FINANCIAL INFORMATION FORUM

March 31, 2023

By electronic mail to rule-comments@sec.gov

Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-1090
Attn: Vanessa A. Countryman, Secretary

Re: File Number S7-29-22: Disclosure of Order Execution Information

Dear Ms. Countryman,

The Financial Information Forum ("FIF")[1] appreciates the opportunity to comment on the recent proposal issued by the Securities and Exchange Commission (the "Commission") on Disclosure of Order Execution Information (the "proposed rule").[2] Our comments below are ordered, generally, based on the order in which the applicable topics are presented and discussed in the Commission's proposing release for the proposed rule (the "proposing release").

FIF supports the Commission's initiative to update Rule 605 reporting to reflect market changes subsequent to the initial adoption of Rule 605 in 2000. FIF members recommend that the Commission implement the proposed Rule 605 reporting changes at least one year prior to implementing the other rule changes that the Commission proposed on December 15, 2022. This would provide a baseline for measuring market quality prior to introducing the other proposed changes and allow for a more accurate comparison of market quality by market participants and the public prior to and after the adoption of any other proposed changes.

The following are points discussed in further detail below:

- FIF members request clarification on how a firm would calculate its number of accounts to determine whether it meets the customer account threshold.

[1] FIF (www.fif.com) was formed in 1996 to provide a centralized source of information on the implementation issues that impact the securities industry across the order lifecycle. Our participants include broker-dealers, exchanges, back office service bureaus, and market data, regulatory reporting and other technology vendors in the securities industry. Through topic-oriented working groups, FIF participants focus on critical issues and productive solutions to technology developments, regulatory initiatives, and other industry changes.

[2] Securities Exchange Act Release No. 34-96493 (Dec. 14, 2022), 88 FR 3786 (Jan. 20, 2023) ("Proposing Release").

- FIF members recommend an exception for an introducing firm that routes all of its orders to its clearing firm, subject to the introducing firm meeting certain additional conditions.
- FIF members recommend that the demarcation point for whether an order should be treated as a pre-open order or an order received during regular trading hours should be the point at which the primary listing market disseminates its first firm, uncrossed quotations for the applicable security.
- FIF members assume that the Commission's proposed definition of stop order should be reversed; more specifically, FIF members presume that the Commission is proposing that a sell stop order would be reportable when the sell stop price is equal to or greater than the NBB and that a buy stop order would be reportable when the buy stop price is equal to or less than the NBO.
- FIF members agree with the Commission that stop orders should be reported separately from other types of orders.
- The relevant condition for determining whether a stop order is reportable should be whether the stop order is "triggered" or "activated."
- Stop orders should be differentiated in the same manner as other covered orders; in other words each order type (market orders, marketable limit orders, beyond-the-midpoint limit orders and executable non-marketable limit orders) should be further broken-out between stop and non-stop orders.
- The Commission and FINRA should adopt consistent terminology for stop and stop limit orders.
- The Commission should clarify in the rule that an order that is a beyond-the-midpoint limit order would not also be a non-marketable limit order.
- FIF members support the Commission's statement in the proposing release that "… non-exempt short sale orders would not be considered special handling orders unless a price test restriction is in effect for the security."[3] FIF members request further clarity on how the Commission intends to document this change.
- The Commission should consider whether it is necessary to include beyond-the-midpoint limit orders as a separate category for reporting.
- The Commission should require broker-dealers and market centers to break-out reporting of all orders (not just marketable orders, as proposed by the Commission) to distinguish between IOC and time-in-force orders.
- The Commission's recently-proposed Order Competition Rule, if adopted, would likely require changes to Rule 605. As the Commission further clarifies various aspects of the Order Competition Rule proposal, FIF members would be in a better position to comment meaningfully on how Rule 605 reporting should be modified based on a revised Order Competition Rule proposal.
- FIF members agree with the Commission on the importance of grouping orders with similar notional values but disagree with the Commission that changing the proposed order size categories from share denominations to round lot denominations would achieve this objective. FIF members believe that the most effective approach for grouping orders with similar notional values is to, in fact, group orders based on their notional values.

[3] Proposing Release, at 85.

- The Commission writes in the proposing release that "… defining order size buckets according to dollar values would no longer produce a meaningful distinction between round lot and odd-lot orders."[4] The best approach to address this concern is to add a column to the report to signify whether the orders in the applicable row are round lot or odd-lot orders.
- FIF members recommend that fractional share orders (which we define as orders that are less than one share) be reported separately from round lot and odd-lot orders.
- FIF members also recommend that round lot and odd-lot orders be broken-out further to differentiate between round lot orders that have, and do not have, a fractional share component and to differentiate between odd-lot orders that have, and do not have, a fractional share component.
- The primary objective of the Rule 605 report should be to provide the most informative data relating to order execution quality. In general, the Commission should provide for additional granularity in the reports if providing this additional granularity would provide more informative data to market participants.
- FIF members recommend 360 potential reporting categories (i.e., report rows) for each symbol, as described in detail below.
- FIF members agree with the Commission that requiring reporting with millisecond granularity is the best approach at this time.
- The time to execution period should only consider the portion of an order that is marketable at the time of order receipt. An alternative approach supported by FIF members would be only to count towards the time to execution the period during which an order is marketable.
- FIF members presume that time to execution should not be reported for unfilled shares and that unfilled shares would be reflected through the reporting of the number of shares of covered orders and number of shares cancelled prior to execution. FIF members request confirmation on this point.
- The Commission and industry members should continue to engage in discussions on how the order receipt time for an order should be determined.
- FIF members agree with the Commission on the value of including size improvement statistics in the Rule 605 report.
- Size improvement should be measured against the full displayed size at the opposite side of the national best bid and offer ("NBBO") as of the time of order receipt (for marketable group orders) or time the order becomes executable (for non-marketable group orders) in the same manner that other statistics in the report, such as effective spreads, are measured. FIF members do not agree with the Commission's proposal to measure size improvement based on the number of shares available at the time of execution when all other metrics in the Rule 605 report are based on the time of order receipt or the time an order becomes executable.
- For non-marketable group orders, the Commission proposes reporting of E/Q but not does propose reporting of price improvement statistics. This is inconsistent. FIF members propose that the Commission remove reporting of E/Q for non-marketable group orders.
- More generally, it is not necessary to include the E/Q statistic in the proposed Rule 605(a)(1) report because E/Q can be derived from other data that is already provided in the (a)(1) report.

[4] Id. at 383.

- FIF members recommend an alternative approach to the reporting of the median and 99th percentile statistics because market participants and other firms analyzing Rule 605 data cannot aggregate these statistics across different symbols and order type categories. Considering that a Rule 605 report could have hundreds of thousands of rows, the ability to aggregate data across different symbols and order type categories is essential to meaningfully interpret and make decisions based on this data.
- FIF members recommend as an alternative to reporting median and 99th percentile statistics that a firm report its share-weighted average time to execution without adjusting for outliers (as proposed by the Commission), and separately report its share-weighted average time to execution with an adjustment for outliers. The 99th percentile could be used as the threshold for outliers.
- The proposed rule would require firms to report "[T]he cumulative number of shares executed regular way at prices that could have filled the order while the order was in force, as reported pursuant to an effective transaction reporting plan or effective national market system plan."[5] FIF members believe that it is fairer to measure a firm's execution rate against on-exchange executions because exchanges are fair-access venues, while alternative trading system ("ATS") and dealer trades may not represent liquidity accessible to all market participants.
- FIF members recommend that the Commission require firms to apply spread-based weighting when calculating E/Q for the proposed summary report. Spread-based weighting, in contrast to other types of weighting, results in the same amount of E/Q being reported for the same aggregate dollar amount of E/Q being provided.
- Equal weighting by symbol would not accurately reflect a firm's trade execution performance.
- The Commission proposes that all statistics in the summary report (not just E/Q, as discussed above) be "… equally weighted by symbol based on share volume…."[6] This approach would result in misleading data being provided to customers.
- The proposed rule provides for reporting of average percentage price improvement per order in the summary report. This term is not defined in the proposed rule. FIF members recommend that average price improvement be share-weighted, as discussed below.
- FIF members agree with the approach proposed by the Commission for calculating average percentage effective spread.
- FIF members recommend that the summary report also include the share-weighted average percentage quoted spread.
- It is unclear from the proposed rule whether average order size in the summary report would be reported as number of shares, number of round lots, principal value or another metric. Because of the wide divergence in stock price across symbols, and the fact that the Commission's proposed round lot definitions in the Reg NMS Rule proposal do not address much of this price divergence, the most accurate indicator of order size is notional value.
- FIF members recommend that the Commission require firms to include in the summary report the share-weighted average realized spread over the relevant period.

