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NAVIGATING REGULATORY REFORMS

A Comprehensive Analysis of the SEC's Proposed Rules and Their Implications for Retail Traders

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Abstract

This thesis evaluates the efficacy of four proposed U.S. Securities Exchange Commission rules in addressing financial market challenges. It explores the current regulatory landscape, traces the proposal's background, and offers a holistic view of the proposed rules, analyzing their impact on retail traders, broker-dealers, and the National Market System stock trading market. It further assesses how numerous market participants perceive and respond to these rules, identifies areas for improvement, and presents actionable steps to ensure market integrity and investor protection. These findings provide a roadmap for the Securities Exchange Commission to address key criticisms from comment letters and shape the future of U.S. equity markets.

Keywords: The U.S. Securities Exchange Commission (SEC), Regulatory landscape, Equity Market Structure, The Microstructure of Financial Markets, Information and Architecture of Financial Markets, Retail Traders, Broker-dealers, National Securities Exchanges, Market-makers.

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I. Introduction

On the 14th of December 2022, the U.S. Securities and Exchange Commission (SEC) released four new rules aimed at modifying the operational framework of the U.S. markets. The change in rules was a reaction to the increase in retail trading driven by the COVID-19 pandemic[1], the need to adapt the current market structure, and reinforce the SEC's commitment to ensuring investor protection, competition, and efficiency in financial markets.

First, the influx of retail investors driven by the increased availability of online trading platforms, commission-free trading, and social media-driven trading communities, prompted the SEC to assess whether the current market structure is designed in a way that effectively addresses the needs of these new market participants. Second, the speed and nature of trading changed dramatically leading the SEC to acknowledge the importance of ensuring regulations keep up to date with changing economic conditions and technological advancements. Third, to foster investor protection and ensure a level playing field for all market participants, the SEC aimed to revise issues such as access fees and devise rules to enhance transparency, promote fair competition, and provide better execution outcomes. Thus, resulting in more competitive markets with faster executions and lower fees.

By proposing to amend the regulation governing the national market system (NMS) under the Securities Exchange Act of 1934 (Exchange Act), the SEC aims to adapt the legislation to address and reflect these changes in the markets and ensure efficient, competitive, fair, and orderly markets complying with its original regulatory objectives[2].

These new rules entirely change the current regulatory landscape and therefore have severe repercussions on shaping how trading on U.S. securities markets will evolve in the future.

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[1] According to the World Federation of Exchanges around 65% of exchanges reported an increase in retail participation during the first months of the Covid-19 pandemic (https://www.world-exchanges.org).

[2] Section 11A of the Securities Exchange Act (1934) states these objectives.

To provide a better understanding of these rules and guide the SEC in navigating the principal criticisms articulated in comment letters submitted by market participants, this work project is structured into five main sections: In the opening four sections, each rule is explored in detail. First, through a description and assessment of the objectives of each rule. Then, through an analysis of the benefits and costs of the new rules on retail traders, B-Ds, and the overall stock trading market. Lastly, by gathering insights on how numerous market participants including retail investors, market-makers, brokerage houses, national stock exchanges, scholars, and financial institutions perceive and respond to these rules, each section concludes with a critical evaluation that weighs the overall contribution of each rule, culminating in a decision on whether they should be implemented or not. The fifth section discusses the main findings of this research, providing recommendations for the SEC to tackle the main criticisms of the overall proposal exposed by the comment letters.

II. Literature Review

The creation of the SEC alongside the enactment of the Securities Exchange Act of 1934 laid the foundation for all subsequent regulations on financial markets. The establishment of this regulatory foundation was instigated as a response to the stock market crash of 1929 to cover the regulatory gaps and deficiencies revealed during the Great Depression (Hanna 1934). It primarily sought to tackle the lack of regulation of securities markets, the unsuitable nature of the existing institutions, and their ineptitude to enforce the law (Benston 1973). Since then, the New York Stock Exchange (NYSE) has held a dominant position in the market[3]. However, in 1972, the market was quite fragmented with the same stock being traded at different prices on different venues (Seligman 2002) which made it increasingly difficult to compare prices across trading venues.

In 1975, through the amendment to the Exchange Act of 1934, the U.S. Congress realized that

[3] See 1999 SEC Ann. Rep. 192-93 (https://www.sec.gov/pdf/annrep99/ar99full.pdf).

linking securities markets would increase efficiency, boost competition, enhance transparency, and contribute to best execution (Gillis and Dreher 1982). Consequently, they authorized the SEC to facilitate a regulation governing the NMS which was approved in 2005. This regulation comprised a set of rules to strengthen the national market system for equity securities, integrating all equity trades into a common computerized trading system. It included the Access Rule (610) which caped access fees at $0.003 per share, and the Sub-Penny Rule (612) which established a binary tick size ($0.01 tick size for stocks priced above $1 and $0.0001 otherwise).

With the introduction of the regulation governing the NMS, fragmentation increased making room for the rise of Dark Pool (DP) market share. Institutions such as the European Commission[4] raised concerns questioning whether this could harm price discovery on the "lit" markets. Moreover, both the NYSE President[5] and the NASDAQ CEO[6] took a stand seeking to pressure the SEC into changing its regulatory regime for DPs claiming these are against the principle of market transparency, worsen short-term volatility, and hinder price discovery.

Besides this, concerns regarding order handling practices increased. With the Exchange Act, trading venues were required to broadcast quotes and trade information to the public. This meant, on the one hand, that dealers could guarantee trades at prices at least as good as those broadcasted by the NYSE. On the other hand, for brokers to consider the execution of their orders away from the NYSE, competing venues and market makers had to do more than guarantee the same prices. This resulted in some conflicts of interest arising such as payment for order flow (PFOF). Most studies argue that PFOF has mixed effects. While it appears to be beneficial by decreasing commission costs, the motivation for profits may overcome brokers' responsibility to obtain the best execution price for the customer, raising ethical questions.

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[4] See Review of the Markets in Financial Instruments Directive (MiFID). European Commission.

[5] See "NYSE Euronext Asks Congress to Press the SEC On Dark Pools", Trader's Magazine, June 10, 2009.

[6] See "Dark Pools Fire Back at Call for Ban", The Wall Street Journal, July 31, 2009.

Finally, it created a discussion around the adequacy of the binary tick size regime, since it fails to consider the differences in liquidity and trading volume across stocks of different volumes, market capitalizations, and share prices. While some studies defend that the binary system set results in a "tick size constrained problem"[7], that is a tick size too wide for low-priced stocks, especially those that are actively traded (Bacidore 1997), others find that the one-penny tick size is too small for high-priced stocks, namely those with wider spreads (Angel 1997). These concerns culminated in the decision of the SEC to implement, in 2016, the Tick Size Pilot Program to assess the impact of an increase in the tick size on market quality. It found that increasing the tick size would increase spreads, resulting in a clustering of orders, and reducing the propensity to further supply liquidity.

Ever since the regulation governing the NMS, market volume has become increasingly fragmented across 16 different equity exchanges, and 33 alternative trading systems (ATSs), with no single exchange handling more than 20% of trading volume[8], execution speeds have increased to microseconds, a two-tiered market has become prevalent with retail orders being internalized by wholesalers and odd lot trading[9] increased accounting for about 55% of all trades in 2022[10], however, the information on odd-lot orders is still not consolidated on data feeds such as the U.S. Securities Information Processor (SIP).

This proposal marks the major regulatory change ever since the regulation governing the NMS. It aims to modernize U.S. equity markets by reinforcing best execution duties, enhancing disclosure requirements and market competitiveness, making trading more accessible, and changing the tick size regime to improve the welfare of all market participants.

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[7] A stock is said to be tick-constrained when it is repeatedly trading with a quoted spread equal to the minimum tick. This means that it would most likely trade with a narrower spread (Mackintosh, 2022).

[8] See IEX, "The Clock is Ticking on Equity Market Reform" (February 2023), (https://www.iexexchange.io/blog/the-clock-is-ticking-on-equity-market-reform).

[9] Refers to trading in less than the standard 100 shares for stocks.

[10] See Amazon Blog Post (January 2023), (https://aws.amazon.com/blogs/awsmarketplace/analyzing-impact-regulatory-reform-stock-market-aws-refinitiv-data/).

III. Regulation Best Execution (RBE)

"Having Commission rules providing a policies-and-procedures-based best execution framework, along with regular reviews and related documentation, would help broker-dealers maintain consistently robust best execution practices.[11]"

The RBE proposes a new rule governing B-D practices which, alongside regular reviews and related documentation, would result in vigorous efforts to achieve best execution, benefiting customers. The duty of best execution has been previously reinforced through legal interpretations and regulatory initiatives by the Financial Industry Regulatory Authority ("FINRA") Rule 5310[12], and the Municipal Securities Rulemaking Board ("MSRB") Rule G18[13]. These entities have devised an overall framework comprising principles aimed at guiding B-Ds toward achieving best execution. With this rule, the SEC aimed at creating a proposal going beyond the previous regulation in hopes of ascertaining that B-Ds uphold robust best execution practices. For this reason, it requires B-Ds to establish, maintain, and enforce written policies and procedures to comply with best execution standards. These written policies should emphasize three main points: First, B-Ds need to specify how they will incorporate compliance into their order-handling practices. Then, they should describe the procedure undertaken to determine the best market for execution. Finally, it addresses B-Ds engaging in conflicted transactions by imposing heightened standards and robust policies and procedures. In this case, B-Ds must further detail how they intend to address these conflicts whilst also assessing a broader range of markets. It further requires B-Ds to review the execution quality of their customer orders quarterly and the effectiveness of their policies on an annual basis.

