 per share, and, as in the case of fees, must be the same rate for orders in all auctions and the same rate for auction responses in all auctions.¹⁶⁸ The SEC states that permitting fees and rebates are “designed to provide sufficient financial incentives for open competition trading centers to operate qualified auctions.”¹⁶⁹ The SEC envisions that exchanges would compete on the basis of the “execution quality of their auctions,” and states that capping rebates is intended to encourage exchanges to compete on this basis rather than by offering higher rebates.¹⁷⁰ The Auction Proposal is therefore similar to the existing maker-taker system that exists on exchanges.

If there is no response to the qualified auction at the limit price, the qualified auction would fail. If the qualified auction fails, then a broker-dealer may execute the order internally or route to another venue for execution, subject to the duty of best execution.¹⁷¹

The SEC asserts that these auctions will give “investors generally” an opportunity “to interact directly with a large volume of individual investor orders that are mostly inaccessible to them in the current market structure.”¹⁷² The SEC also asserts specifically that institutional investors would be able to interact with these auctions “through their broker-dealers’ smart order routers,” and that such retail-institutional interaction would result in more competition “to provide the best price for [retail orders].”¹⁷³

2. Analysis of the Auction Proposal

The Committee strongly opposes the mandatory order auction system as we believe, for four reasons, it would increase retail investor transaction costs. First, the mandatory order auction system would introduce a 100-300 millisecond delay on retail order execution that could increase transaction costs for investors. Second, the Auction Proposal would reduce competition among different types of trading venues as only, and only a select number of, exchanges and ATSS can qualify to host auctions. The Auction Proposal would also substantially reduce internalization by wholesale broker-dealers, despite the fact that wholesale broker-dealers provide retail investors with significant price improvement to the best available prices on exchanges. Third, mandatory auctions will have a particularly negative effect on less liquid stocks where auctions are more likely to fail. Fourth, mandatory auctions would largely prohibit size improvement that presently reduces retail investor transaction costs. Finally, we explain that the economic analysis for the Auction Proposal is fundamentally flawed, including the SEC’s estimate that auctions would lower transaction costs by \$1.5 billion.¹⁷⁴

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ Proposing Release at 205.

¹⁷¹ Proposed Rule § 242.615(a).

¹⁷² Proposing Release at 129.

¹⁷³ *Id.* at 147.

¹⁷⁴ *Id.* at 130.

i. *Auctions Will Impose a Costly Delay on Retail Order Executions*

The NBBO for a stock is constantly fluctuating and may move against a retail investor during the 100-300 millisecond time-delay imposed by the auction. For example, it is possible that an order to buy a stock could be immediately executed when a retail order is submitted for \$10.00 but that the NBBO will move to \$10.01 when the auction is completed 200 milliseconds later. The SEC acknowledges this possibility but does not attempt to quantify this risk to retail investors.¹⁷⁵

Furthermore, if an auction fails then a longer time-delay will be in effect. During this time, the NBBO could move even further against the retail investor.¹⁷⁶ A 2023 study by Battalio and Jennings analyzed the potential costs of such failed auctions and projected that costs to investors could total between \$1.7 billion and \$2.5 billion.¹⁷⁷ The SEC does not, however, estimate the cost of failed auctions. And moreover, the *announcement* of an auction will send a signal to the market that there is demand to buy or sell a specific stock and this may result in the market moving against this order. This so-called signaling effect is well-established in the economic literature¹⁷⁸ and the SEC fails to consider the extent of this evidence when estimating the effects of the mandatory auction system.

ii. *Mandatory Auctions will Reduce Competition and Beneficial Internalization of Retail Orders*

The Auction Proposal would reduce competition among trading venues as only exchanges and ATSS with more than a 1% overall market share can host a retail order auction. The Auction Proposal anticipates that only 6 exchanges and 3 ATSS could qualify. Presently, hundreds of market centers, including wholesale broker-dealers, exchanges and ATSS can potentially compete to execute retail orders.

The Auction Proposal would particularly disadvantage internalization by broker-dealers as they would be prohibited from hosting retail auctions. Wholesale broker-dealers could also only execute orders at the midpoint of the spread or better, but similar restrictions would not apply to exchanges and ATSS that host auctions. As noted earlier, wholesale broker-dealers only provide mid-point or better prices for 44.57% of shares that they execute,¹⁷⁹ so the Auction Proposal would prohibit the majority of internalized trades today.

The SEC's focus on reducing internalization is misguided as execution quality statistics demonstrate that broker-dealer internalizers provide the best prices for retail orders.

A useful measure of execution quality for the retail wholesaler market is the effective over quoted spread ("E/Q"). As we have previously explained, the E/Q measures how much an investor actually

¹⁷⁵ *Id.* at 154.

¹⁷⁶ See, e.g., Michael Brolley & David A. Cimon, *Order Flow Segmentation, Liquidity and Price Discovery: The Role of Latency Delays* (2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3005738.