[5] Proposed Rule 605(a)(1)(iii)(B); Proposing Release, at 431.
[6] Proposed Rule 605(a)(2); Proposing Release, at 432.

- As proposed, firms would be required to make the summary report available to investors in XML and PDF format. FIF members recommend that CSV or another format that can be copied into a program like Excel be used in place of XML. This would allow investors to compare summary data across firms more readily.
- FIF members support the Commission using CAT data as an alternative to each firm generating Rule 605 reports.
- The proposed rule and the proposing release do not appear to address implementation. FIF members propose that the implementation period should be a minimum of one year from the Commission's approval of applicable Plan amendments.
- Any data relating to the "best available displayed price" should not be included in the report format until the best odd-lot order to buy and best odd-lot order to sell have been included in the SIP and firms have had a reasonable time period, subsequent to such inclusion, to incorporate this data into their Rule 605 reports.

In this letter we use the following terminology for ease of reference:

- We use the phrase "marketable group orders" to refer to orders that fall within the following order types: market; marketable limit; marketable IOC; and beyond-the-midpoint limit
- We use the phrase "non-marketable group orders" to refer to orders that fall within the following order types: executable non-marketable limit; stop; and beyond-the-midpoint limit.

These two categories are based on the classifications used by the Commission in the proposed rule, with beyond-the-midpoint limit orders being included in both categories. We use the term "pre-open" order to include orders received after the close.

A. Modifications to reporting venues

Customer account threshold

The proposed rule provides an exemption for a broker-dealer that is not a market center if the broker-dealer introduces or carries fewer than 100,000 customer accounts "… through which transactions are effected for the purchase or sale of NMS stocks."[7] The proposed rule defines this 100,000-account threshold as the "customer account threshold".[8]

FIF members request the following clarifications on how a firm would calculate its number of accounts to determine whether it meets the customer account threshold:

- ***Institutional top-level accounts.*** How should an introducing firm that is not a clearing firm count a top-level account established for an institutional asset manager where the asset manager establishes multiple underlying accounts with the introducing firm's clearing firm, submits orders to the introducing firm using the top-level account, and subsequent to execution

[7] Proposed Rule 615(a)(7); Proposing Release, at 433.
[8] Ibid.

allocates trade executions to the various sub-accounts? FIF members assume that the introducing firm would only count the top-level account because that is the account that is used for trading. This approach is similar to the approach for reporting to the Consolidated Audit Trail system ("CAT"), where the introducing broker reports the account information and associated transactions for the top-level account, and the clearing firm reports the account information and associated allocations for the sub-accounts.[9] This approach also is consistent with the Commission's analysis of CAT data in the proposing release.[10] When considering the appropriate threshold for Rule 605 reporting, the Commission, in the proposing release, considers the number of accounts that different firms report to CAT.[11] For introducing firms, this would include top-level accounts but not sub-accounts. FIF members request confirmation on this point.

- ***Non-U.S. customers.*** FIF members request confirmation whether a firm should include accounts for a non-U.S. customer in determining whether the firm meets the customer account threshold.
- ***Routing firms.*** FIF members request confirmation that a broker-dealer that provides routing services for other broker-dealers would not have any customer accounts for that portion of its business.
- ***Inactive accounts.*** If a firm has authorized an account to trade NMS stocks, but the account has never traded an NMS stock (or has not traded an NMS stock for an extended period of time), should the firm classify the account as an account "… through which transactions are effected for the purchase or sale of NMS stocks"? In other words, should such an account be included in determining whether a firm has reached the customer account threshold?

Introducing firm that routes all of its orders to its clearing firm

FIF members recommend that the Commission provide an exemption from the Rule 605 reporting requirement for an introducing firm that routes all of its customer orders to its clearing firm on a non-directed basis, where the clearing firm makes all routing decisions and the introducing firm does not receive payment for order flow. An additional condition for this exemption would be that the introducing broker has examined the clearing firm's Rule 605 report and does not have reason to believe the clearing firm's report materially misrepresents the introducing broker's order flow.[12]

In this scenario, the introducing firm and the clearing firm share the same order management system, so the order data and the relevant timestamps would be the same for both firms with respect to the orders received by the introducing firm. The one difference is that the clearing firm's report would include a wider set of data because the report would include orders from other introducing brokers and orders received directly by the clearing firm from its own customers.

[9] See FINRA CAT FAQ M4, available at https://catnmsplan.com/faq.
[10] Proposing Release, at 366.
[11] Ibid.
[12] See, for, example, "Responses to Frequently Asked Questions Concerning Rule 606 of Regulation NMS", FAQ 12.01, available at https://www.sec.gov/tm/faq-rule-606-regulation-nms ("Rule 606 FAQs").

B. Pre-open and post-close orders

In this section, for ease of reference, we refer to pre-open and post-close orders collectively as "pre-open" orders. FIF members recommend that the demarcation point for whether an order should be treated as a pre-open order or an order received during regular trading hours should be the point at which the primary listing market disseminates its first firm, uncrossed quotations for the applicable security.

The Commission discusses this issue in the proposing release:

> Prior to a primary listing market disseminating its first quotations in a security, disseminated quotations often reflect spreads that vary significantly from the norm. To prevent such quotations from skewing the execution quality statistics, the Commission exempted orders from inclusion in Rule 605 reports that are received prior to the dissemination of the primary listing market's first firm, uncrossed quotations for a trading day ("Opening Exemption"). With respect to orders received during regular trading hours but before the primary listing market has disseminated its first firm, uncrossed quotation, the Commission continues to believe, for the same reasons it granted this exemption, that including such orders could distort execution quality statistics. Therefore, the Commission is proposing to incorporate this exemptive relief into the proposed definition of covered order with respect to market or limit orders received during regular trading hours at a time when an NBBO is being disseminated.[13]

The discussion in the proposing release reflects exemptive relief granted by the Commission in 2001 (the "Market Systems exemptive letter").[14] Consistent with the Commission's analysis above and in the Market Systems exemptive letter, FIF members believe that an order received prior to the primary listing market disseminating its first firm, uncrossed quotations for a security should be reported in the same manner as any pre-open order.

Under proposed Rule 600(b)(30), the Commission defines a covered order with respect to orders received during the following two sets of periods:

- "… regular trading hours at a time when a national best bid and national best offer is being disseminated and after the primary listing market has disseminated its first firm, uncrossed quotations in the security…"
- "… outside of regular trading hours or at a time when a national best bid and national best offer is not being disseminated."[15]

[13] Proposing Release, at 78-79.
[14] Letter from Annette L. Nazareth, Director, Division of Market Regulation, to Theodore Karn, President, Market Systems, Inc. (June 22, 2001), available at https://www.sec.gov/divisions/marketreg/mr-noaction/msi062201.htm.
[15] Proposed Rule 600(b)(30); Proposing Release, at 424.