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[11] See SEC Proposed Rules Archive No. 34-96496, File No. S7-32-22, December 14, 2022 ("Regulation Best Execution").
[12] See FINRA Rulebook (https://www.finra.org/rules-guidance/rulebooks/finra-rules/5310).
[13] See MSRB Rulebook (https://www.msrb.org/sites/default/files/MSRB-Rule-Book-Current-Version.pdf).

Evaluation of the Potential Benefits and Costs

SEC believes the proposed rule would result in two main benefits for retail traders: First, it should enhance investor protection by enabling better regulatory supervision and transparency due to increased documentation requirements, reducing conflicts of interest, and enforcing the duty of best execution. Second, it should result in better execution quality for investors by incentivizing competition among brokers leading to better routing practices, competitive prices, and lower transaction costs for retail customers. However, if the exit of the market by smaller B-Ds materializes retail traders whose B-Ds exit the market may face additional search costs to find alternative B-Ds that offer the same services.

The proposed rule would benefit B-Ds by promoting competition which would incentivize them to achieve the best quality of execution, helping them to attract and retain customers. B-Ds would seek differentiation through better services, procedures, and practices to increase operational efficiency and reduce costs to remain competitive. Nonetheless, the implementation of this rule would impose a variety of costs on B-Ds to update their policies and procedures and review them annually. Consequently, these costs would increase barriers to entry potentially benefiting larger B-Ds and disadvantaging smaller ones, causing some to exit the market.

In the NMS stock markets, brokers engaging in PFOF need to comply with additional provisions. This would incentivize conflicted transactions to be reduced. On the other hand, the proposal imposes a variety of compliance costs since B-Ds must go beyond the scope of SIP data to achieve best execution, exploring a wider range of markets. Also, the proposal urges B-Ds to route more orders to price improvement auctions, leading to reduced liquidity in the limit order books making it harder to fill large orders and increasing adverse selection risk. As a result, liquidity providers may need to break up large orders into smaller pieces. This would entail wider NBBO spreads and thinner market depth, resulting in worse execution quality.

Final Verdict: A Critical Analysis with Proposed Solutions

The RBE shows the SEC's efforts towards emphasizing the importance of enhancing best execution practices in the financial industry. This rule, despite being costly to implement, can result in better execution quality fostered by greater competition and transparency surrounding B-D's order-handling practices. Therefore, in my view, it symbolizes a necessary step to ensure that B-Ds take their duty of best execution seriously. However, there is still much to be done. This rule, in its current form, does not differentiate itself sufficiently from the previous standards (NASDAQ, 2023 and Citigroup, 2023). Instead, it embodies a simpler rule designed mainly with retail investors in mind. As some market participants point out in their comment letters (e.g., Angel, 2023, Goldman Sachs, 2023, JPMorgan, 2023, and Blackrock, 2023) best execution as a synonym for finding the best price is not sufficient. SEC needs to recognize that even though retail investors are gaining space in the market, they still make up a relatively small portion of trading volume. Therefore, SEC should consider a more flexible best execution benchmark or even bifurcate best execution, including a definition of institutional client and ensuring best execution also serves their interests for instance by minimizing information leakage. Besides this, I believe that expanding this duty beyond equity markets will be beneficial for individual investors ensuring better executions across a wide range of financial assets. However, the proposed expansion fails to recognize the substantial differences in market structure between equity markets and other markets such as fixed-income markets. To ensure an adequate application of the RBE in these markets SEC should tailor the rule. For instance, in bond markets there should be no heightened standards for conflicted transactions given it is a dealer market and brokers should go beyond price, considering other factors like fill rates, firmness of liquidity, and speed of execution. In contrast to previous standards, the RBE should be enforced as a mandatory rule clearly defining the steps necessary in the order-handling process of B-Ds to ensure they search for the best execution possible for their customers.

IV. Amendments to the regulation governing the NMS

"The market structure and technology available today is vastly different from what was available when the regulation governing the NMS was adopted. Today, electronic trading systems can handle and process data at speeds that would have been unheard of when the regulation governing the NMS was adopted.[14]"

Proposal to Amend Rule 612 Minimum Pricing Increments

SEC seeks to implement a variable tick size structure for quotes and orders in NMS stocks that are priced at or greater than $1.00 per share requiring executions to occur in the same increments across all exchanges and on OTC markets. This amendment to Rule 612 aims to prevent more stocks from being artificially constrained, to make sure transaction costs are reduced, and to preserve the displayed liquidity in, and execution quality of, NMS stocks that may be higher priced and/or traded with wider spreads. It also intends to ensure fair competition by ensuring that all trading venues compete in the same price increment.

The new variable tick size regime creates four tick buckets according to the Time-weighted Average Quoted Spread (TAQS) for NMS stocks calculated every quarter during a month-long evaluation period, which can be seen in **Table 1**. This period is defined as the last month of a calendar quarter (e.g., March in the first quarter) of a calendar year.

Table 1: Minimum Pricing Increment Based on Time Weighted Average Quoted Spread

Minimum Pricing Increment	If the Time Weighted Average Quoted Spread for a particular NMS stock during the evaluation period was:
$0.001	Equal to or less than $0.008
$0.002	Greater than $0.008 but less than or equal to $0.016
$0.005	Greater than $0.016 but less than or equal to $0.04
$0.01	Greater than $0.04

[14] See SEC Proposed Rules Archive No. 34-96494, File No. S7-30-22 (December 14, 2022) ("Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders").

The basis for the determination of the tick size relied on the TAQS because it represents what the quoted spread should be at any time during the trading day for a stock (i.e., the expected costs of trading). As a result, it is seen as the best-suited metric to tackle the issue of tick-constrained stocks. It is also a metric that exchanges are acquainted with and have experience calculating, facilitating the need for updates to tick sizes. Overall, this metric is believed to represent a balancing of pricing, liquidity, complexity, and price improvement opportunities.

Proposal to Amend Rule 610 Access to Quotations

The proposal to amend Rule 610 has two main objectives: First, to accommodate the change in the tick size by reducing the access fee caps. Doing so would guarantee that the fees charged to access a protected quotation do not distort the true price available to investors. Second, to enhance the transparency of exchange fees and mitigate conflicts of interest among B-Ds by enabling them to pass on fees and rebates to their clients. By reducing the access fee caps, the rebates would also be reduced, hence reducing the incentives available to divert order flow to a particular venue. This way, B-Ds would be able to assess best execution more objectively.

This rule introduces a variable access fee cap structure: If a quotation in an NMS stock is priced at $1.00 or more per share, the fee cannot exceed $0.0005 per share for NMS stocks that have a tick size of $0.001 and $0.001 per share for stocks with a tick size greater than $0.001. If an NMS stock is priced at less than $1.00 per share the fee would not exceed 0.05% of the quotation price. This is aggregated with the new proposed ticks in the following **Table 2**.

Table 2: Spread-Dependent Tick Size and Access Fee Cap Schedule

Spread	Tick size	New Acess Fee Cap	
< 0.008	$ 0.001	$ 0.0005	(50% tick, ~ 10% of spread)
0.008 to 0.016	$ 0.002	$ 0.001	(50% tick, ~ 10% of spread)
0.016 to 0.04	$ 0.005	$ 0.001	(20% tick, ~ 3% of spread)
>0.04	$ 0.01	$ 0.001	(10% tick, ~ 1% of spread)

Additionally, this rule requires national securities exchanges to determine the amount of fees and rebates at the time of execution to minimize the impact on current agency market business

models. This is because the SEC values the role of agency trading centers in matching buyers and sellers in exchange for fees for the execution of orders against their displayed quotations and does not wish to hinder them by ceasing access fees entirely or adopting a flat cap which would not allow certain markets to maintain their current net capture rates.

Transparency of Better-Priced Orders

This amendment was proposed to accelerate the implementation of the round lot and the odd-lot information definitions from the MDI rules put forward by SEC in 2020 which assigned each NMS stock to a round lot size based on its share price.

Table 3: Proposed Round Lot Size

Price Range	Round Lot Size
$0.01 to $250.00 per share	100 shares
$250.01 to $1,000.00 per share	40 shares
$1,000.01 to $10,000.00	10 shares
$10,000.01 or more per share	1 share

To complement this, a definition of odd-lot information was included in the MDI rules. According to this, information regarding the prices and sizes of odd-lot orders priced better than the national best bid offer (NBBO) will be made available within the national market system. This amendment was proposed so that investors could benefit from greater transparency, accessibility of better-priced orders, and improved execution quality. Also, it sought to include a new element in the definition of odd-lot information - the best odd-lot order (BOLO). SEC believes that identifying the BOLO would enhance the utility of market data for trading and order routing purposes and facilitate the ability of investors to assess execution quality.

Evaluation of the Potential Benefits and Costs

Retail traders will benefit from lower transaction costs, more competitive bid and ask prices, better execution quality, enhanced transparency when it comes to fees and rebates. Nevertheless, these amendments also bring about some costs for retail traders. For instance, the smaller tick size may increase the cost of executing large orders because it leads to a

fragmentation of liquidity across multiple price levels. Instead of being able to execute a large order at a single price level, it may need to be executed across multiple price levels. As a result, traders may have a challenging time locating shares for large orders and executing trades at their desired price, leading to higher execution costs. Another cost involves readjusting their trading strategies to account for the new complexity of the system's tick size and fee schedule.