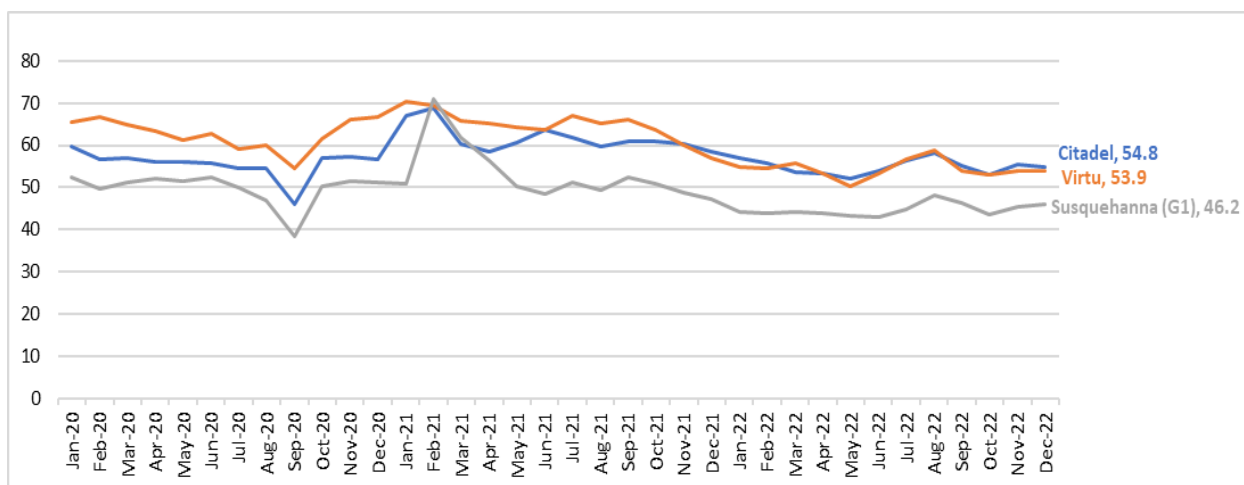
¹⁷⁷ Robert Battalio & Robert Jennings, *On the Potential Cost of Mandating Qualified Auctions for Marketable Retail Orders* (2023), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4403047.

¹⁷⁸ See, e.g., Nikolaus Hautsch & Ruihong Huang, *The Market Impact of a Limit Order* (2011), https://virtu-www.s3.amazonaws.com/uploads/documents/virtu-real-pi_20210827.pdf.

¹⁷⁹ Proposing Release at Table 7.

pays relative to the quoted spread on an exchange – an E/Q of 100 means the trader paid the quoted spread and an E/Q of 50 means the trader paid a price half of the quoted spread. As displayed below by **Figure 7**, the three retail wholesalers with the largest market shares provide traders with an effective price lower than the prices quoted on-exchange.¹⁸⁰ For example, as of December 2022, Citadel Securities and Virtu executed trades on average at nearly half the on-exchange quoted spread with E/Q of approximately 54. A review of Tabb Group analysis of earlier pre-2020 retail wholesaler E/Q finds that the current levels of execution quality are consistent with, although slightly better than, previous recorded levels, available as of July 2014.¹⁸¹ Thus, retail wholesalers have a long history of providing retail investors with better prices than what is otherwise publicly available.

Figure 7: Execution Quality for the Three Largest Retail Wholesalers (E/Q ratio)¹⁸²



Another metric to capture execution quality is analyzing the price improvement that retail wholesalers (i.e., wholesale broker-dealers that execute retail orders) provide. Price improvement is a dollar measure of the price received by an investor for their order as compared to the price that was publicly displayed on an exchange at the time of execution. As displayed in **Figure 8**, retail wholesalers provided a cumulative \$7.7 billion in price improvement for retail investors for the period between January 2020 and December 2022.¹⁸³ The highest monthly amount recorded was \$537.2 million recorded in March 2020, and retail wholesalers provided \$194.1 million worth of price improvement in December 2022. We note that price improvement achieved over any given period is affected by the extent of trading activity for that period – as such, Figure 8 is intended only to provide general insight into the aggregate amount of price improvement, and does not indicate any specific trend in the amount of price improvement over time.