The proposed definition of covered order does not address orders received during regular trading hours but prior to the primary listing market disseminating its first firm, uncrossed quotations in a security. FIF members believe that orders received during this time period should be treated in the same manner as orders received pre-open, and that the definition of covered order should be revised to reflect this point. This approach is consistent with two objectives stated by the Commission in the proposing release: preventing orders received prior to the dissemination of the primary listing market's first firm, uncrossed quotations for a security from skewing execution quality statistics (as set forth in the Commission's Market Systems exemptive letter);[16] and providing increased visibility into execution quality for individual investor orders.[17] FIF members consider this approach preferable to the approach in the proposed rule, which would appear to exclude these orders from Rule 605 reporting.

FIF members also recommend that the Commission make conforming changes to the definition of "marketable limit orders" to address this point. In particular, each of the four references in that definition to the "time when a national best bid and national best offer is being disseminated"[18] should be changed to reflect not only that a national best bid and national best offer has been disseminated but also that the primary market has disseminated its first firm, uncrossed quotations for the security. FIF members also recommend the same changes to the definition of "beyond-the-midpoint limit order".[19]

C. Stop orders

FIF members assume the Commission's proposed definition of stop order should be reversed

The proposed rule requires reporting of "executable orders with stop prices".[20] As proposed, "executable" means, "for any buy order submitted with a stop price, that the stop price is equal to or greater than the national best bid during regular trading hours, and, for any sell orders submitted with a stop price, that the stop price is equal to or less than the national best offer during regular trading hours."[21]

Under the Commission's proposed definition, all stop orders would be reportable immediately upon receipt, which is contrary to the Commission's stated intention. For example, if the NBBO is $10.00-$10.05, and a customer submits a buy stop order with a stop price of $10.10, the order would be reportable immediately upon receipt because the stop price ($10.10) is "greater than the national best bid" ($10.00). Similarly, if the NBBO is $10.00-$10.05, and a customer submits a sell stop order with a stop price of $9.95, the order would be reportable immediately upon receipt because the stop price ($9.95) is "less than the national best offer" ($10.05). FIF members presume that the Commission is proposing that a sell stop order would be reportable when the sell stop price is equal to or greater than the NBB and that a buy stop order would be reportable when the sell stop price is equal to or less than

[16] Id. at 85-86.
[17] Id. at 82-83.
[18] Proposed Rule 600(b)(57); Proposing Release, at 425-426.
[19] Proposed Rule 600(b)(16); Proposing Release, at 423.
[20] Proposed Rule 600(a)(1)(iii); Proposing Release, at 431.
[21] Proposed Rule 600(b)(42); Proposing Release, at 425.

the NBO. Alternatively, the Commission could be proposing that a sell stop order would be reportable when the sell stop price is equal to or greater than the NBO and that a buy stop order would be reportable when the sell stop price is equal to or less than the NBB. For purposes of the discussion in this letter, FIF members will presume the first approach is being proposed by the Commission.

Terminology

In this letter, we use the term "stop order" consistent with the Commission's usage of the term in the proposing release.[22] In particular, we use the term "stop order" as shorthand to include stop orders and stop limit orders, as those terms are defined in FINRA Rule 5350. We also use the term stop order more broadly than the term is used under FINRA Rule 5350, Supplementary Material .01, in that we include orders that are triggered upon the stop price matching (or passing) a trade price or a quoted price, while under Rule 5350 the term stop order is limited to orders that are triggered upon the stop price matching (or passing) a trade price. We also include trailing stop orders as stop orders. FIF members note that the terminology used by the Commission in the proposing release and the proposed rule is inconsistent with the terminology in FINRA Rule 5350 in a number of respects. As discussed below, FIF members recommend that the Commission and FINRA adopt consistent usage of the term "stop order" and other relevant terms.

FIF members agree with the Commission that stop orders should be reported separately from other types of orders

FIF members agree with the Commission that stop orders should be reported separately from other types of orders. A stop order is often triggered under market conditions that reflect a market moving adverse to the order. For example, the triggering of a buy stop limit order would reflect a rising market, which could be detrimental to the execution quality for that order. For this reason, a market (or limit) order generated from the triggering of a stop order should not be reported in the same category as a market (or limit) order that is unrelated to a stop order. The view of FIF members on this point is consistent with the Commission's statement in the proposing release that "… the execution prices of stop orders are highly sensitive to handling and execution practices, as these orders are more likely to execute when the stock price is in decline and any delay in execution will result in a larger loss (or smaller gain) for the investor."[23]

FIF members agree with the Commission that stop orders should be reported separately from other types of orders. FIF members recommend that a column be added to the 605(a)(1) report to indicate whether the applicable row is reporting on stop orders. We discuss this in further detail below.

[22] Id. at 248.
[23] Id. at 290.

The relevant condition for determining whether a stop order is reportable should be whether the stop order is "triggered" or "activated"

The relevant condition for determining whether a stop order is reportable should be whether the stop order is "triggered" or "activated". These two terms are used interchangeably in FINRA Rule 5350, Supplementary Material .01 and .02.[24]

There is no action that a firm can take to execute a stop order prior to the triggering of such stop order. This means that reporting with respect to any time period prior to the triggering of a stop order would provide no value to market participants and would provide misleading information to the market.

The following examples illustrate the reason for the recommendation of FIF members on this point:

- The NBBO is $9.90-$9.95
- Customer 1 (C1) submits a buy stop order to Broker 1 (B1) with a stop price of $10.05; the stop order will trigger upon the NBO reaching $10.05
- Customer 2 (C2) submits a buy stop order to Broker 2 (B2) with a stop price of $10.05; the stop order will trigger upon an execution occurring at $10.05
- Customer 3 (C3) submits a buy stop order to Broker 3 (B3) with a stop price of $10.05; the stop order will trigger upon the NBB reaching $10.05
- Assume the orders are all day orders.

Assume the NBBO increases to $10.00-$10.05. This triggers the C1 stop order but does not trigger the C2 or C3 stop order. However, using the definition of "executable" in the proposed rule, all of these orders become reportable as of this time. Assume that an execution does not occur at $10.05 or higher for the rest of the day. In this scenario, B2 would need to report a stop order with no fills even though B2 had no opportunity to execute the order. Similarly, assume the NBB never reaches $10.05 for the rest of the day. In this scenario, B3 would need to report a stop order with no fills even though B3 had no opportunity to execute the order. Alternatively, an execution at $10.05 could occur late in the trading day, which would skew B2's time to execution stats. Similarly, the NBB could reach $10.05 late in the trading day, which would skew B3's time to execution stats.

Stop orders should be differentiated in the same manner as other covered orders

Once a stop order without a limit price has been triggered,[25] the order should be reported as a stop market order. Once a stop limit order has been triggered, the order should be reported in one of the following new order categories based on the status of the order at the time the order is triggered:

- ***Stop marketable limit order.*** Order is a marketable limit order at the trigger time.

[24] Available at https://www.finra.org/rules-guidance/rulebooks/finra-rules/5350.

[25] We consider the terms "triggered" and "activated" to have the same meaning as applied to stop orders and use the term triggered in this letter.

- ***Stop beyond-the-midpoint limit order.*** Order is a beyond-the-midpoint limit order at the trigger time.[26]
- ***Stop executable non-marketable limit order.*** Order is a non-marketable limit order at the trigger time. Orders within this order type would only become reportable if the order is (or becomes) executable at (or after) the trigger time.

As discussed in the preceding sub-section, the reference time for these orders should be the trigger time. Once a stop order has been triggered, reporting for that order should depend on the status of the order at the trigger time. For example, it would not be reasonable to include in the same reporting bucket the fill rate for a stop limit order that becomes marketable at the trigger time and the fill rate for a stop limit order that does not become marketable at the trigger time. Similarly, it would not be reasonable to include in the same reporting bucket the fill rate for a stop limit order that becomes executable and the fill rate for a stop limit order that does not become executable. While we refer specifically to fill rate, the same reasoning would apply for all Rule 605-reportable statistics.

The following scenario illustrates this point:

- The NBBO is $9.90-$9.95
- Customer 1 (C1) submits a buy stop order to Broker 1 (B1) with a stop price of $10.05; the stop order triggers upon the NBO reaching $10.05
- Customer 2 (C2) submits a buy stop limit order to Broker 2 (B2) with a stop price of $10.05 and a limit price of $10.05; the stop order triggers upon the NBO reaching $10.05
- Assume the orders are both day orders.