For B-Ds, the main benefits arise from making fees and rebates determinable at the time of execution. First, this means brokers can make more informed decisions about where to route orders based on the fees and rebates associated with each venue of execution. Second, it enhances competitiveness among B-Ds to build trust with clients and increase customer satisfaction leading to better order execution and lower costs. Third, it allows them to pass on fees and rebates to end customers, mitigating conflicts of interest. Finally, the reduced fee caps could incentivize a migration of order flow from OTC markets back to exchanges, benefiting B-Ds operating in exchanges. However, there would be implementation and ongoing compliance costs associated with updating systems to reflect the new tick size regime and lower access fees as well as with reconfiguring order routing strategies put forward by the proposal.

Overall, the proposal for a variable tick size based on the stock's TAQS should result in lower transaction costs for the previously tick-constrained stocks, making them more attractive. This coupled with the reduction in access fee caps would result in increased liquidity and trading volume, in particular, the amount of volume routed to exchanges compared to off-exchange. Furthermore, the reduction in access fee caps should lead to a reduction in transaction costs for liquidity demanders, reduce the distortionary effects of exchange rebates, improve price transparency, and facilitate monitoring of execution quality. Despite this, the new complexity of the rules may impose some constraints, liquidity may become fragmented across multiple price levels, which could lead to wider spreads, and those highly dependent on revenues from rebates could exit the market due to the inability to adjust their business models.

Final Verdict: A Critical Analysis with Proposed Solutions

The amendments to the regulation governing the NMS comprise, in my belief, a necessary modernization of the rules to reflect the evolving nature of financial markets. First and foremost, introducing a variable tick size regime was a much-awaited amendment to tackle the issue of tick-constrained stocks created by the binary regime. Then, the variable access fee cap structure reduces the costs of trading in line with technological advancements and changes to the tick size. Allowing fees and rebates to be determined at the time of execution brings about more transparency and allows B-Ds to make better-informed decisions about order routing, fostering trust and customer satisfaction. Lastly, the addition of odd-lot information and the introduction of the best-odd lot order allow for a more accurate picture of market dynamics as odd-lot trading consistently increases over time. However, it is my conviction that any changes in tick sizes and access fee caps should be first tested on a sample of tick-constrained stocks to understand their implications. As highlighted by several market participants including Goldman Sachs (2023) and Citadel Securities (2023) if changes are put in place, they would affect a sizable portion of the total market volume without conducting a prior analysis which poses severe unknown risks impacting market stability in unpredictable ways. This happens because SEC uses, as noted by Citadel (2023) and UBS (2023), a one-dimensional metric that disregards depth - the Quoted-Spread - to identify the number of tick-constrained stocks. Doing so results in a tick regime that impacts many stocks that are not tick-constrained, for which there is no justification to decrease the tick size, and that results in too many ticks, harming liquidity, imposing higher costs on larger-size orders, and leading to quote flickering and instability.

Besides this, Rindi and Graziani (2023) and Angel (2023) also pointed out that the rule overlooks that for non-tick-constrained-high-priced stocks, a small tick size could make undercutting near costless eliminating the incentive to supply liquidity to these stocks. Better targeting the stocks that are tick-constrained would avoid some of these repercussions.

Therefore, I recommend the SEC devise a proper methodology to identify stocks that are tick-constrained by including other factors, such as the average quoted size, ratio of average quoted size to average traded size, daily traded volume, or stock price. To do so, it can refer to the recommendations provided in **Table 4** (see Appendix). It should additionally investigate and test how much wider the tick size should be to ensure liquidity is incentivized for the non-tick-constrained-high-priced stocks. Furthermore, the SEC could list the recommendations from key industry players and test their approaches to the tick size regime. **Table 5** (see Appendix) summarizes the main recommendations for setting the tick size. Based on the evidence, market participants agree on a minimum quoting increment of $0.005 for clearly tick-constrained stocks with an average quoted spread of $0.011 or less and support setting a market-wide harmonized trading increment of $.001 for stocks trading at or above $1.00 per share.

Market participants also argued that the fee caps should be proportionally aligned with the smaller and larger tick sizes. As Blackrock (2023) pointed out in their comment letter, a 10 mils access fee cap may be adequate for a $0.01 tick size but a 10 mils access fee cap for a $0.002 tick size may be too high. To tackle this, SEC should revise expert opinions and test them, for instance by conducting an access fee pilot. **Table 6** (see Appendix) aggregates suggestions for setting fees, overall proposing a fee cap of $0.0015 should be adopted for stocks in the $0.005 tick size bucket while maintaining the existing $0.0030 cap for stocks in the $0.01 tick bucket.

In summary, the proposed amendments depict a substantial effort by SEC, recognizing the need to modernize the regulatory framework to the current market landscape. I maintain that, through these amendments, SEC has the right goals in mind (i.e., enhancing transparency, reducing trading costs, and improving execution quality). However, the potential complexities and risks associated with these changes underscore the importance of thoughtful analysis before implementation to ensure that the intended benefits are attainable while minimizing any adverse effects on market participants and overall market stability.

V. Order Competition Rule (OCR)

"The Commission is proposing a new rule, Proposed Rule 615 would require that certain orders of individual investors be exposed to competition in open auctions before such orders could be executed internally by trading centers that restrict order-by-order competition.[15]"

The OCR is a new rule proposed to promote competition and protect the interests of individual investors. It seeks to increase order-by-order competition by prohibiting a restricted competition trading center or wholesaler from internally executing "segmented orders" of individual investors at a price unless the orders are first exposed to competition at that price in a "qualified auction" operated by an "open competition trading center". A "segmented order" includes orders for an account of a natural person for which the average daily number of trades executed in NMS stock must be lower than 40 in each of the preceding six calendar months. An "open competition trading center" refers to automated trading centers that operate qualified auctions. For a security exchange to be an open competition trading center, it must have had an average daily share volume of 1.0 percent or more of the aggregate average daily share volume for all NMS stocks during at least four of the preceding six calendar months. A "qualified auction" refers to an auction operated by an open competition trading center that should function according to the following structure: Whenever an individual investor's order is routed to a wholesaler, he must submit the order to a qualified auction with a specified limit price. This is simply an indicative price to guide auction responders when pricing their orders. The auction would be operated by an open competition trading center which would disseminate an auction message, containing the specified limit price, the identity of the open competition trading center, NMS stock symbol, side (buy or sell), size, and the identity of the originating broker in consolidated market data inviting auction responses. The auction itself must be no shorter than

[15] See SEC Proposed Rules Archive No. 34-96495, File No. S7-31-22 (December 14, 2022) ("Order Competition Rule").

100 milliseconds (1/10th of a second) and no longer than 300 milliseconds (3/10ths of a second) after the auction message is disseminated to ensure the execution is not unduly delayed. For the duration of the auction, market participants would be able to submit their auction responses. If the order can be executed in the auction either at the specified limit price or better, the open competition trading center in charge of the auction will execute the order, following a set of execution priority rules. First is the price priority rule, which states that the most favorable price has priority of execution (i.e., the lowest-priced auction response to an order to buy and vice versa). Second is customer priority, that is, when two responses have the best price if one is submitted by a client and another by a B-D, the customer's auction response would hold priority. To complement these, there are also rules to govern the order priority. These rules state, primarily, that orders resting on the continuous order book of an open competition trading center operating the qualified auction, whether displayed or undisplayed, would have priority over auction responses at a less favorable price for the segmented order. Moreover, to promote price transparency, displayed orders resting on the continuous order book should have priority at the same price over auction responses. In case the order was not fully executed in the auction, then it would flow again to the wholesaler.

Evaluation of the Potential Benefits and Costs

This proposal is expected to substantially reduce transaction costs for individual investors due to the increased competition to supply liquidity to their orders. Moreover, it can also increase competition among wholesalers, which currently are very concentrated. Retail investors can benefit from this competition as wholesalers would be incentivized to provide greater price improvement to remain competitive. Regarding the costs to retail traders, a greater variation in price improvement and execution quality is expected. For instance, a qualified auction host may decide not to host an auction for a particular stock. Another concern regards the possibility of "slippage costs" resulting from the introduction of the qualified auction. These would translate

to changes in the NBBO while the qualified auction is in process. Given that the auction system mandates that an auction message must be disseminated once an order is brought to a qualified auction, these messages could trigger a response in prices.

B-Ds would benefit from flexibility as they can choose to route a segmented order directly to a qualified auction, to an open competition trading center, or to a national securities exchange. Nevertheless, this comes at a cost. The implementation of this rule would result in a significant loss of wholesaler profits resulting from greater inventory costs incentivizing them to start charging for routing and execution services. If this happens brokers would have to absorb this cost or pass on a share of this cost to their customers. Also, the possibility of the disappearance of PFOF can result in some brokers resuming to charge commissions for NMS stock trades.

This rule is expected to enhance the execution quality of individual investors' orders and promote pre-trade and post-trade transparency whilst increasing liquidity and price efficiency. In addition, it would create a migration of order flow to exchanges and increase post-trade transparency since it would be easier to identify which transactions belonged to individual investors and at which venue they were executed. The increase in competition to attract and execute orders from individual investors could significantly impact costs for some exchanges and ATSs, and result in significant changes in market share. When it comes to ATSs, not much is expected to change in their market share. This is because of the incompatibility of running a qualified auction with the business model of some ATSs and the requirements that would need to be met for them to classify as open competition trading centers which are too costly and difficult to comply with. Regarding exchanges, the existence of these auctions could result in higher volume exchanges eligible to host these auctions obtaining market share over low volume exchanges. If this happens, a limited number of exchanges could become the preferred trading location for any given stock. This could trigger a liquidity externality making these venues the preferred routing destination for all orders.