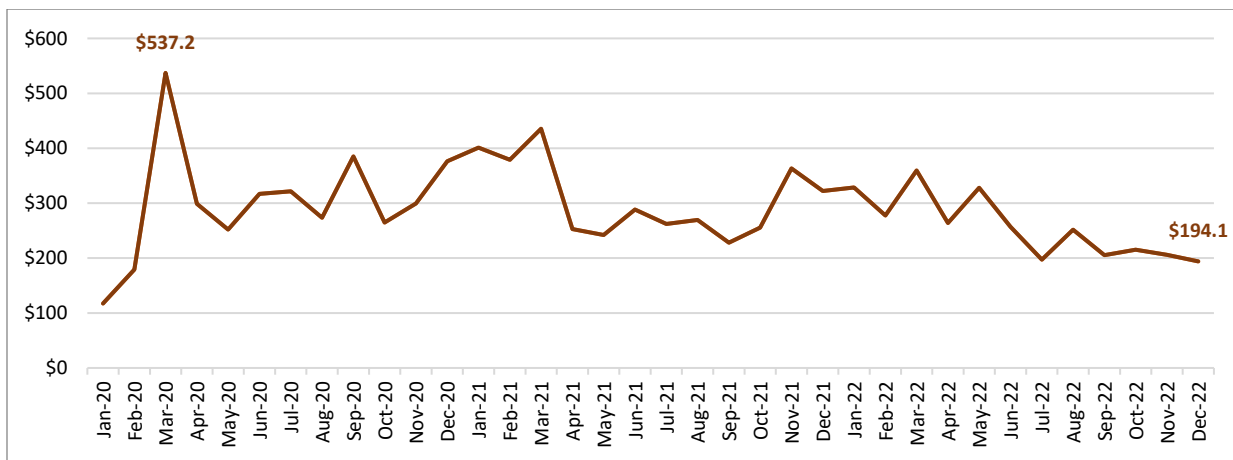
¹⁸⁰ Analysis of Bloomberg equity market data accessed through Bloomberg terminal.

¹⁸¹ “TABB Equity Digest: Q3 – 2019,” *TABB Group*, December 2019 (p. 24 – Exhibit 28).

¹⁸² Differences in E/Q as between the three retail wholesalers displayed in Figure 7 are likely due to differing blends of order flow.

¹⁸³ Analysis of Bloomberg equity market data accessed through Bloomberg terminal. Earliest data availability was limited to January 2020.

Figure 8: Price Improvement (\$M) - All Retail Wholesalers



Furthermore, these estimates of price improvement do not include size improvement, so they underestimate the total amount of price improvement. However, as we discussed in Part II, academics and Virtu have released estimates of price improvement that include size improvement and they find that the amount of price improvement is in fact 2-3 times higher due to size improvement.

However, the SEC would instead largely prohibit wholesale broker-dealers from continuing to execute the majority of retail orders and substitute an untested retail order auction system in place of the existing retail equity market structure.

iii. Auctions Will Have a Particularly Negative Impact on Small-Cap Stocks

Small-cap stocks are typically less liquid than large-cap stocks and are therefore more difficult to execute quickly at an efficient price.¹⁸⁴ Importantly, as part of their agreements with retail brokers, wholesale broker-dealers typically commit contractually to fulfill and obtain price improvement for all orders routed to them by retail broker-dealers, including for less-liquid small-cap stocks.¹⁸⁵

However, the Auction Proposal would prohibit retail and wholesale broker-dealers from entering into such agreements. Moreover, because small-cap stocks typically lack liquidity, wholesale broker-dealers will likely be unable to offer mid-point price improvement on these stocks, so these small-cap stocks are very likely to be routed to auctions. Small-cap less-liquid stocks will thus be unlikely to continue to benefit from internalization by wholesalers under the Auction Proposal, and, worse yet, it is auctions for these small-cap stocks that are most likely to fail due to a lack of demand to fill an order. As we have previously explained, a failed auction is likely to result in

¹⁸⁴ MSCI, SMALL CAPS – NO SMALL OVERSIGHT (2012), https://www.msci.com/documents/10199/255853/RI_Small_Caps_No_Small_Oversight.pdf/35f3c8b5-3d60-4b2b-ad3d-d6217e6d6df0?version=1.0.

¹⁸⁵ See, e.g., CNBC, *Virtu Financial CEO weighs in on payment for order flow regulation*, <https://www.youtube.com/watch?v=K064hJQ7fdI>; CNBC, *Virtu Financial CEO: Pay for order flow benefits retail investors*, https://www.youtube.com/watch?v=KoN_555cCJQ.

higher transaction costs for investors in addition to a delay in execution. We are therefore concerned that the Auction Proposal would have a particularly negative impact on small-cap stocks with low liquidity.

iv. *Auctions Will Prohibit Size Improvement*

Presently, wholesale broker-dealers provide “size improvement” whereby they execute retail orders at the NBBO or better even when there is insufficient liquidity at the NBBO to fulfill those orders. Wholesale broker-dealers do so by filling the order themselves and taking the risk associated with exiting that position at a later time. If wholesalers did not do so, then those retail orders would have been executed at prices worse than the NBBO. As we have previously explained, the effect of size improvement on retail orders is significant and increases estimates of the amount of price improvement provided to retail investors by a factor of 2-3 times.¹⁸⁶ However, the Auction Proposal ignores the benefits of size improvement entirely and would largely prohibit wholesale broker-dealers from providing size improvement as the Auction Proposal prohibits wholesale broker-dealers from executing orders at the NBBO or better (unless at midpoint or better).