Assume the NBB increases to $10.03-$10.05. At this point both stop orders are triggered and both orders become reportable. Assume that the market immediately moves to $10.06-$10.08. B1 has a market order that it can execute immediately. In contrast, B2 has a limit order that is not executable. It would be misleading to include these two orders in the same reporting bucket.

The reporting recommended in this sub-section can be achieved by adding a column to the (a)(1) report to indicate whether the applicable row is reporting on stop orders. We discuss this in further detail below.

Providing a consistent definition of the term "executable"

The Commission applies the definition of "executable" to two different order types: non-marketable limit orders; and stop orders.[27] The Commission applies different definitions for the two order types. FIF members disagree with having a definition for when an order is "executable" as applied to stop orders

[26] As discussed below, FIF members question whether it is necessary to include beyond-the-midpoint limit orders as a separate category. If the Commission decides to include beyond-the-midpoint limit orders as a separate category, FIF members recommend that the Commission break-out this category between stop orders and other orders.

[27] Proposed Rule 600(b)(42); Proposing Release, at 425.

that is different from the definition of executable as applied to other order types. Accordingly, FIF members recommend that an alternate term such as "triggering" (or "activation") be used for stop orders. As noted above, these two terms are used interchangeably in FINRA Rule 5350, Supplementary Material .01 and .02. FIF members do not believe that it would be necessary for the Commission to define "triggering" (or "activation") because the concept of the triggering (or activation) of a stop order is well-understood by industry members and regulators.

Need for consistency between Commission and FINRA terminology

FINRA Rule 5350, Supplementary Material .01, provides that a firm cannot use the term "stop order" or "stop limit order" to refer to "an order type that activates as a market or limit order using an event other than a transaction at the stop price as the trigger (e.g., using a quotation at the stop price)."[28] The Commission, by referencing the NBO for a buy stop order and the NBB for a sell stop order[29] as the point at which a stop order becomes executable, proposes to define the term stop order in a manner that is directly contradictory to FINRA Rule 5350, Supplementary Material .01. Another difference between the terminology used by the Commission and FINRA is that the Commission, in the proposed rule, uses the term stop order to include a stop limit order, while FINRA Rule 5350 distinguishes between stop orders and stop limit orders. These inconsistencies in terminology create unnecessary confusion. FIF members recommend that the Commission and FINRA rules and interpretations use consistent terminology whenever possible.

D. Non-marketable limit orders

The proposed rule defines marketable limit order and beyond-the-midpoint limit order but does not define non-marketable limit order.[30] Based on these two definitions, a beyond-the-midpoint limit order also could be considered to be a non-marketable limit order. The Commission should clarify in the rule that an order that is a beyond-the-midpoint limit order would not also be a non-marketable limit order.

E. Non-exempt short sales orders

FIF members support the Commission's statement in the proposing release that "… non-exempt short sale orders would not be considered special handling orders unless a price test restriction is in effect for the security."[31] FIF members request further clarity on how the Commission intends to document this change as it does not appear that the Commission is proposing any change to the definition of "covered order" in relation to these short sale orders.

[28] Available at https://www.finra.org/rules-guidance/rulebooks/finra-rules/5350.
[29] As discussed above, this is the understanding of FIF members as to the Commission's intent.
[30] Proposed Rule 600(b)(16) and 600(b)(57); Proposing Release, at 423 and 425.
[31] Id. at 85.

F. Beyond-the-midpoint limit orders

The Commission reports in the proposing release that beyond-the-midpoint orders represent only 2.9% of non-marketable limit orders.[32] FIF members expect that if the minimum pricing increments proposed by the Commission in its recent Regulation NMS rule proposal[33] are adopted, the percentage of orders that would be classified as beyond-the-midpoint limit orders would be reduced below this 2.9%. Given this relatively small percentage, the Commission should consider whether it is necessary to include beyond-the-midpoint limit orders as a separate category. FIF members note that it would not be difficult technically to include beyond-the-midpoint limit orders as a separate category but question whether it is necessary.

G. IOC orders

For each order type, the execution profile will differ based on whether the orders are IOC or time-in-force orders. Accordingly, FIF members recommend that the Commission require broker-dealers and market centers to break-out reporting of all order types (not just marketable order types, as proposed by the Commission) to distinguish between IOC and time-in-force orders.

The reporting recommended in this section can be achieved by adding a column to the (a)(1) report to indicate whether the applicable row is reporting on time-in-force or IOC orders. We discuss this in further detail below.

H. Segmented orders

If the Commission adopts its recently-proposed Order Competition Rule proposal,[34] it likely would be necessary to require broker-dealers and market centers to break-out reporting of all reportable categories to distinguish orders that are segmented orders from other orders. FIF members expect that, for each order type, the execution profile would differ based on whether the orders are segmented orders. As one consideration, a core principal of the Commission underlying the Order Competition Rule proposal is that segmented orders on average would have lower price impact as compared to non-segmented orders. Another important consideration is that broker-dealers would be subject to certain constraints in how they could route and execute segmented orders, and these constraints would not apply to non-segmented orders. Based on these considerations, FIF members expect that it would be necessary for firms to separately report segmented and non-segmented orders.

The comment in the preceding paragraph is subject to an important caveat. FIF is submitting a separate comment letter on the Order Competition Rule proposal. FIF members note in this separate comment letter that there a number of aspects of the Order Competition Rule proposal that require further

[32] Id. at 237.
[33] Exchange Act Release No. 96494 (Dec. 14, 2022), 87 FR 80266 (Dec. 29, 2022) (Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders).
[34] Exchange Act Release No. 96495 (Dec. 14, 2022), 88 FR 128 (Jan. 3, 2023) (Order Competition Rule) ("Order Competition Proposing Release").

clarification. As the Commission further clarifies these aspects of the Order Competition Rule proposal, FIF members would be in a better position to comment meaningfully on how Rule 605 reporting should be modified based on a revised Order Competition Rule proposal.

I. Order size categories

The importance of grouping orders based on notional value

The Commission writes in the Proposing Release that, "… modifying the order size categories to reflect the number of round lots would better allow Rule 605 reports to group orders with similar characteristics and notional values, and thereby provide more useful execution quality information."[35] FIF members agree with the Commission on the importance of grouping orders with similar notional values but disagree with the Commission that changing the proposed order size categories from share denominations to round lot denominations would achieve this objective. FIF members believe that the most effective approach for grouping orders with similar notional values is to, in fact, group orders based on their notional values.

Given the wide divergence in stock price across different listed issuers, the Commission's proposal with respect to order size categories does not achieve its stated objective of grouping orders with similar notional values. For example the closing price of Chipotle Mexican Grill (CMG) on March 23, 2023 was $1,632.53, and the closing price of A.K.A. Brands (AKA) on that same date was $0.63. Even if the round lot changes proposed by the Commission in the Reg NMS Rule proposal were adopted and implemented, an order for 20 shares of CMG (representing two round lots) would be reported in the same order size category as an order for 200 shares of AKA (also representing two round lots). The first order would have a notional value of $32,650.60, while the second order would have a notional value of $126.00, representing a ratio of 259 to 1.

FIF members are concerned that the proposed round lot categories would be misleading in that they purport to represent order size when, in fact, they do not. Accordingly, FIF members recommend that the Commission replace the proposed order size categories with notional value categories.

Recommended notional value categories

In a written presentation to the Commission on October 30, 2018 and a subsequent letter dated January 30, 2019, FIF members proposed the following notional value categories for Rule 605 reporting:

- $1 - $999 (33%)
- $1,000 -$4,999 (29%)
- $5,000 - $19,999 (24%)
- $20,000 - $49,999 (8%)

[35] Proposing Release, at 90.