Final Verdict: A Critical Analysis with Proposed Solutions

I would like to stress that the new order competition rule, while well-intended in its aim to enhance competition for retail orders in hopes of providing individual investors with better price improvement opportunities, raises several concerns upon closer examination.

Based on the insights gathered, this rule seems to be rooted in the notion that wholesalers do not provide significant execution quality for retail orders. Instead, the evidence presented by Battalio (2023), Spatt and Sun (2023), Charles Schwab (2023), and Brogaard (2023) suggests that wholesalers play a critical role in bringing liquidity to retail orders and price improvement opportunities while competing to influence the future share of orders routed to them. For instance, Battalio (2023) found that wholesale B-Ds delivered approximately $3 billion in savings to retail investors. Schwab (2023) added that the percentage of share price improvements for wholesalers amounts to 94.25% compared to 60.24% for the exchange. Also, this rule can create disruptions in the market. As pointed out by Citadel Securities (2023), Virtu Financial (2023), Hudson River Trading (2023), and Citigroup (2023), the auction could delay execution by 27 to 83 times resulting in information leakage allowing market participants to react to the change in demand and adjust pricing.

Moreover, the auction mechanism can severely harm liquidity provision for retail orders. Contrary to SEC's view that information leakage would be contained because the auction response is not displayed and transaction reports maintain anonymity to the parties, the widespread dissemination of the auction message which contains significant information including the side and size of the trade is enough to fuel the risk of information leakage and refrain institutional investors from participating. Besides this, the priority rules of the auction as referred to by Morgan Stanley (2023) can discourage wholesalers and other B-Ds from accepting and routing retail orders since they would not be allowed to provide liquidity to these orders on the continuous order book of the open competition trading center.

Lastly, given all that has been mentioned so far, the auction mechanism could fail in which case it is not evident who will be responsible for compensating retail customers. Since exchanges are protected by strict limitation of liability provisions that often cap damages at an aggregate of $500,000 per month these do not have the flexibility to fully protect retail investors like wholesalers have been doing so far. If SEC intends to promote investor protection, then it should create an additional layer of protection in case of auction failure for instance by increasing the aggregate amount per month of liability provisions that exchanges operating as open competition trading centers can hold.

To solve some of these issues SEC could test out the auction mechanism in a sample of segmented orders to assess the overall functioning of the auction - reinforcing anonymity, examining the impact of its duration, the obstacles to liquidity provision and, the impact of priority rules on a limited scale before full implementation – and devise contingency measures in instances of auction failure to ensure investors are rightfully protected.

In summary, although this auction mechanism could potentially, pending several modifications, improve market competitiveness and transparency, the current market structure already delivers substantial price improvement to retail orders, raising questions regarding the necessity of this rule. Moreover, the risks associated with implementing this prescriptive auction mechanism have not been thoroughly examined by SEC, and the anticipated benefits may not fully materialize. Therefore, in my view, it would be prudent for SEC to explore less disruptive alternatives that share the same objectives, such as exchange Retail Liquidity Programs. These allow market participants to interact with retail orders on the continuous order book of an exchange but have not been widely adopted and it is still unclear why. Perhaps before proposing a completely new mechanism that will disrupt the current way retail orders are handled and might suffer from similar issues, SEC should try to understand why the RLP programs have not met the goals for which they were intended and if any changes could resolve the issue.

VI. Disclosure of Order Execution Information

"The proposal would require broker-dealers with a larger number of customers to prepare execution quality reports, would capture execution quality information for more order types and sizes, and would require time-based metrics to be recorded at a level that reflects current market speed [16]."

The goal of the rule is to provide more relevant and accessible metrics that would promote competition among market centers and B-Ds based on execution quality. First, this rule proposes to expand the scope of reporting entities to include B-Ds that carry at least 100,000 customer accounts. This threshold was devised to balance the benefits of having B-Ds produce execution quality statistics with the costs of implementation and reporting. This would enhance transparency into the differences in execution quality achieved by B-Ds. Furthermore, given the adoption of the OCR, there may be differences in execution quality for orders executed in qualified auctions, which would not be apparent in blended execution quality statistics. Consequently, an additional amendment obliges the preparation of a separate report pertaining only to orders that a market center receives for execution in a qualified auction. Second, it proposes to modify the definition of "covered order" in two ways. It seeks to add B-Ds as recipients of orders and to include certain orders submitted outside of regular trading hours. Third, it puts forward modifications to the order size and order type groupings to capture execution quality information for fractional share orders, odd-lot orders, and larger-sized orders by dividing orders into separate categories based on the number of shares composing an order. Then, it aims to modify the "categorized by order type" definition to mean dividing orders into separate categories for market orders, marketable limit orders, marketable immediate-or-cancel orders, beyond the midpoint limit order, and executable non-marketable limit orders. Fourth, it

[16] See SEC Proposed Rules Archive No. 34-96493, File No. S7-29-22 (December 14, 2022) ("Disclosure of Order Execution Information").

seeks to update timestamp conventions to require that such times be measured in increments of a millisecond and that the realized spread be calculated at both 15 seconds and one minute to better reflect the speed of the marketplace. Fifth, it proposes modifications to the reporting requirements for "non-marketable limit orders" (NMLOs) to capture more relevant execution quality information for these orders. For instance, by requiring the calculation of new statistical measures of execution quality including average effective over quoted spread, percentage effective and realized spread statistics, and a size improvement benchmark, among others. Finally, it mandates that all reporting entities make a summary report available with summary statistics (e.g., average order size, and average execution speed).

Evaluation of the Potential Benefits and Costs

Retail traders will benefit from the increased transparency of order execution quality to make better-informed decisions about where to route their orders. This will foster a competitive environment between reporting entities which would greatly benefit investors, enabling them to compare execution quality across reporting entities. It will also result in positive externalities improving the quality of executions along specific dimensions such as execution prices, size improvement, and execution speeds. The mandate for reporting entities to produce summary reports would enable retail traders, in particular those less likely to have access to the resources to retrieve and process the raw data in the reports, to more readily access and digest information. However, it is important to note that enhanced transparency, increased competition, and subsequent scrutiny by investors, may make B-Ds less likely to route orders based on PFOF, fees, and rebates. This could prove detrimental to investors because in case B-Ds reduce the order flow sent to wholesalers who pay for it, they receive less payment for such order flow and could pass the lost payments on to their customers by raising brokerage commissions. Similarly, if B-Ds route orders to trading centers with lower rebates and higher fees, they might pass the reduction in rebate revenue and increase in fee costs on to their customers.

This rule would enable B-Ds to be better informed about the execution quality of market centers when making their routing decisions. Moreover, execution quality would improve because of increased competition between B-Ds. That said, B-Ds would need to adjust their routing practices to increase the extent to which they route orders to the market centers offering better execution quality. Consequently, B-Ds who face conflicts of interest are incentivized to manage these conflicts, given that the gains would more likely be outweighed by a loss of customer order flow. B-Ds would however face substantial compliance costs. Also, the increased competition may lead to additional costs as they may need to upgrade or improve their routing or execution systems to stay competitive. Moreover, the expansion of this rule only includes larger B-Ds. As a result, investors may choose to route more transactions to larger B-Ds as they gain more transparency into their execution practices.

The modernization of Rule 605 is expected to enhance the transparency of order execution quality, thus improving market efficiency and competition. These improvements will result in better price efficiency, lower transaction costs, and a fairer playing field for investors.

Final Verdict: A Critical Analysis with Proposed Solutions

The proposed amendments to Rule 605 represent a step in the right direction, bringing forth enhanced transparency and increased competition in execution quality which are beneficial for all investors. The inclusion of large B-DS as part of the reporting entities, despite the risk of unintentionally concentrating the market and the additional costs for B-Ds to produce reports, represents a major step to increase transparency for investors and gather valuable information about execution quality. It is however important to ensure this information is accessible to investors by providing centralized access to reports, allowing investors to avoid incurring substantial search costs as pointed out by Fidelity (2023) to retrieve a complete set of reports. The threshold despite being defied by some (Angel, 2023), is supported by many (NASDAQ, 2023) (Cboe, 2023), and believed to balance the size of the B-D against the implementation costs. The

new metrics (e.g., average effective over quoted spread, percentage effective and realized spread statistics, and size improvement benchmark) and mandatory summary reports ensure better information is made available on the execution quality of a wider range of order types. However, Charles Schwab (2023) discloses that the new share-weighting method for calculating the E/Q weighs sub-dollar stocks more heavily as opposed to stocks that have the widest spreads which could incentivize brokers to provide more price improvement on narrow-spread securities instead of looking at the price improvement opportunity represented by the spread. The SEC should amend this by including both individual metrics of effective spread and quoted spread, allowing investors to calculate their own E/Q ratios, or by adopting spread weighting to preserve the relationship between dollar price improvement and the E/Q. Nonetheless, this rule overall represents an unparalleled opportunity for the SEC to gather crucial data to accurately assess execution quality across market centers, B-Ds, and order types which is critical for correctly devising whether any further changes in market structure are necessary. Therefore, the potential benefits in terms of transparency and competition that this rule offers justify its implementation.