v. *The Auction Proposal’s Economic Analysis is Fundamentally Flawed*

A. *The Economic Analysis Fails to Consider Evidence from Options Markets*

The Auction Proposal uses the existing auctions in listed options markets as a guide for the design of the proposed equity markets auctions.¹⁸⁷ However, neither the Economic Analysis nor the Auction Proposal more generally includes any analysis of execution quality in the options markets that would be necessary to show that auctions have been useful in improving execution quality. In fact, effective and realized spreads in listed options markets indicate that execution quality is not as good as in the equities markets.¹⁸⁸

B. *The Economic Analysis Overestimates the Benefits of Order Auctions*

The Auction Proposal assumes that the proposed auctions will reduce the “realized spread” for internalized retail orders to a level consistent with those for orders executed on exchanges. The Economic Analysis then estimates that this reduction in realized spreads will save retail investors approximately one basis point (0.01%) on each trade and multiplies this one basis point by annual retail share volume to estimate that the proposed auctions will save retail investors \$1.5 billion per year.¹⁸⁹ This is an invalid estimate of the benefits that will flow from the proposed auctions.

First, the Auction Proposal presents no meaningful evidence that the proposed auctions will in fact reduce realized spread to the levels of exchanges.

¹⁸⁶ Notes 54 & 55 *supra*.

¹⁸⁷ Proposing Release at 130.

¹⁸⁸ For a comparison of transactions costs in the options market versus the equity market see Derek Horstmeyer et al. *Options Markets: How Far Have Implied Transaction Costs Fallen?* CFA INSTITUTE (Mar. 9, 2022), <https://blogs.cfainstitute.org/investor/2022/03/09/options-markets-how-far-have-implied-transaction-costs-fallen/>.

¹⁸⁹ Proposing Release at 130.

Second, realized spread is an arbitrary measure based on theoretical earnings to a liquidity provider who can exit at the midpoint of the bid-ask spread one minute after a trade, and there is no reason to assume that liquidity providers in fact exit their positions after such an interval. *Realized spread is also not a good measure of any “savings” to investors.* Effective spread – that is, the difference between the *actual* execution price and the midpoint of the NBBO – is a much better estimate of transactions costs than the theoretical and arbitrary realized spread. However, the Auction Proposal does not present any estimates of the effect of the proposed auctions on effective spread.

Third, the SEC asserts that the higher average realized spreads for trades internalized by wholesale broker-dealers compared to trades executed on exchanges suggests that wholesalers may be achieving inferior execution quality for retail investors. However, the existence of a difference between the average realized spread for internalized retail orders and the average realized spread for exchange orders is not an indication of a flaw in the execution quality of internalized orders, or, as the SEC calls it, a “competitive shortfall,” but rather of (i) the differing investor types that tend to participate in these trading venues and their differing trading behavior, (ii) the SEC’s conflation of market orders with marketable limit orders in measuring realized spread, and (iii) how, as a statistic, realized spread systematically underestimates the costs incurred by wholesalers and understates the actual realized spread of trades executed on exchanges. We now address each of these points in turn.

- (i) *Smaller realized spreads on exchanges are a result of institutional investors timing their orders more precisely than retail investors and tending to trade on exchanges.*

Wholesale broker-dealers primarily execute orders on behalf of retail investors whereas the significant majority of trading on exchanges is driven by institutional investors. One should therefore not expect different types of trading venues with different types of investors to have the same realized spread. Indeed, institutional investors tend to time their trades to occur when quoted spreads are narrow whereas retail investors trade during a wider variety of market conditions, including when quoted spreads are wide. Trading when quoted spreads are narrow will generally result in lower transaction costs than when quoted spreads are wide and thus differences between execution quality for institutional trades on exchanges and retail trades by wholesale broker-dealers may be driven by the difference between the timing of trading by institutional and retail investor rather than the performance of exchanges and wholesale broker-dealers.

This difference between the trading behavior of retail and institutional investors is substantiated in academic literature. Dyhrberg et al. (2023) explain that “[a] difference in quoted spreads is expected given the clienteles served by wholesalers and exchanges. Many institutional trading algorithms time their activity to periods of narrow quoted spreads. When spreads are wide, they either switch from liquidity demand to liquidity supply or reduce trading altogether. Retail traders are much less likely to engage in such strategic timing.”¹⁹⁰ Dyhrberg et al. also clarify that this difference cannot be attributable to the decisions of wholesalers about the timing of the execution of retail trades, because the agreements that wholesalers have with retail brokerages do not provide

¹⁹⁰ Anne Haubo Dyhrberg et al., *The Retail Execution Quality Landscape* Charles A Dice Working Paper No. 2022-14 (2023) at 6, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4313095.