- $50,000 – $500,000 (6%).[36]

The numbers in parentheses represent the percentage of orders that fall within the applicable notional value category, as estimated by IHS Markit for Q1 2018. FIF members recommend that the Commission utilize CAT data to conduct a similar analysis to the one conducted by IHS Markit to determine whether the above notional value categories would still be appropriate or whether these notional value categories should be adjusted. FIF members recommend one adjustment to the categories proposed by FIF in 2018. Given that the Commission, in the Order Competition Rule proposal, has proposed $200,000 as a threshold for an exception from the obligation to submit a segmented order to a qualified auction,[37] FIF members recommend that one of the thresholds for separating notional value categories should be $200,000. For example, the Commission could require separate reporting for orders with a notional value between $50,000 and $199,999 and orders with a notional value of $200,000 or above. This would mean six order size categories.

Odd-lot and fractional share orders

The Commission writes in the proposing release that "… defining order size buckets according to dollar values would no longer produce a meaningful distinction between round lot and odd-lot orders.[38] The best approach to address this concern is to add a column to the report to signify whether the orders in the applicable row are round lot or odd-lot orders. FIF members recommend classifying mixed lot orders as round lot orders for purposes of Rule 605 reporting. FIF members further recommend that fractional share orders (which we define as orders that are less than one share) be reported separately from round lot and odd-lot orders. FIF members also recommend that round lot and odd-lot orders be broken-out further to differentiate between round lot orders that have, and do not have, a fractional share component and to differentiate between odd-lot orders that have, and do not have, a fractional share component. When a round lot or odd-lot order has a fractional share component, this could, in some cases, impact the time to execution and the execution price. Accordingly, it would be appropriate to report round lot and odd-lot orders with a fractional share component separately. This is discussed in further detail below.

J. Summary of reportable categories

Primary objective should be to provide the most informative data to market participants

The primary objective of the Rule 605 report should be to provide the most informative data relating to order execution quality. In general, the Commission should provide for additional granularity in the reports if providing this additional granularity will provide more informative data to market participants.

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[36] Letter from Christopher Bok, FIF, to Brett Redfearn, Commission (Jan. 30, 2019), available at https://www.fif.com/index.php/retail-execution-quality/retail-execution-quality-member-resources/retail-execution-quality-comment-letters?download=2024:fif-comments-sec-rule-605-modernization-recommendations ("FIF 2018 Rule 605 Recommendations"), at 5.

[37] Order Competition Proposing Release, at 392.

[38] Proposing Release, at 383.

This additional granularity also is necessary in certain cases to avoid providing misleading information to market participants. For example, as discussed above, providing only one category for reporting stop orders would provide misleading information to market participants because marketable orders, executable orders that are not marketable, and non-executable orders would all be reported in the same bucket. Providing misleading information reduces the value of the Rule 605 data. It also could cause firms to alter their order handling practices in a manner that would be adverse to market participants.

Adding rows and columns to the Rule 605 report, within reason, would not materially increase the costs of processing these reports and storing the relevant data. Accordingly, FIF members recommend that the Commission require additional granularity in the Rule 605 reports where this would provide more informative data to market participants or avoid providing misleading data to market participants.

The Rule 605(a)(1) report is intended to be machine-readable, not human-readable. Assuming that there are approximately 10,000 reportable symbols, the Commission is proposing that a Rule 605(a)(1) report contain a maximum of approximately 420,000 reportable rows. This represents 10,000 symbols multiplied by seven proposed order size categories and six proposed order type categories. The FIF member recommendations presented in this letter would result in a maximum of approximately 3,600,000 rows in the (a)(1) report. This represents 10,000 symbols multiplied by three order type categories, six notional value categories, two time-in-force values, two stop order values, and five lot-size values. FIF members do not consider that this differential in resulting file size is material, and consider that the benefits of providing more granular data to market participants (as proposed in this letter) outweighs the minimal additional processing costs.

Proposed reporting categories

FIF members recommend 360 potential reporting categories (i.e., report rows) for each symbol. FIF members recommend the following columns for the report to define the reportable categories in the report:

Proposed Column	Permitted Values
Symbol	[applicable symbol]
Order type	Market Order / Marketable Limit Order / Executable Non-Marketable Limit Order
Notional value	$1 - $999 / $1,000 -$4,999 / $5,000 - $19,999 / $20,000 - $49,999 / $50,000 – $199,999 / $200,000 and above
Time-in-force	Time-in-force / IOC
Stop order	Yes / No
Lot	Round lot without fractional component / Round lot with fractional component / Odd-lot without fractional component / Odd-lot with fractional component / Fractional (less than one share)

If the Commission does not agree with all of these proposed reporting categories, FIF members request that the Commission implement as many of them as possible.

Given the current lack of clarity as to a number of aspects of the Commission's Order Competition Rule proposal, we do not include a break-out between segmented and non-segmented orders at this time. FIF members anticipate that a differentiation in reporting of segmented and other orders would be required but await further clarification from the Commission on these aspects of the Order Competition Rule proposal before providing our recommendations on this point.

K. Timestamp granularity

The Commission proposes to require firms to report timestamps with a minimum granularity of milliseconds. This approach is consistent with the Consolidated Audit Trail, which requires firms to report all order events with a minimum granularity of milliseconds.[39] FIF members agree that requiring reporting with millisecond granularity is the best approach at this time.

Market centers, in particular, typically record trading events with greater precision than milliseconds. Outside the context of this proposed rule, the Commission should engage in discussions with market centers to consider whether a requirement for market centers to report with increased granularity for CAT, Rule 605 and other required reporting would be appropriate.

L. Reporting time to execution for marketable orders that exceed the size of the protected quotation

The proposed rule determines marketability for a limit order by comparing the customer's limit price to the opposite-side best bid or offer.[40] This creates various challenges for reporting time to execution when the size of the customer's order exceeds the size of the opposite-side best bid or offer.

As an example, assume that an originating broker receives a customer order to buy 1,000 shares of ABCD, a stock with limited liquidity. The customer's limit price is $10.02. At the time of receipt of the order, the NBBO for ABCD is $10.00-$10.02. There are 100 shares displayed at the best offer price. Upon order receipt, the originating broker promptly routes the order to execute against the 100 displayed shares. After this execution, a prior offer that was included in depth of book at $10.04 now becomes the NBO, and the NBBO changes to $10.02-$10.04. The customer's order, which is now non-marketable, is posted at the best bid. Before the order is executed, the NBBO ticks up to $10.03-$10.05. The best bid remains above $10.02 for the next five hours. After five hours, the NBBO decreases to $10.02-$10.04, eventually filling 500 more shares at the bid. The order expires at the end of the day with 400 shares of the order unfilled. This scenario would severely distort "the share-weighted average period from the time of order receipt to the time of order execution" that the originating broker is required to report. More generally, firms that receive marketable orders that are larger relative to the opposite-side displayed NBBO quantity would show a longer time to execution as compared with firms that receive

[39] 17 CFR §242.613(d)(3).
[40] Proposed Rule 600(b)(57); Proposing Release, at 425-426.

marketable orders that are smaller relative to the opposite-side displayed NBBO quantity. This means that reported performance would be impacted by factors that do not reflect a true comparison of the execution performance across firms.

To address this issue, FIF members propose that the time to execution period should only consider the portion of an order that is marketable at the time of order receipt. In the example above, this would be the first 100 shares executed since this represented the portion of the order that was marketable relative to the opposite-side best bid or offer at the time of order receipt. In the example above, the originating broker's time to execution would be sub-second (assuming the originating broker executed the first 100 shares within a sub-second after order receipt) instead of approximately 4 hours and 10 minutes, or indeterminately long if you count the unfilled portion. While the Commission proposes adding a size improvement statistic to the report (see discussion below), the size improvement statistic would not address the issue discussed in this section.