VII. Discussion and Findings

Market participants collectively agree that SEC rules seem to be based upon a deeply flawed perception of how the market operates and endanger the unparalleled benefits afforded to retail investors including zero commissions, tight spreads, and fast and efficient executions in highly competitive venues. Individual investors believe these proposed measures will help to regain public confidence and trust in the market, however, they strongly urge SEC to avoid vague language in the application of these rules which makes enforcement difficult. The vagueness of the terms used throughout the proposal such as "reasonably locate" in the RBE can lead to guessing and leave room for misinterpretation fostering non-compliance. To tackle this, SEC should aim to clarify any room for doubt. In the case of RBE instead of replicating the preexisting rules, SEC could redirect the focus of the rule to clarify areas where there may be

confusion. For instance, when requiring heightened best execution policies for conflicted transactions by further explaining what types of procedures would and would not suffice. Large reputable institutions such as Blackrock (2023), Goldman Sachs (2023), UBS (2023), Morgan Stanley (2023), and Citigroup (2023), among other industry giants, feel that SEC's current approach of presenting stand-alone economic analysis is insufficient and lacks robustness. Specifically, analyses are based upon unrealistic assumptions, uncertain benefits, undermine a variety of costs and risks, lack economic justification, and rely on data not made available to market participants, academics, and others to independently evaluate. Instead, SEC should conduct this collective analysis exploring the interlinks between the rules and aim for its gradual implementation to minimize the potentially far-reaching impacts resulting from the simultaneous implementation of the rules. Moreover, the data used should be made available for market participants to conduct their independent analysis. Lastly, numerous market participants such as Citadel (2023) and Schwab (2023) shared their views regarding the impact of enhanced scrutiny around PFOF, with retail traders defending a collective ban while others worry about the consequences of its disappearance. The proposal seems to target the reduction of this source of revenue for retail brokers based on the false idea that it results in worse execution quality for customer orders. A CFA Institute study shows how, after the U.K. banned order routing revenue in May 2012, the ability for retail-sized orders to receive midpoint execution declined from 8.6% of trades to 1.8% of trades. Therefore, banning PFOF might not be a viable solution since it leads to worse execution quality. Instead, there should be more transparency measures around the receipt or payment of PFOF. In this case, amending Rule 610 to require national securities exchanges to determine the amount of fees and rebates at the time of execution is a step in the right direction. This way market participants can determine what fee or rebate level would apply and B-Ds can pass through the fee/rebate to their customers.

VIII. Conclusion

Final Overall Review of the Proposal

Based on the analysis performed and insights gathered throughout this research, I conclude that the RBE should be implemented provided changes are made to tailor best execution to different markets and investor types, avoiding overly stringent policies. The amendments to NMS rules should be subject to further analysis to mitigate risks and ensure the intended benefits of improved execution quality and transparency can be achieved. The OCR raises significant concerns endangering the current retail trading landscape. Therefore, it should not be implemented in its current form, and alternatives should be explored. The proposed amendments to Rule 605 are broadly supported and bring about significant improvements in transparency thereby should be implemented. To sum up, SEC should attempt a gradual implementation and assessment of the rules, starting with the amendments to Rule 605 to gather metrics crucial to devise the need for any additional changes to the current market structure.

Directions for Future Research and Closing Remarks

While SEC's proposal delivers a necessary reform modernizing the regulation, it falls short of addressing critical concerns raised by market participants. The recommendations provided herein offer an initial roadmap for refining these proposals to enhance market integrity and investor protection. Nevertheless, SEC should consider reopening the comment period, provide more time for market participants to fully digest and analyze this comprehensive proposal, and conduct a more robust economic analysis exploring the dynamics between the proposed rules. Future research should assist SEC in achieving a balance between regulatory oversight and preserving the efficiency of market mechanisms. This research achieved its objective of exploring the intricacies of the current regulatory landscape, laying out the background that led to the creation of this proposal, providing a comprehensive overview of the proposed rules, identifying improvement areas, and proposing concrete steps for SEC to enhance market integrity.

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X. Appendix

Table 4: Proposed Methodologies to Identify Tick-Constrained Stocks

Method for identifying Tick-constrained Stocks		
NASDAQ	NYSE	Cboe
A security is tick-constrained stocks if it has a spread lower than 1.5 ticks and price ranging from $1 to over $50	A security is tick-constrained when it has a time-weighted average spread of $0.011 or less, as calculated during regular trading hours. Furthermore, they would need to be quoted at the minimum $0.01 width for over 90% of the trading day	A security is tick-constrained if its has an average daily Quoted-Spread between 1 and 1.1 cents and is in the 75th percentile for the quote-trade ratio and notional turnover ratio

Table 5: Tick Size Recommendations by Market Participants

Entity	Tick Size Recomendation	Harmonization of ticks
Blackrock	Recommends limiting tick sizes for securities priced greater than $1.00 per share to three increments which would be initially set at $0.05, $0.01, and $0.005 (with a potential reduction to as small as $0.002)	Tick harmonization is inherently incompatible with any effort to optimally calibrate market structure parameters and establish wider minimum pricing increments
Cboe	Recommends a $0.005 pricing increment for "tick-constrained securities", with an average daily quoted spread at or below 1.1 cents, high quote-trade Ratios of 200x and above (top 75th percentile), and an average daily notional turnover greater than 2.59% (top 75th percentile)	The most pragmatic approach to tick reform is to identify and address truly tick-constrained securities, evaluate the results, and then consider more granular tick changes and potential harmonization over time
Charles Schwab	Recommend reducing the minimum quoting increment to $0.005 for symbols trading at or above $1.00 per share that are tick-constrained with an average quoted spread 1.1 cents or less and a reasonable amount of available liquidity at the NBBO	Recommend setting a market-wide harmonized trading increment of $.001 for all symbols trading at or above $1.00 per share
Citadel Securities	Recommend a minimum quoting increment of $0.005 for clearly tick-constrained symbols, that present a Time Weighted Quoted Spread less than or equal to 1.1 cents, an Average Quoted Size at the NBBO/Average Daily Volume greater than 0.02 and an Average Daily Volume of greater than $10 million	Recommend that this be set at $0.001 for all symbols with prices equal to or greater than $1
Citigroup	Propose adopting a new $0.005 quoting increment for the most liquid, "tick-constrained" securities, retaining the current $0.01 quoting increment for the majority of symbols and implementing a wider $0.05 quoting increment for the most illiquid and/or high-priced securities	Support a minimum trading increment of $0.001 which should level the playing field while still allowing meaningful price improvement for retail orders to continue
Fidelity Investment	Recommend, implementing a lower minimum quoting increment for tick-constrained NMS securities trading at or above $1 per share to 50 mils	Recommend setting a market-wide harmonized trading increment of $.001 for all symbols trading at or above $1.00 per share
Jefferies	Recommend a $0.005 tick size fore tick-constrained stocks, with an average quoted spread of $0.011 or less	No comment
Morgan Stanley	Recommend a $0.005 minimum quoting increment for tick-constrained stocks that would otherwise trade with a tighter spread and a $0.01 minimum increment for higher-priced stocks	No comment
Nasdaq	Defines tick constrained as those with an average NBBO spread under 1.1 cents. A stock with an average duration weighted quoted spread up to $.011 would be placed in the **$.005 bucket**, between $.011 and $.02 would be placed in the **$0.01 bucket**, greater than $0.02 and less than or equal to $0.05 would be placed in the **$0.02 bucket**, greater than $0.05 and less than or equal to $0.10 would be placed in the **$0.05 bucket**, greater than $0.10 and less than or equal to $0.25 would be placed in the **$0.10 bucket** and greater than $0.25 would be placed in the **$0.25 bucket**	Support harmonized tick sizes across all trading venue types to eliminate the artificial competitive disparity that exists. Because harmonizing quoting and trading increments might reduce opportunities for retail investors to receive price improvement, we support that liquidity that interacts with retail orders may be in increments of $0.001
NYSE	Propose changing the quoting increment to $0.005 for stocks with an average quoted spread of $0.011 or less, and with less than 10% of its trades antecipating a spread 10 milliseconds later wider than the spread at the time of execution	Recommend setting a market-wide harmonized trading increment of $.001 for all symbols trading at or above $1.00 per share. In our view, the minimum quoting increment and the minimum trading increment do not need to be the same
SIFMA	Supports a minimum tick size of $0.005 for tick-constrained stocks, but is concerned that the Commission has not established the appropriate methodology for determining which stocks are tick-constrained	The proposed harmonization of quoting and trading increments would cause substantial harm to investors by denying price improvement opportunities, as such, the quoting and trading increments should not be harmonized