wholesalers such discretion over the timing of trade execution.¹⁹¹ In fact, the SEC’s own data indicate that the differences in quoted spreads between internalized trades and on-exchange trades (which can be estimated by dividing the effective spread by the E/Q ratio) is 1.77 basis points, which exceeds their estimate of the difference in average realized spreads (1.39 basis points).¹⁹²

- (ii) *The SEC’s estimate of realized spread conflates market orders with marketable limit orders.*

The SEC bases its estimate of the purported “competitive shortfall” on measures of average realized spread for both wholesale broker-dealers and exchanges that take account of both market orders and marketable limit orders. However, over 80 percent of retail order flow consists of market orders, not marketable limit orders. By including both order types in its estimate of the realized spread differential the SEC mixes retail and institutional order flow. A more accurate estimate of the average realized spread for trades executed via wholesaler internalization versus those executed on exchanges *specifically with respect to retail orders* would use market orders only, since these orders would reflect a higher degree of retail order flow than the combination of market and marketable limit orders. Indeed, the SEC’s own data indicate that if one looks solely at market orders, the average realized spread for trades executed by wholesale broker-dealers is 2.01 basis points *lower* than the average realized spread for trades executed on exchanges.¹⁹³ If the SEC had used this more accurate comparison of realized spread with respect to retail orders for its estimate of the net effect of the proposed auctions it would have projected a loss of \$2.4 billion to retail investors from the Auction Proposal.

- (iii) *Realized spread overestimates the relative profitability of internalized orders.*

Another reason that the reported difference in average realized spread is not a reliable indicator of the “competitive shortfall” that the Auction Proposal suggests is that realized spread as a statistic tends to overestimate the profitability of trades executed via wholesaler internalization. This is because realized spread does not consider the effects of fixed or variable costs of the liquidity provider, including trading infrastructure, employee salaries, exchange memberships, fees for market data, and PFOF expenses. These costs are likely to be significantly greater on a percentage basis for wholesale broker-dealers than they are for on-exchange liquidity providers. Realized spread thus tends to systematically overestimate the profitability of trades for wholesale broker-dealers.

Fourth, even if the difference in average realized spreads that the SEC reports were a valid basis for the calculation of potential savings to investors, the calculations that the SEC uses to derive expected savings from the difference in average realized spread contains several flaws that result in a significant overestimate. First, the SEC bases its estimate of annual market volume on volume for the first quarter of 2022, multiplying this Q1 figure by four to obtain an estimate of annual market volume. However, because market volume in Q1 2022 was disproportionately higher than the remaining three quarters of 2022, the actual annual market volume for the full year of 2022

¹⁹¹ *Id.*

¹⁹² Proposing Release at Table 6.

¹⁹³ *Id.* at Table 5.

was significantly lower. If the SEC had used the actual 2022 market volume, its estimate of dollar savings would thus be significantly lower. Second, whereas the Auction Proposal would require only that retail marketable orders that are not internalized at the midpoint of the NBBO or better be submitted to an auction, the SEC bases its estimate on additional types of retail orders, which would not be required to be submitted to an auction, including retail orders that are internalized at the NBBO midpoint or better, and non-marketable limit orders. Third, the SEC adjusts its estimate of the current profitability of on-exchange liquidity providers by the amount of exchange rebates but does not adjust its estimate of wholesale broker-dealer profitability by the amount of PFOF that wholesalers must pay to retailer broker-dealers. This results in an overestimate of the current profitability differential between on-exchange liquidity providers and wholesale broker-dealers.

V. **Regulation Best Execution (File Number S7-32-22) (the “Best Execution Proposal”)**

The Best Execution Proposal¹⁹⁴ would create a new codification of the duty of best execution for broker-dealers that duplicates and exceeds existing FINRA rules codifying the same duty.

1. **Overview of the Best Execution Proposal**

i. **Existing Best Execution Standard in General**

The existing duty of best execution requires broker-dealers to seek to execute customer trades at the most favorable terms reasonably available under the circumstances. It derives from common law agency principles and fiduciary obligations and has been incorporated into the antifraud provisions of federal securities laws through judicial decisions.¹⁹⁵

FINRA has codified the duty of best execution as it applies to broker-dealers transacting in securities under FINRA Rule 5310, which requires any FINRA-registered broker-dealer in any transaction for a customer to use “reasonable diligence” to “ascertain the best market for the subject security and buy or sell in such market so that the resultant price is as favorable as possible under prevailing market conditions.”¹⁹⁶