An alternative approach supported by FIF members would be only to count towards the time to execution the period during which an order is marketable. This alternative approach is similar to the approach of the Division of Trading and Markets (the "Division") in Question 8 (Trading Halts) of the Division's "Frequently Asked Questions About Rule 11Ac1-5" (the "Current Rule 605 FAQs").[41] In Question 8, the Division provides guidance that if an order is "… received five minutes or more prior to …" a trading halt "… and remains outstanding (in whole or in part) at the time of the trading halt, "the order continues to be covered by the Rule; provided, however, that for executions that occur after the end of the trading halt, a market center may deduct the time period during which trading was halted from the calculations using the time of execution of the order."[42]

M. Time to execution for unfilled shares

FIF members presume that time to execution should not be reported for unfilled shares and that unfilled shares would be reflected through the reporting of the number of shares of covered orders and number of shares cancelled prior to execution. FIF members request confirmation on this point.

N. Challenges with reporting relative to the order receipt time

The existing Rule 605 and the proposed rule provide for reporting of execution metrics relative to the order receipt time. For example:

- The proposed rule measures time to execution relative to the time of order receipt.[43]

[41] Division of Market Regulation: Staff Legal Bulletin No. 12R (Revised), "Frequently Asked Questions About Rule 11Ac1-5" (June 22, 2001) (revised), Question 8 (Trading Halts), available at https://www.sec.gov/interps/legal/slbim12a.htm ("Current Rule 605 FAQs").
[42] Ibid.
[43] Proposed Rule 605(a)(1)(ii)(C), (D), (E), (G), (H), (I), (L), (M) and (N); Proposing Release, at 428-430.

- The proposed rule measures average effective spread relative to the midpoint at the time of order receipt.[44]
- The proposed rule defines the various order types relative to the NBBO at the time of order receipt.[45]

One challenge for a reporting firm with this approach is that a reporting firm will, upon order receipt, apply various risk and compliance controls to an order. Based on these risk controls, the broker-dealer could reject the order. This raises the question as to whether the order receipt time should be the time the broker-dealer receives the order from the customer (i.e., prior to applying risk controls) or whether the order receipt time should be after the application of risk controls and the broker-dealer's decision of whether or not to reject the order. As far as FIF is aware, the Commission and FINRA have not provided definitive guidance on this point and have provided flexibility for firms on how to interpret the order receipt time. One challenge with reporting the order receipt time based on when risk controls have been applied is that an order management system ("OMS") would not necessarily have a timestamp for this event, and it would be costly for an OMS to implement this type of timestamp. One potential approach would be to permit a routing firm to use the time of its first route as the time of order receipt. This approach would be consistent with the Rule 606 FAQs published by the Commission. In Rule 606 FAQ 11.01, the Commission provides, that "[A] broker-dealer could determine whether a limit order is marketable or non-marketable at the time the broker-dealer routes the order to a venue for execution."[46] Given the complexity of this issue, FIF members recommend that the Commission and industry members continue to engage in further discussions.

FIF members also request confirmation that if a firm rejects an order based on the application of risk and compliance controls the firm would not have to count the rejected shares as having been received for purposes of Rule 605 reporting.

O. Size improvement

The proposed rule would require firms to report the following:

> (F) For executions of covered orders, the cumulative number of shares of the full displayed size of the protected bid at the time of execution, in the case of a market or limit order to sell, or the full displayed size of the protected offer at the time of execution, in the case of a market or limit order to buy. For each order, the share count shall be capped at the order size;[47]

[44] Proposed Rule 600(b)(10); Proposing Release, at 421.
[45] Proposed Rule 600(b)(16) and (57); Proposing Release, at 423 and 425-426.
[46] Rule 606 FAQs, FAQ 11.01.
[47] Proposed Rule 605(a)(1)(i)(F); Proposing Release, at 428.

The Commission states in the proposing release that this type of size improvement statistic could provide "… users of the statistics with information relating to which market centers and broker-dealers are more likely to be able to fill larger-sized orders at or better than the NBBO."[48]

FIF members agree with the Commission on the value of including size improvement statistics in the Rule 605 report. FIF members believe that size improvement should be measured against the full displayed size (at the opposite side of the NBBO as of the time of order receipt (for marketable group orders) or time the order becomes executable (for non-marketable group orders) in the same manner that other statistics in the report, such as effective spreads, are measured. FIF members do not agree with the Commission's proposal to measure size improvement based on the number of shares available at the time of execution when all other metrics in the Rule 605 report are based on the time of order receipt or the time an order becomes executable. The Commission does not explain in the proposing release why this one statistic should be measured based on time of execution, and FIF members are not aware of any rationale for this type of approach.

It is also not clear how a firm would compute this statistic based on the Commission's proposal in the scenario where an order has multiple executions.

Separately, FIF members note that a market could have protected bids and offers that are not represented in the NBBO but are at the same price as the NBBO. These bids and offers are included in Level 1 market data. FIF members understand that when the Commission refers to the "… cumulative number of shares of the full displayed size of the protected …" bid or offer, the Commission is including in this number not just the shares that are represented in the NBBO but also shares of protected bids and offers that are not represented in the NBBO but are at the same price as the NBBO.

P. Average effective over quoted spread (E/Q)

The Commission proposes that firms be required to report the average effective over quoted spread (E/Q) for each row in the Rule 605 (a)(1) report.[49] The Commission writes:

> Average quoted spread can be derived on a per symbol basis by adding average effective spread and double the amount of total average per share price improvement or disimprovement (i.e., amount of price improvement times price improved share count, less amount of price dis-improvement times price dis-improved share count, divided by total number of executed shares).[50]

The Commission explains in the passage above that quoted spread is derived from effective spread and price improvement. For marketable group orders, it is not necessary to include the E/Q statistic in the (a)(1) report because E/Q can be derived from other data that is already reported in the (a)(1) report (specifically, the price improvement, price disimprovement and effective spread statistics). An (a)(1)

[48] Id. at 130.
[49] Proposed Rule 605(a)(1)(i)(M); Proposing Release, at 428.
[50] Id. at 127.

report, as proposed by the Commission, could potentially have hundreds of thousands of rows. It is not a report that would be feasible for a market participant to physically review. Instead, market participants will perform computations on the (a)(1) reports to analyze the data. Accordingly, it is not necessary to include in the (a)(1) report data that can derived from other data that is already included in the report.

For non-marketable group orders, the Commission proposes reporting of E/Q but not does propose reporting of price improvement statistics. This is inconsistent. The Commission could adopt one of the following approaches to address this inconsistency:

- Remove reporting of E/Q for all orders and do not add price improvement statistics for non-marketable group orders
- Apply reporting of E/Q only for marketable group orders and do not add price improvement statistics for non-marketable group orders
- Remove reporting of E/Q for all orders and add price improvement statistics for non-marketable group orders
- Apply reporting of E/Q for all orders and add price improvement statistics for non-marketable group orders.

For the reasons discussed above, FIF members consider the second and fourth approaches as requiring the reporting of data that can be derived from other data in the (a)(1) report and, accordingly, FIF members do not recommend these approaches. As between the first and third approaches, FIF members recommend the first approach because FIF members consider that price improvement is only a relevant statistic for marketable group orders.

Q. Reporting the average, median and 99th percentile periods

The proposed rule would require firms to report the share-weighted average, median and 99th percentile periods from the time of order receipt (in the case of marketable group orders) or the time the order becomes executable (in the case of non-marketable group orders) to the time of order execution.[51] The Commission explains in the proposing release that it is proposing to require the reporting of the median and 99th percentile time periods because "… average time to execution within a category could be skewed by outlier values."[52]

FIF members recommend an alternative approach to the reporting of the median and 99th percentile statistics because market participants and other firms analyzing Rule 605 data cannot aggregate these statistics across different symbols and order type categories. As discussed above, considering that a Rule 605 report could have hundreds of thousands of rows, the ability to aggregate data across different symbols and order type categories is essential to meaningfully interpret and make decisions based on this data.