Table 6: Access Fees Recommendations by Market Participants

Entity	Access Fee Recommendation
Blackrock	Under a uniform fee model, they would be supportive of setting the access fee cap at 10 mils
Cboe	Believes competitive forces should inform access fees and that reducing the access fee cap and restricting volume tiers will limit differentiation and competition between venues to the detriment of investors. Still, they believe that for securities priced at or greater than $1.00, the access fee should not be reduced below $.0015 for tick-constrained securities with a $0.005 increment. For securities priced less than $1.00, the access fee cap must remain unchanged to support competition, differentiation, and liquidity provision
Charles Schwab	Recommend a reduction that is proportionate to the proposed reduction in the minimum quoting increment for tick-constrained stocks. That is, reducing the current $.0030 per share cap to $.0015 per share for the stocks with a $0.005 tick size
Citadel Securities	Recommend maintaining the current 30% ratio between the maximum fee that an exchange can charge for accessing a protected quotation and the tick size. This means any reduction in access fees should be applied to stocks for which the tick size was reduced (e.g., the access fee cap would be $0.0015 if the minimum quoting increment is reduced to $0.005)
Citigroup	Defends that the access fee cap should be reduced to 5 mils for the most liquid, tick-constrained securities that would now be subject to a $0.0050 minimum quoting increment and reduced to 10 mils for those covered by the $0.01 minimum quoting increment leaving the access fee cap at 30 mils for illiquid securities subject to the new $0.05 minimum quoting increment
Fidelity Investment	Recommend a commensurate access fee reduced from the current fee of 30 mil under 1 cent, to 15 mils under a 50- mil tick
Jefferies	Recommend a reduction in the access fee cap to 15 mils for tick-constrained stocks
Morgan Stanley	Supports a dynamic tick size approach with the access fee cap set as a certain percentage of the minimum quoting increment (e.g., 10%). That would result in a 5 mils access fee cap for a smaller $0.005 minimum quoting increment, a 10 mils access fee cap for the current $0.01 minimum quoting increment, and a 50 mils access fee cap for a larger $0.05 minimum quoting increment based on characteristics of the stock (e.g., quoted spread, turnover, market capitalization, stock price)
Nasdaq	Recommend a fee cap of $0.0015 for securities in the $0.005 tick size bucket, maintaining the existing $0.0030 cap for securities in the $0.01 tick bucket
NYSE	Propose reducing the current $0.0030 per share cap to $0.0015 per share for symbols adopting the $0.005 quoting increment and for symbols maintaining their current quoting increments access fees should remain unchanged
SIFMA	SIFMA urges the Commission to exercise caution in modifying access fees as a percentage of the current tick size beyond the 20% that exists today but makes no recommendation for they should be

Appendix to the Work Project

Glossary

Term	Abbreviation	Term	Abbreviation
Alternative Trading System	ATS	National Best Bid Offer	NBBO
Best Odd-Lot Order	BOLO	New York Stock Exchange	NYSE
Broker-dealer	B-D	Non-Marketable Limit Orders	NMLOs
Chicago Board Options Exchange	Cboe	Order Competition Rule	OCR
Citadel Securities	Citadel	Over-the-counter Market	OTC
Citigroup Global Markets	Citigroup	Payment For Order Flow	PFOF
Dark Pools	DP	Quote Flickering	QF
Effective Quoted Ratio	E/Q	Regulation Best Execution	RBE
Fidelity Investments	Fidelity	Retail Liquidity Programs	RLPs
Financial Industry Regulatory Authority	FINRA	Security Information Processor	SIP
Limit Order Book	LOB	The Regulation National Market System	REG NMS
Market Data Infrastructure Rules	MDI	The U.S. Securities Exchange Commission	SEC
Municipal Securities Rulemaking Board	MSRB	Thinly Traded Stocks	TTS
National Association of Securities Dealers Automated Quotation System	NASDAQ	Time-weighted Average Quoted Spread	TAQS

Analysis of the Comment Letters submitted to the Securities and Exchange Commission

Views on the Regulation Best Execution

Retail Traders

Individual investors agree that bringing best execution under the regulatory framework of the SEC will be an improvement for individual investors and do not believe the current standards are enough to ensure their protection since some entities keep getting away with ignoring the rules. Moreover, retail investors urge the SEC to take action by enforcing penalties to act as a deterrent to future misbehavior.

Market Makers

Market makers believe that the RBE proposed by the SEC establishes more costly and impractical order routing requirements than the general best execution obligation. For instance, Citadel Securities (2023) and Virtu Financial (2023) argue that the SEC's economic analysis for the RBE is limited, fails to consider the best execution available under current FINRA rules, and does not bear significant benefits for retail investors.

Brokerage Houses

Overall, brokerage houses oppose the RBE claiming there is a lack of justification for it given the existing FINRA and MSRB rules. Moreover, Charles Schwab (2023), as a receiver of PFOF, warns against its prohibition and its effect on execution quality. Instead of another RBE, they defend additional transparency measures relating to the receipt or payment of PFOF. Fidelity Investments (2023) did not provide any comment for this rule, however, they mention that they choose not to take PFOF from wholesale market makers on equity trades and this allows them to return market maker economics on equity trades to their retail customers having, in 2022 alone, saved their customers over $1.3 billion in price improvement. Still, they accept the PFOF

business model as a valid model if the right disclosures are made to help inform clients which B-D is best for them.

National Stock Exchanges and OTC Markets

With regards to best execution, the NYSE (2023) supports the solidification of the duty of best execution via a single, consistent regime. Additionally, the NASDAQ (2023) believes it could be beneficial if, instead of replicating the preexisting rules, the SEC would redirect the focus of the rule to clarify areas where there may be confusion. For instance, when requiring heightened best execution policies for conflicted transactions the proposal fails to explain what types of procedures would and would not suffice. Indeed, the vagueness of the rule can be severely harmful for B-Ds who should not have to guess and be penalized for making a wrong guess.

Both the NASDAQ and Cboe Global Markets[1] (2023) advise that expanding the scope of the proposal beyond equity securities is prudent but the SEC should be mindful of the unique characteristics of those markets. Indeed, not all customers are alike, neither are the orders, venues, or market conditions thus how brokers achieve best execution will also vary.

Lastly, OTC Markets Group (2023) warns that this proposal could create a bias against them. Most volume in OTC securities is facilitated via wholesale market-making firms that rely on PFOF from retail firms thereby falling within the conflicted transactions definition. By doing so it is implicit that liquidity provided as a principal is less meritorious than liquidity provided via exchanges that operate on an agency-plus-fees basis.

[1] Cboe operates four equities exchanges BZX, BYX, EDGX, and EDGA representing a sizable portion of the total average daily volume in the U.S. equities market. See Cboe Global Markets

Academic Institutions

Most scholars agree that the RBE is necessary but urge the SEC to reconsider a more flexible best execution benchmark rather than just relying on the best price, which despite being beneficial for retail traders, ignores other important considerations such as speed of execution for market orders, and probability of execution for limit orders (Angel, 2023). Additionally, Jacobson (2023) argues that defining a retail customer as a natural person is too broad and could include a wide variety of individuals with varying levels of sophistication and personal net worth. Changing this definition could help to bifurcate the best execution standard. Additionally, Kothari and Johnson (2023) among others, claim that the proposed RBE is not based on sound economic analysis. While the SEC assumes that wholesalers provide worse execution quality to brokers that receive more PFOF and thereby that a reduction in conflicted transactions would consequently improve the prices retail customers realize for their transactions, Schwarz and Jorion (2023) find that PFOF has almost no economically meaningful impact on execution. By showing that the SEC's reasoning is flawed, they raised concerns over the impact of the enhanced scrutiny of PFOF namely the potential to jeopardize the current environment that benefits individual investors with zero commissions, which was enabled by the more widespread use of PFOF.

Financial Institutions

Financial institutions oppose this rule arguing that the existing rules are more than sufficient and for the SEC to impose its own rule would not only result in confusion, due to the incompatibility in some aspects of the rule to its predecessors (e.g., under the FINRA rule, broker-dealers must consider several factors, not just price, in fulfilling their best execution obligations) but also hinder B-D's ability to execute clients' orders efficiently and effectively at favorable prices. For instance, both Morgan Stanley (2023) and UBS (2023) stated that this

proposal could end up being detrimental to clients because it mandates B-Ds to seek market centers where midpoint liquidity may be available even though this is not visible when routing an order. Ultimately this search could result in multiple routes of a single order, introducing latency and information leakage leading prices to move, and possibly resulting in some market participants canceling midpoint orders, they posted. Citigroup (2023) views the proposal as redundant and costly to implement.

Goldman Sachs (2023) further highlighted the proposal would diminish the unique value that B-Ds provide to their customers and result in adverse effects on the execution quality, especially for institutional investors. UBS also stated that this proposal places undue emphasis on price and by doing so works to the detriment of institutional investors who might be more concerned about the potential for information leakage and minimizing the impact on future orders than receiving the lowest possible price on a given transaction. Lastly, the proposal was highly criticized since it does not recognize the substantial differences in market structure between equity markets and fixed-income markets. For instance, given that the bond market is a dealer market where market makers provide liquidity from their principal trading books, under the proposed rule all fixed-income transactions would be classified as conflicted.

JPMorgan (2023) and Blackrock (2023) showed some receptiveness to the rule eventually being implemented if it is appropriately tailored to allow brokerage firms to best serve their customers, namely including a definition of institutional client, abandoning the conflicted transaction requirements, and given the previous FINRA and MSRB rules are rescinded.

Views on the Amendments to Reg NMS

Retail Traders

Retail Traders strongly support tick harmonization arguing that it will ensure a level playing field that is more conducive to fair and transparent trading as well as support the inclusion of odd lot information in the SIP as it would provide a more accurate picture of the market and help to promote greater liquidity and transparency.