FINRA’s rule identifies five non-exclusive factors that are considered in determining whether a broker-dealer has exercised “reasonable diligence:” (1) the character of the market for the security (e.g., price, volatility, relative liquidity, and pressure on available communications); (2) the size and type of transaction; (3) the number of markets checked; (4) the accessibility of the quotation; and (5) the terms and conditions of the order as communicated to the broker-dealer.¹⁹⁷

ii. **Existing Best Execution Standards for Retail Trading**

As we have repeatedly explained, retail and wholesale broker-dealers are both subject to best execution obligations under FINRA Rule 5310. Furthermore, as described in Part II, retail and wholesale broker-dealers also often enter into PFOF arrangements whereby retail broker-dealers charge fees to wholesale broker-dealers for sending customer orders to the wholesale broker-dealer.¹⁹⁸ Importantly, broker-dealers are required to disclose their PFOF arrangements and are prohibited by the duty of best execution from sending retail orders to a wholesale broker-dealer primarily on the basis of PFOF.¹⁹⁹ As a result, retail broker-dealers that receive PFOF from wholesale broker-dealers charge the same fees to all wholesale broker-dealers.²⁰⁰ Thus, wholesale

¹⁹⁴ SEC, *Regulation Best Execution* 88 FED. REG. 5440 (Jan. 27, 2023), <https://www.federalregister.gov/documents/2023/01/27/2022-27644/regulation-best-execution>.

¹⁹⁵ See, e.g., *Newton v. Merrill, Lynch, Pierce, Fenner & Smith*, 135 F.3d 266, 270 (3d Cir. 1998).

¹⁹⁶ FINRA Rule 5310(a)(1) (amended 2014), <https://www.finra.org/rules-guidance/rulebooks/finra-rules/5310>.

¹⁹⁷ *Id.*

¹⁹⁸ Rule 10b-10(d)(8) under the Exchange Act defines “payment for order flow” as “any monetary payment, service, property, or other benefit that results in remuneration, compensation, or consideration to a broker-dealer in return for the routing of customer orders by such broker or dealer to any broker or dealer, national securities exchange, registered securities association, or exchange member for execution.” 17 C.F.R. § 240.10b-10(d)(8).

¹⁹⁹ 17 C.F.R. § 242.606; see also SEC Institutional Order Handling Release, Note 397.

²⁰⁰ CCMR, ENHANCING U.S. EQUITY MARKET STRUCTURE FOR RETAIL INVESTORS *supra* note 48.

broker-dealers compete with each other and with exchanges and alternative trading systems to receive retail order flow on the basis of execution quality, not by offering to pay a higher fee to retail broker-dealers for more order flow.

iii. The SEC’s Proposed Best Execution Standard

Notwithstanding FINRA Rule 5310, the Best Execution Proposal would create an additional codification of the duty of best execution that duplicates FINRA Rule 5310 but also imposes new and additional “policies and procedures” to ensure compliance with this codification.²⁰¹ Most importantly, it would impose supplementary policy and procedure requirements for retail transactions involving internalization or PFOF, which currently constitute the majority of retail transaction volume.²⁰² As noted below, the SEC acknowledges that the requirement to create such additional policies and procedures may cause many broker-dealers to curtail or eliminate their use of internalization and PFOF.

Conflicted retail transactions

The Best Execution Proposal would impose additional best execution policies and procedures for certain “conflicted” transactions involving retail customers, which the Best Execution Proposal defines as any transaction for or with a retail customer where the broker-dealer (1) “executes an order as principal, including riskless principal,” (2) “routes an order to, or receives an order from, an affiliate for execution,” or (3) “provides or receives [PFOF].”²⁰³

The Best Execution Proposal’s definition of PFOF covers any payments or other benefits received in exchange for routing any customer order to a “broker or dealer, national securities exchange, registered securities association, or exchange member.”²⁰⁴ Thus, a transaction would be a conflicted transaction, regardless of whether the payor is a broker-dealer, an exchange, or an ATS.²⁰⁵

The Best Execution Proposal would deem most retail transactions as “conflicted,” because most retail orders are executed by wholesale broker-dealers against their own inventory and involve a PFOF arrangement. Importantly, retail limit orders that are routed to exchanges and receive rebates from an exchange for providing liquidity to the exchange also would be deemed “conflicted transactions.” However, most retail market orders are market or marketable limit orders and “take” liquidity, as a market order is by definition an order to execute at the best publicly available price. Given that the majority of retail orders are market or marketable limit orders, not non-marketable limit orders, retail market orders routed to an exchange would typically not be conflicted transactions.

²⁰¹ Proposing Release at 5,440.

²⁰² *Id.* at Note 562.

²⁰³ Proposed Rule at § 242.1101(b).

²⁰⁴ *See supra* note 198.

²⁰⁵ *See* Proposing Release at Note 200 (“This proposed requirement is intended to capture [PFOF] arrangements between broker-dealers and between broker-dealers and other markets, such as exchanges [including] rebates paid by an exchange to a broker-dealer in return for routing orders to the exchange.”).