[51] Proposed Rules 605(a)(1)(ii)(C)-(E), (G)-(I) and (L)-(N) and 605(a)(1)(iii)(E)-(G); Proposing Release, at 429-432.
[52] Id. at 112.

FIF members recommend as an alternative to reporting median and 99th percentile statistics that a firm report its share-weighted average time to execution without adjusting for outliers (as proposed by the Commission), and separately report its share-weighted average time to execution with an adjustment for outliers. This would provide for two share-weighted average numbers for each row in the Rule 605 report that could be aggregated with other rows in the report. There are various approaches that the Commission could take to exclude outliers. For example, the share-weighted average time to execution that is adjusted for outliers could exclude the one percent of orders with the longest time to execution.

R. Non-marketable group orders: reporting the number of shares that could have been filled

The proposed rule would require firms to report the following:

> The cumulative number of shares executed regular way at prices that could have filled the order while the order was in force, as reported pursuant to an effective transaction reporting plan or effective national market system plan. For each order, the share count shall be capped at the order size….[53]

FIF members believe that it is fairer to measure a firm's execution rate against on-exchange executions because exchanges are fair-access venues, while ATS and dealer trades may not represent liquidity accessible to all market participants. Accordingly, FIF members recommend that the Commission also require firms to report the cumulative number of shares executed regular way on an exchange at prices that could have filled the order while the order was in force. This approach is consistent with recommendations that FIF submitted to the Commission in 2018.[54]

S. Need for additional data in the summary execution quality reports

Presenting any type of data to customers (including execution quality data) often presents a trade-off between simplicity and accuracy. Both objectives are extremely important. If a report is accurate but is incomprehensible to a customer, the report has no value; if a report is simple for a customer to read but omits key details necessary to provide the necessary context for customers to interpret the data, the report is misleading.

A key goal of the summary execution quality report is simplicity: providing data that a retail customer can readily understand. At the same time, it is also important to ensure that the summary report provides the necessary information to allow for a fair comparison across reporting firms. As one example, the Commission explains in the Order Competition Rule proposal that order flow that market participants classify as more informed is likely, on average, to receive less price improvement (and obtain higher E/Q) than order flow that market participants classify as less informed.[55] To make the comparison among brokers with more and less informed order flow fairer, FIF members recommend

[53] Proposed Rule 605(a)(1)(iii)(B); Proposing Release, at 431.
[54] FIF 2018 Rule 605 Recommendations, at 8-10.
[55] Order Competition Proposing Release, at 195-196 and 210-211.

that firms also report realized spread in the summary report. This and other recommendations are discussed below.

T. Proposed summary execution quality reports: weighting for calculating E/Q

Average percentage quoted spread

In the next section of this comment letter ("Other statistics included in the summary execution quality report"), FIF members recommend that the summary report include average percentage quoted spread. If average percentage effective and quoted spread are both included on the summary report, it would not be necessary for firms to report E/Q because E/Q could be derived from average percentage effective and quoted spread. The comments in this section apply if the Commission determines that E/Q should be included in the summary report.

The Commission should require spread-based weighting for calculating E/Q

FIF members recommend that the Commission require firms to apply spread-based weighting when calculating E/Q for the proposed summary report. Spread-based weighting, in contrast to other types of weighting, results in the same amount of E/Q being reported for the same aggregate dollar amount of E/Q being provided. This is discussed in detail in this section and illustrated by the scenarios in Tables 1-5 in Attachment I. The scenarios in these tables also are discussed below in this section.

The Commission writes as follows in the proposing release:

> Further, the Commission understands E/Q is already often-used and well understood by industry participants. Currently, although average E/Q can be derived under Rule 605, E/Q is a relatively simple metric to capture contemporaneously with an execution. Given the common usage of the metric, requiring a separate field for E/Q would increase the ability of market participants to access and utilize E/Q to compare price improvement statistics across securities, and across market centers and broker-dealers.[56]

Spread-based weighting is the weighting method that is commonly used in the industry and is the method that the Commission should adopt.

Method of weighting can impact reported results

As the discussion below will illustrate, the method of weighting can influence the results that are reported and result in a firm that provides a lower aggregate dollar amount of price improvement relative to a second firm (for the same transactions) reporting a lower E/Q than the second firm. More specifically, share-based and notional-based weighting would incentivize a firm to allocate the same aggregate dollar amount of price improvement to trades where the symbol has a narrower spread. In doing so, the firm would report a lower E/Q, but this lower E/Q would not reflect that customers

[56] Proposing Release, at 127-128.

received better executions. As discussed above, every effort should be taken to ensure that the Rule 605 reports do not include misleading data.

Before we discuss the specific examples on Attachment 1, we want to clarify how FIF members understand the different weighting methods. This is important to ensure that the Commission and FIF members have the same understanding as to how the different weighting methods would be applied. This is also important to ensure, in the event that the proposed rule is adopted, that firms are clear on how to report and report consistently with other firms.

Share-based weighting

One approach for share-based weighting would involve the following steps:

- For each individual execution, multiply the number of shares executed by the E/Q for the execution
- Sum the results from the preceding bullet
- Divide this result by the total number of shares executed.

For some readers, it might be clearer to visualize this as an equation (i represents an individual execution; sh = number of shares executed; E = effective spread; Q = quoted spread):

$$\frac{\sum_{i=1}^{n}([sh]_i * \frac{E_i}{Q_i})}{\sum_{i=1}^{n}[sh]_i}$$

Notional-based weighting

One approach for notional-based weighting would involve the following steps:

- For each individual execution, multiply the notional value of the execution by the E/Q for the execution
- Sum the results from the preceding bullet
- Divide this result by the total notional value executed.

Representing this as an equation (nv = notional value executed):

$$\frac{\sum_{i=1}^{n}([nv]_i * \frac{E_i}{Q_i})}{\sum_{i=1}^{n}[nv]_i}$$

Spread-based weighting

One approach for spread-based weighting would involve the following steps:

- For each individual execution, multiply the NBBO spread at the time of the execution by the E/Q for the execution
- Sum the results from the preceding bullet
- Divide this result by the total notional value executed.

Representing this as an equation:

$$\frac{\sum_{i=1}^{n}(Q_i * \frac{E_i}{Q_i})}{\sum_{i=1}^{n} Q_i}$$

For spread-based weighting only, this formula can be simplified to the following:

$$\frac{\sum_{i=1}^{n} E_i}{\sum_{i=1}^{n} Q_i}$$

Symbol-based weighting

Symbol-based weighting is not applicable within a symbol and can only be applied across symbols. This means that another weighting method must be used within an individual symbol. In the proposed rule, the Commission proposes "equal weighting by symbol based on share volume". One possible interpretation of this phrase is that the Commission is proposing share-based weighting within each symbol and then symbol-based weighting across symbols, but FIF members are not clear on this point and request clarification from the Commission. Assuming that this is what the Commission intends (i.e., share-based weighting within a symbol and symbol-based weighting across symbols), one method for computing this weighting would be the following:

- Apply the following steps for each symbol (for the applicable order type):
    - For each individual execution, multiply the number of shares executed by the E/Q for the execution
    - Sum the results from the preceding bullet
    - Divide this result by the total number of shares executed
    - Multiply this result by the overall market volume for the symbol
- Sum the result for each symbol
- Divide this result by the overall market volume for all symbols in the category (i.e., S&P 500 and other).

Why symbol-based weighting is problematic

The proposed rule provides for summary statistics to be reported for market and marketable limit orders "… equally weighted by symbol based on share volume."[57] As noted, only one method of

[57] Proposed Rule 605(a)(2); Proposing Release, at 432.

weighting can be applied in any step. The problematic nature of symbol-based weighting can be demonstrated by the following example:

- During a calendar month a firm executed one million shares of ABC and 10,000 shares of DEF (in each case, where the orders were market orders)
- The executions for ABC and DEF had the same weighted average spread and the same weighted average price
- The firm provided share-weighted average E/Q of .800 for ABC and .600 for DEF
- These are the only two symbols executed by the firm during the month
- The total market volume for ABC and DEF is the same for the appliable month.