Market Makers

In terms of the amendments to Reg NMS, Citadel Securities (2023) views the SEC's proposal as severely flawed. First, because it claims the current tick size fosters off-exchange retail trading. They show that regardless of the tick size wholesale B-Ds offer better execution quality than exchanges which is the real reason for this shift in order flow. Additionally, the granularity of the tick sizes is criticized as it reduces displayed liquidity, increases market instability, and hinders companies' ability to raise capital. According to them, reducing tick sizes would result in many stocks trading with more than 20 price levels intra-spread during a period of market stress leading to less resilient liquidity, increased quote flickering, a less stable NBBO (changing rapidly as liquidity providers adjust quotes at 1/10 of a cent increments) and an increase in total message traffic, as order cancellations and modifications increase. Unlike the Tick Size Pilot, these changes if implemented would affect over 80% of the total market volume without a prior pilot analysis. Citadel believes that defining tick-constrained stocks solely based on quoted spread ends up disregarding depth and overstating the number of tick-constrained stocks. Regarding fees, Citadel recalls that less than five years ago the SEC admitted it lacked the data needed to study the effects of changes in the current fee structures on order routing, market quality, and market structure. They proposed a pilot which was rejected by the U.S. Court of Appeals. Since then, this uncertainty about the potential changes to fees remains, and

thereby advancing this rule poses severe unknown risks. Both Citadel and Hudson River Trading (2023) agree with accelerating the implementation of revised round lot definitions for transparency, however, they question the reliability of the odd-lot NBBO as a benchmark thereby arguing against adding odd-lot information to the SIP due to high costs and limited benefits.

Brokerage Houses

When it comes to the tick size, Fidelity Investments (2023) strongly opposes changes to tick sizes and access fees claiming it only adds unnecessary complexity while not providing a clear benefit for investors resulting in less liquidity per tick, and an increase in quote fading risk, especially when combined with the OCR. Therefore, they recommend, implementing a lower minimum quoting increment for tick-constrained NMS securities trading at or above $1 per share to 50 mils and an access fee reduced from the current fee of 30mil under 1 cent, to 15 mils under a 50-mil tick. Charles Schwab (2023) agrees with Fidelity in its recommendations and shares concerns related to the granularity of the regime which could lead to queue jumping. Also, they recommend setting a market-wide harmonized trading increment of $.001 for all symbols trading at or above $1.00 per share. They further criticize the change in access fee caps, for prioritizing trading centers' net capture rates over the SEC's statutory obligation to assess access fee rates based on national market system goals and highlight that this is highly hypocritical especially given that the SEC did not hesitate on reducing PFOF for retail brokers, thereby impacting their revenue.

National Stock Exchanges and OTC Markets

Regarding the tick size, they agree on applying a $0.005 quoting increment to tick-constrained securities. For the remaining stocks, the NASDAQ (2023) supports a wider minimum tick size of $0.05 for higher-priced and less liquid securities that currently trade with much wider

spreads to ensure efficient price formation, reduce market fragmentation and the number of odd-lots for higher-priced securities, improving the NBBO. On the other hand, the NYSE (2023) suggests setting a market-wide harmonized trading increment of $0.001 for all symbols trading at or above $1.00 per share.

In terms of access fees, the NYSE (2023) is an advocate of adjusting fees in a proportionate way reflecting the reductions in tick sizes. They propose reducing the current $0.0030 per share cap to $0.0015 per share for symbols adopting the $0.005 quoting increment, and for symbols maintaining their current quoting increments access fees should remain unchanged.

On the other hand, NASDAQ (2023) is against this proposal arguing that it will have negative consequences for market quality and retail investors. They believe the SEC has not provided sufficient evidence to support its proposed reductions and reiterate the value of rebates, stating that they incentivize market participants to act as market makers, provide liquidity, and quote competitively, promoting the deepening of the NBBO, tighter spreads, and overall improved market quality. They believe slashing access fees could lead to wider spreads, potentially harming retail investors by making stock trades more expensive and discouraging market makers from providing liquidity on exchanges. Instead, they recommend a fee cap of $0.0015 for securities in the $0.005 tick size bucket, maintaining the existing $0.0030 cap for securities in the $0.01 tick bucket. This would reduce access fees by half for securities in the $0.005 tick bucket whilst still leaving room for exchanges to offer rebates to improve market quality and the NBBO.

Academic Institutions

Although in agreement with the move to a dynamic stock-dependent tick size regime, Rindi and Graziani (2023) argue that the new tick size regime only touches upon stocks with an average spread smaller than $0.04, thereby tackling the issue of excessive queuing that leads

to tick size-constrained stocks. For these stocks that suffer from excessive queuing, a reduction in the tick size can help reduce the minimum inside spread, which is beneficial for market quality. Nevertheless, the new tick size regime overlooks the issue of excessive undercutting that undermines the incentive of traders to post limit orders in high-priced stocks (with inside spreads exponentially larger than $0.04).

For many high-priced stocks that are not tick size constrained, a relatively small tick size makes undercutting almost costless and decreases the value of time priority, thus eliminating the incentive to supply liquidity (i.e., posting limit orders). If the incentive to post patient limit orders declines, spreads widen, and liquidity worsens. Angel (2023) shares the view that the new tick size only deals with the tick-constrained stocks dilemma and suggests that a better alternative would be allowing issuers to choose the tick size for their securities as they possess the incentive to get it right to maximize the liquidity and thus the value of their stock.

Additionally, because the proposal calls for tick sizes as small as one-tenth of a cent based on the timeweighted-average quote in the prior quarter, there could be as many as eight ticks between the bid and offer. This is probably too many ticks. Recent research supports his view indicating that this proposal splits ticks too much. This results in almost all stocks having spreads of more than 4 ticks, even though an optimal tick exists where the spread is around 2 to 3 ticks. Because of this, the lowest trading costs, better liquidity, and stronger valuations that could be achieved with the optimal tick are not realized (Mackintosh, 2023).

Financial Institutions

The amendments to Reg NMS, namely to the binary tick regime are applauded by financial institutions. Still, Goldman Sachs (2023) warns that simultaneous changes in tick size and access fees might impact the stability of the NBBO in unpredictable ways increasing price volatility, especially during times of stress. Reducing tick sizes can lead to narrower spreads,

but also less liquidity spread over more price points. Traders may need to execute trades at multiple price levels, increasing volatility.

Furthermore, there are concerns that the granularity of the tick size regime proposed adds unnecessary complexity and would result in a loss of price improvement opportunities and liquidity for retail investors. For instance, Citigroup (2023) argues that the proposed $0.0010 and $0.0020 increments should be eliminated since it would result in too many quotes, unnecessary market noise, cause significant leakage of information, and make the execution of large-size orders more difficult. UBS (2023) agrees that introducing tick sizes that are significantly smaller than what is currently could be dilutive and cause less liquidity to be displayed in the order book, which would make it more costly to trade larger-sized orders. Moreover, relying on the quoted spread does not provide sufficient context for determining the optimal tick size.

In terms of the access fee cap, they believe these are misaligned with the four tick sizes. For instance, while a 10 mils access fee cap for a $0.01 tick size may be appropriate, a 10 mils access fee cap for a $0.002 tick size may be disproportionately high. Instead, Morgan Stanley (2023) suggests a dynamic tick size approach with the access fee cap proportionally tied to the smaller and larger tick sizes expressed as a percentage of the minimum increment.

Citigroup (2023) defends that the access fee cap should be reduced to 5 mils for the most liquid, securities that would now be subject to a $0.0050 minimum quoting increment and reduced to 10 mils for most names covered by the $0.01 minimum quoting increment leaving the access fee cap at 30 mils for illiquid securities subject to the $0.05 minimum quoting increment.

Views on the Order Competition Rule

Retail Traders

As for routing orders through wholesalers, investors seem to be willing to pay extra to avoid having their orders internalized by wholesalers with questionable track records[2]. Consequently, they support the OCR rule and the introduction of auctions to enhance order-by-order competition and move retail order execution away from these wholesalers.

Market Makers

Regarding the OCR, while Optiver (2023) overall supports the proposal arguing that price improvement is enhanced when orders are exposed to all market participants simultaneously, Citadel Securities (2023), Virtu Financial (2023), and Hudson River Trading (2023) view the SEC's proposal as unnecessary defending that the current structure delivers great execution quality for investors and that replacing it with a rigid, experimental auction model may result in unintended consequences, to the detriment of retail investors. They argue that this proposal fails to accurately measure current retail execution quality. For instance, it has ignored that according to Battalio (2023), wholesale B-Ds delivered approximately $3 billion in savings to retail investors during 2022 via price improvement. Thus, more than 85% of all retail marketable orders receive price improvement and approximately 50% of retail marketable orders executed by wholesale B-Ds receive the midpoint price or better. They also highlight that the required information disclosure and delay in execution (i.e., the new auction mechanism would increase the current median of 3.6 milliseconds by 27 to 83 times) will encourage others to trade ahead of retail orders. It could also fail to result in execution, in which

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[2] See Broker Check Report, Citadel Securities LLC (https://files.brokercheck.finra.org/firm/firm_116797.pdf).

case the retail order would need to be routed to an exchange or another auction, receiving far worse execution quality.

Brokerage Houses

Concerning the OCR, Fidelity Investments (2023) warns that its prescriptive nature leaves no room for innovation and that it imposes high barriers to entry, given that realistically, only national security exchanges will be able to meet the requirements to operate these auctions. Charles Schwab (2023) argues that there is no justification for this rule. In fact, by conducting their analysis in a major exchange[3] they found that wholesaler marketable execution quality surpassed exchange marketable execution quality on every metric. For instance, they found that the percentage of share price improvement to orders routed to wholesalers amounts to 94.25% compared to 60.24% for the exchange, market orders routed to wholesalers had four times more price improvement per share and wholesalers provide greater liquidity with lower Effective quoted ratios (E/Q) compared to exchanges.