For any conflicted transaction, the broker-dealer’s best execution policies and procedures must address:

- (1) how the broker or dealer will obtain and assess information “beyond” what is required by its general best execution policies and procedures, including “additional information about price, volume, and execution quality, in identifying a broader range of markets beyond those identified as material potential liquidity sources;” and
- (2) how the broker or dealer will “evaluate a broader range of markets, beyond those identified as material potential liquidity sources, that might provide the most favorable price for customer orders, including a broader range of order exposure opportunities and markets that may be smaller or less accessible than those identified as material potential liquidity sources.”²⁰⁶

The Best Execution Proposal does not specify further what “additional information” must be assessed or the extent of the “broader range of markets” that must be evaluated.

The broker-dealer must also “document its compliance” with these enhanced policies and procedures, including “all efforts” to enforce them, and the “basis and information relied on for its determinations that such conflicted transactions would comply with the best execution standard,” which documentation must occur in accordance with “written procedures.”²⁰⁷ The broker-dealer must furthermore document any written or oral PFOF arrangement, including the parties, “qualitative and quantitative” terms, and the date and terms of any changes to the arrangement.²⁰⁸

The SEC acknowledges that for broker-dealers that currently engage in PFOF arrangements, the cost of complying with these enhanced requirements may exceed their PFOF revenue, such that broker-dealers “may consider curtailing this practice” or adjusting their business models “to rely less on these arrangements.”²⁰⁹ The SEC asserts however that these additional compliance requirements are necessary because when an order is subject to a PFOF arrangement, the broker-dealer “has a financial interest that could disincentivize the broker-dealer from achieving best execution for its customer’s orders” and that additional policies and procedures would “help mitigate the potential for these incentives to negatively affect the broker-dealer’s best execution determinations.”²¹⁰

Although the SEC provides a limited number of narrow illustrative examples of actions broker-dealers could take as part of their effort to comply with these enhanced “conflicted transaction” requirements (*e.g.*, a broker-dealer’s written procedures “could describe the obligations of various personnel” with respect to the documentation requirement²¹¹), neither these examples nor the Best Execution Proposal provides any specific guidance as to whether these actions or other actions

²⁰⁶ Proposed Rule § 242.1101(c)(1)-(2).

²⁰⁷ *Id.* § 242.1101(c)(3).

²⁰⁸ *Id.*

²⁰⁹ Proposing Release at 5,533.

²¹⁰ *Id.*

²¹¹ *Id.* at Note 197.

would be sufficient to satisfy these requirements. Moreover, the Best Execution Proposal includes minimal consideration of how a broker-dealer should comply with the Auction Proposal.

2. Analysis of the Best Execution Proposal

We strongly oppose the Best Execution Proposal's designation of most retail orders as "conflicted transactions" and in need of a *higher* standard of best execution than the existing standard. We have three reasons. First, as we have previously explained, retail investors presently achieve high quality order execution and the SEC has not demonstrated that a higher standard of best execution for retail orders is necessary. Second, the Best Execution Proposal's enhanced best execution standards for conflicted transactions are practically unworkable as the SEC has not provided sufficient guidance to allow broker-dealers to comply. As a result, retail broker-dealers are unlikely to accept payment for order flow to avoid designation of orders as "conflicted transactions" and the elimination of PFOF will likely increase transaction costs for retail investors. Third, even if PFOF is eliminated, the higher best execution standard would still apply to orders that are internalized by broker-dealers. As a result, wholesale broker-dealers are likely to exit the business of internalizing customer orders, which would reduce venue competition and increase retail investor transaction costs.

i. A Higher Best Execution Standard for Retail Orders is Not Necessary

The SEC has argued that PFOF arrangements can present conflicts whereby retail brokers may be incentivized to send retail orders to wholesale broker-dealers on the basis that a specific wholesaler will pay more for that order.²¹² But the existing best execution standard prohibits retail brokers from doing exactly that.²¹³ Moreover, retail brokers charge the same PFOF from all wholesale broker-dealers, so in practice this conflict does not exist.²¹⁴ And, as we have extensively summarized through this letter, retail orders receive substantial price improvement to the best publicly available prices on an exchange. The existing market structure for executing retail investors is therefore serving retail investors well today and there is no need for a higher best execution standard for retail orders.

We further note that brokers executing institutional orders often receive rebates from exchanges as part of the maker-taker pricing system.²¹⁵ Exchange rebates for institutional orders would in principle pose the same potential conflicts of interest as payments for order flow to retail brokers, but the SEC has only proposed a higher standard for retail brokers and not institutional brokers.

ii. The Higher Best Execution Standard for Conflicted Transactions is Unworkable

If a retail transaction is deemed conflicted, then under the Best Execution Proposal the broker-dealer is required to go "beyond" what is required by their best execution policies. The SEC does not clarify what is meant by "beyond." Brokers of conflicted transactions are also required to consider routing orders to markets that are *not* "material" potential liquidity sources and seek

²¹² *Id.* at 5,446.

²¹³ See Note 199 *supra*.

²¹⁴ CCMR, ENHANCING U.S. EQUITY MARKET STRUCTURE FOR RETAIL INVESTORS *supra* note 48, at 4.

²¹⁵ CCMR, THE U.S. EQUITY MARKETS – A PLAN FOR REGULATORY REFORM, *supra* note 48, at 92-93.

“additional information about price, volume and execution quality” in those “smaller” and “less accessible” markets.²¹⁶ In other words, the SEC would require brokers of conflicted transactions to check all potential liquidity sources before determining where to send a conflicted transaction for execution. Moreover, the Best Execution Proposal does not identify all the markets that must or could be considered by a broker-dealer, and provides only limited illustrative examples, such as “exchanges, ATSS, and [other] broker-dealers, including market makers and wholesalers.”²¹⁷ This is an incredibly high standard considering there are over 200 active market centers. Retail broker-dealers have confirmed that this is an impractical standard to satisfy, and the SEC has provided no guidance on how to do so.

Because the higher best execution standard is unworkable, the likely result of the Best Execution Proposal would be that retail broker-dealers would no longer accept PFOF from wholesale broker-dealers. That would allow retail broker-dealers to avoid having their transaction deemed “conflicted” and subject to this higher best execution standard. As the Committee has repeatedly noted, the elimination of PFOF arrangements would reduce revenues for retail broker-dealers and retail broker-dealers would likely have to re-introduce retail brokerage commissions or other fees to recoup this lost revenue.²¹⁸ Therefore, the elimination of PFOF would not reduce transaction costs for retail investors and could increase them.

iii. Internalization Could be Effectively Prohibited

Retail brokers could avoid designation of a retail order as “conflicted” by not accepting PFOF when routing the order to a wholesale broker-dealer. However, wholesale broker-dealers that *internalize* retail orders would still be subject to the higher best execution standard even if no PFOF is involved. That is because the second prong of the conflicted transaction standard applies regardless of PFOF, as it deems a retail transaction as conflicted simply if a broker executes that order as a principal (i.e., broker-dealer internalization).²¹⁹ But the SEC provides *no rationale* for why the existing duty of best execution that requires wholesale broker-dealers to seek to obtain the best market for orders is insufficient.²²⁰

Wholesale broker-dealers are likely to exit the business of internalizing orders, as complying with the higher best execution standard may not be possible. This would be a highly problematic result, as the internalization of orders provides retail investors with significant price improvement to the best publicly available prices on exchanges, as we have extensively explained throughout this letter.²²¹ The Best Execution Proposal would therefore likely *increase* transaction costs for retail investors.

²¹⁶ Proposed Rule § 242.1101(b)(1).

²¹⁷ Proposing Release at 5,457.

²¹⁸ Matt Levine, *The SEC Wants More Stock Options*, BLOOMBERG (Dec. 15, 2022), <https://www.bloomberg.com/opinion/articles/2022-12-15/the-sec-wants-more-stock-auctions?sref=a6D9m9Mp>

²¹⁹ Proposed Rule § 242.1101(b).

²²⁰ Proposing Release at 5,447.

²²¹ See, e.g., *supra* Part II(2)(i); Figure 8.

VI. Conclusion

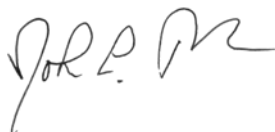
The SEC has failed to substantiate a need for the Tick Size Proposal, Best Execution Proposal, or Auction Proposal. We therefore do not recommend that any of these proposals be implemented. We recommend that the Rule 605 Proposal and the modified round lot definition under the MDI Rules that would enhance the accuracy of the NBBO be implemented prior to the consideration of any further market structure changes. Implementation of these rules will enable the SEC and the public to better assess market quality for retail and institutional investors, including transaction costs and market liquidity. If the SEC then determines that additional modifications to tick sizes or with respect to the handling of retail orders are necessary to enhance market quality then the SEC should thereafter re-propose any necessary rulemakings, preferably through pilot programs.

Moreover, as we previously noted, each proposal is drafted without taking into consideration any of the other proposals. We therefore recommend that, following the implementation of Rule 605 and the MDI Rules, any future changes, if necessary, be adopted as part of sequential rulemakings that consider overlapping effects of earlier implemented changes.

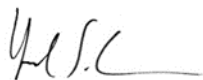
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Thank you very much for your consideration of the Committee's position. Should you have any questions or concerns, please do not hesitate to contact the Committee's President, Professor Hal S. Scott (hscott@law.harvard.edu), or its Executive Director, John Gulliver (jgulliver@capmksreg.org), at your convenience.

Respectfully submitted,



John L. Thornton
Co-CHAIR



Hal S. Scott
PRESIDENT



R. Glenn Hubbard
Co-CHAIR