National Stock Exchanges and OTC Markets

Regarding the OCR, the NASDAQ (2023) is in favor of enhancing retail competition but cautions the SEC to not only focus on qualified auctions as there is no one-size-fits-all solution. Instead, they advocate for flexibility, permitting B-Ds to determine whether to send orders to interact on an exchange or similar fair access venue if they cannot provide a "meaningful price improvement." This would be a new concept for best execution to be defined by the SEC. In contrast, the NYSE (2023) believes that changes in quoting and trading increments will render

[3] This study conducted by Charles Schwab includes extensive research on the impact of the four proposed rules but has not been fully disclosed given the tight period for comment submission (https://www.sec.gov/comments/s7-32-22/s73222-20162957-332913.pdf).

the prescriptive retail auction unnecessary. Instead, they recommend exploring potential innovations in Retail Liquidity Programs (RLPs).

Moreover, OTC Markets Group (2023) argues that it supplants the existing FINRA best execution rule by mandating that brokers route to specified destinations and imposes flash auctions which do not guarantee immediate or certainty of a fill at the midpoint. Rather than institutional investors participating in the auctions they argue that it is more likely that retail orders would be exposed to high frequency traders thereby shifting competition and liquidity from regulated off-exchange market makers with FINRA correspondent and order protection obligations to anonymous, on-exchange high frequency traders with no obligations. Finally, Cboe (2023) also does not believe that mandating auctions is a prudent way to enhance retail competition.

Academic Institutions

The most controversial of all rules for scholars is the OCR with the consensus leaning towards dropping this proposal or putting its implementation on hold. Battalio (2023) encourages the SEC to patiently wait and see how enhanced disclosures help competitive forces reduce or eliminate any competitive shortfall that might exist in the market for marketable retail orders. Furthermore, he criticizes the SEC's economic analysis which opted to utilize an algorithm to infer potential retail trades. He argues that using these inferred retail trades significantly undermines the costs of the proposed rule, instead, he found that when using actual orders, the annualized cost estimates exceed the lower bound of the SEC's estimates of the benefits of the implementation of this rule. Therefore, this rule should not be implemented.

Similarly, Brogaard (2023) defends that the proposed rule is motivated by a misguided view that retail brokers' use of wholesalers results in a non-competitive market, inferior execution quality for retail orders, and abnormally high profits for wholesalers. By looking at the current

market structure and order handling practices for retail orders, he demonstrates that this view is not accurate. The practice of routing to wholesalers allows retail customers to benefit from the efficiencies of outsourcing execution to B-Ds who specialize in retail order execution, are willing to bring substantial capital to the table to offer liquidity to retail orders and have access to many other liquidity sources.

Theoretically, a wholesaler may be tempted to internalize orders at inferior prices for the customer or to ignore liquidity at better prices on other venues to trade at a more attractive price for itself. However, falling prey to such conflicts will quickly undermine the ability of the wholesaler to earn future business from leading brokers. For instance, when a wholesaler internalizes orders at relatively inferior prices, its performance will be highlighted by the broker's execution quality metrics. As a result, if a wholesaler falls short, brokers would route less order flow to it. Thus, Brogaard argues that the current structure is already beneficial for retail trades and hence, there is no economic justification for implementing the rules.

To add to this, Spatt and Sun (2023) by directly comparing two systems of trading: broker routing to wholesalers and order-by-order auctions, found that in the broker's routing case, the wholesalers are competing with one another to influence the future share of orders routed to it. Even for securities or market conditions in which wholesalers do not desire to trade, they recognize that the trades could affect the overall assessment of their performance resulting in a competitive environment. In contrast, order-by-order auctions improve allocative efficiency among market makers, but a winner's curse problem in the auction can reduce retail investor welfare, particularly at times of limited liquidity.

Therefore, a switch to order-by-order auctions comes with trade-offs and retail investors can be worse off in the switch, particularly for illiquid stocks or at times when interest in voluntary

liquidity provision is low, as market participants could opt not to provide any liquidity in the auction.

Financial Institutions

There is a strong belief that implementing auctions would reflect poorly on market liquidity and competition and harm retail investors.

First, due to the possibility of information leakage, other traders may trade ahead of retail orders, causing delays in execution of at least 1/30th of a second according to Citigroup (2023). This delay creates an opportunity for market participants to react to the change in demand and adjust pricing accordingly.

Second, if the wholesaler is not willing to execute at the midpoint, the mandated retail auction will result in the dissemination of the retail client's order. Other market participants may interpret this as resulting from the wholesaler's unwillingness to execute at the midpoint and change their offers on another exchange's continuous book in response to this information, which would change the NBBO for executing the retail client's order, leaving the retail trader worse off.

Third, it is improbable that institutional and retail order flow would align significantly, given that auctions disseminate certain information that could reveal investors' positions, hence institutional investors may opt out of participating in the auctions.

Fourth, various technology failures at exchanges, such as NASDAQ's mishandling of the Facebook IPO in May 2012[4] and NYSE's recent issues with its opening auction in January

[4] SEC Press Release (May 2013) (https://www.sec.gov/news/press-release/2013-2013-95htm).

2023[5], have raised concerns over who will be responsible for compensating retail customers if something goes wrong during these auctions. So far, wholesalers are the ones who do so, however, this safety net would disappear if retail orders were forced into price improvement auctions.

Finally, according to Morgan Stanley (2023), the proposal would also prevent B-Ds who have knowledge of retail orders sent to an auction from posting contra-side orders on the exchange auction operator's continuous book given that continuous orders have priority at the same price over auction responses". This might discourage wholesalers and other B-Ds from accepting and routing retail orders because they would not be able to provide liquidity on the exchange auction operator's continuous book. Consequently, retail orders may not receive sufficient liquidity.

Views on the Amendments to Rule 605

Retail Traders

Retail Traders support amendments to Rule 605 and the comprehensive disclosures from ATSs regarding order routing policies, customer order handling, and conflict of interest mitigation plans to ensure transparency for investors.

Market Makers

Both Citadel Securities (2023) and Virtu Financial (2023) agree that the Disclosure of Order Execution Information proposal should result in greater transparency provided by more robust and uniform execution quality metrics that will allow investors to make better-informed

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[5] Reuters (January 2023). "NYSE glitch leads to busted trades, prompts investigation" (https://www.reuters.com/markets/us/some-nyse-listed-stocks-briefly-halted-trading-after-market-open-2023-01-24/)

decisions when choosing brokers and serve as a foundation for assessing the impact of any subsequent changes to U.S. equity markets.

Brokerage Houses

Brokerage Houses endorse the amendments to rule 605 with modifications. Fidelity highlights the search costs inherent for reports to be located. Charles Schwab (2023) is concerned with the method for calculating the E/Q, given that share-weighting this metric could lead to distorted results. For instance, it could incentivize brokers to provide more price improvement on narrow-spread securities and less price improvement on wide-spread securities.

National Stock Exchanges and OTC Markets

There is overall support for the proposal to modernize and enhance the usability of Rule 605 reports as it would provide market participants with more relevant and comprehensive information for making best execution determinations and evaluating market quality. NASDAQ (2023) supports using a 100,000-customer account threshold as they believe it balances implementation costs for B-Ds. NYSE (2023) suggests providing further guidance regarding excluded order types to ensure uniform treatment in data disclosures and emphasizes the importance of comprehensive and accurate data for assessing market structure changes. Cboe (2023) expresses support for increased transparency and disclosure of enhanced execution quality statistics, aligning with the overarching goal of improved reporting under Rule 605.

Academic Institutions

The Order Execution Information Rule was viewed as much needed and overall strongly supported by scholars, such as Schwarz and Jorion (2023), stating that “it goes hand in hand with the SEC’s continued efforts to improve transparency through disclosure, minimize

conflicts of interest, lower costs, and improve access for retail traders". In addition, Battalio (2023) found that the amendments to the current Rule 605 data may increase reported price improvement statistics for retail orders by up to 5 times, which would equate to approximately $15 billion in 2022. Indeed, currently, the information found in voluntary disclosures of execution quality by brokers is inconsistent and cannot be compared across different brokers. The proposed rule aims to address this issue. Also met with support was the proposal to add fractional and odd-lot trade data to disclosure reports since many retail traders are currently unable to evaluate execution quality for most of their trades. Schwarz and Jorion (2023) suggest requiring B-Ds to provide execution statistics based on the order type placed, not on how it was ultimately executed since some B-Ds convert a customer's order type into a different one. Angel (2023) adds to this by arguing that all B-Ds should be required to show execution quality information. Finally, he also strongly opposes the use of round lots arguing that it provides distorted metrics for measuring liquidity and execution quality and that markets have evolved enough to be able to handle odd-lots. Thus, execution quality should be measured against the displayed depth in the market including odd lots, not just the NBBO.

Financial Institutions

Overall, financial institutions advocate for the disclosure of order execution information proposal and see this rule as a valuable source of information and as the needed foundation for evaluating the quality of retail execution before implementing any other proposals. Nevertheless, JPMorgan (2023) expresses concern about the dissemination of the best odd-lot information potentially resulting in investor confusion. For instance, an odd-lot NBBO could appear as a new benchmark, even though it would not be a protected quote, causing investors to believe that they could have received better price improvement for their orders.

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