In this example, would the firm's E/Q be .700 (equal weighting by symbol) or approximately .798 (weighting by spread, shares or notional value)? FIF members understand that the Commission is proposing to require the firm to report an E/Q of .700 in this scenario, which would be a significant distortion of the firm's actual E/Q.

FIF members are concerned, as demonstrated by the previous example, that equal weighting by symbol would not accurately reflect a firm's performance. If a second firm had an E/Q of .750 for both stocks during the month, the second firm would be providing better execution quality (.750 spread, share and notional value weighted average E/Q for the second firm as compared to .798 spread, share and notional value weighted average E/Q for the first firm) but show worse reported E/Q (.750 for the second firm as compared to .700 for the first firm). It is very important that the Rule 605 reports not include this type of misleading data as market participants will make routing and execution decisions based on this data.

Addressing the concerns that led the Commission to propose symbol-based weighting

The Commission writes in the proposing release that,

> [E]qual weighting of each symbol would facilitate the comparability of execution quality statistics among market centers or broker-dealers that receive for execution different mixes of stocks and prevent the nature of the stocks traded from making it more difficult to determine how the reporting entity performed with respect to execution quality for the particular mix of orders that it received for execution.[58]

The Commission further writes in footnote 468 of the proposing release:

> For example, without equal weighting, differences in summary-level execution quality statistics between a market center that receives more high-priced stocks for execution and market center that receives more low-priced stocks for execution may be more

[58] Id. at 153.

attributable to the different mix of stocks, rather than differences in the behavior of the market center.

FIF members agree with the Commission's concern that the mix of symbols traded by a firm (specifically, whether the firm on average executes higher-priced or lower-priced symbols) could impact its reported execution quality statistics, but FIF members are concerned that the distortions described above that would result from using symbol-based weighting would significantly outweigh any potential benefits. FIF members recommend, as an alternative method for addressing the Commission's concern, requiring each firm providing a summary report to report its weighted average execution price as a separate reportable item on the summary report. This would be computed as follows:

- For each individual execution, multiply the number of shares executed by the execution price
- Sum the results from the preceding bullet
- Divide this result by the total number of shares executed.

With this approach, the misleading data that would result from symbol-based weighting is avoided, and customers can take a broker's weighted average execution price into account when reviewing the summary report data.

How spread-based weighting reflects the actual economic benefits to customers while share-based and notional-based weighting do not

FIF members analyzed various potential approaches that could be used for weighting within and across symbols, including based on spread, notional value and shares. FIF members recommend that the same approach be used for weighting within and across symbols. Attachment 1 demonstrates the impact of different weighting approaches on aggregate E/Q results. As demonstrated by Tables 1-5 of Attachment 1, share-based and notional-based weighting result in over-weighting for stocks with narrower spreads as compared to stocks with wider spreads. As demonstrated by these tables, by shifting the same aggregate dollar value of price improvement from a stock with a wider spread to a stock with a narrower spread, a reporting firm can improve its E/Q without providing better execution quality.

In Tables 1-5, Order 1 has a narrower spread than Order 2 in all cases. Tables 1-5 represent the following permutations of this scenario:

- Table 1: Orders 1 and 2 have the same number of shares and same NBBO midpoint
- Table 2: Order 1 has fewer shares than Order 2; the orders have the same NBBO midpoint
- Table 3: Order 1 has more shares than Order 2; the orders have the same NBBO midpoint
- Table 4: Orders 1 and 2 have the same number of shares; Order 1 has a lower NBBO midpoint relative to Order 2
- Table 5: Orders 1 and 2 have the same number of shares: Order 1 has a higher NBBO midpoint relative to Order 2.

In every one of these five scenarios, a firm can manipulate its spread-weighted and notional-weighted E/Q to its advantage by allocating a higher proportion of E/Q to the orders with a narrower NBBO midpoint. This is never the case with spread-based weighting.

As another example of this effect, assume that each of Broker A and Broker B receives and executes one order for symbol ABC and one order for symbol DEF. Assume further that all four orders have the same principal value. Also assume that symbol ABC has a narrower spread as compared to symbol DEF. If Brokers A and B provide the same aggregate price improvement, but Broker A (relative to Broker B) allocates a greater portion of the price improvement to symbol ABC, Broker A will report a lower E/Q as compared to Broker B even though both firms provided the same aggregate dollar amount of price improvement.

Based on how share-based and notional-based weighting over-weight stocks with narrower spreads relative to stocks with wider spreads, FIF members are opposed to these two approaches for weighting. FIF members recommend spread-based weighting because it accurately reflects the aggregate dollar amount of price improvement provided by a firm. With spread-based weighting, in contrast to other weighting methods, a firm cannot improve its E/Q by shifting price improvement from executions with wider spreads to executions with narrower spreads.[59] As the tables in Attachment 1 demonstrate, spread-based weighting remains constant for a specified aggregate amount of price improvement.

U. Other statistics included in the summary execution quality report

Equally weighting by symbol based on share volume

The Commission proposes that all statistics in the summary report (not just E/Q, as discussed above) be "… equally weighted by symbol based on share volume…."[60] For the same reasons as discussed above with respect to reporting of E/Q, FIF members believe that this approach would result in misleading data being provided to customers.

Average percentage price improvement

The proposed rule provides for reporting of average percentage price improvement per order in the summary report.[61] This term is not defined in the proposed rule or explained in the proposing release, and it is not clear to FIF members whether this is intended to report price improvement as a percentage of the midpoint (as of the time of order receipt) or as a percentage of some other statistic. FIF members will assume that this is intended to report price improvement as a percentage of the midpoint. Reporting this percentage per order would result in inaccurate price improvement statistics as compared with share-weighted reporting. Accordingly, FIF members recommend that average price

[59] An execution does not have a spread. To be more precise, we are referring to the NBBO spread as of the time of receipt of the order to which the execution is associated.
[60] Proposed Rule 605(a)(2); Proposing Release, at 432.
[61] Ibid.

improvement be share-weighted as follows (SWAPPI is share-weighted average percentage price improvement; PI = price improvement):

$$SWAPPI = \frac{\sum_{i=1}^{n}[PI\ per\ share * number\ of\ shares\ executed]_i}{\sum_{i=1}^{n}[midpoint * number\ of\ shares\ executed]_i}$$

The PI number above represents a net PI; in other words executions with negative PI would reduce the PI per share. For clarity, FIF members recommend that this item in the summary report be identified as "share-weighted average percentage price improvement."[62] The words "per order" should be removed.

FIF members further recommend that any statistic included in the summary report also be included in the (a)(1) report such that a person could derive any statistic in the summary report based on the data in the (a)(1) report. Accordingly, FIF members recommend that the Commission add a column to the (a)(1) report that would report the share-weighted average midpoint for each row. With this statistic, a person could derive the denominator for the share-weighted average percentage price improvement calculation (and the average percentage effective spread and average percentage quoted spread discussed below).

Average percentage effective spread

For clarity, FIF members recommend that this item in the report be identified as "share-weighted average percentage effective spread." FIF members agree with the approach proposed by the Commission for calculating this statistic. This statistic can be calculated as follows (SWAPES is the share-weighted average percentage effective spread):

$$SWAPES = \frac{\sum_{i=1}^{n}[effective\ spread\ per\ share * shares\ executed]_i}{\sum_{i=1}^{n}[midpoint * shares\ executed]_i}$$

Average percentage quoted spread

FIF members recommend that the summary report also include the share-weighted average percentage quoted spread. This can be calculated as follows (SWAPQS is share-weighted average percentage quoted spread):

$$SWAPQS = \frac{\sum_{i=1}^{n}[quoted\ spread\ per\ share * shares\ executed]_i}{\sum_{i=1}^{n}[midpoint * shares\ executed]_i}$$

With these statistics, any person could derive E/Q by dividing the share-weighted average percentage effective spread by the share-weighted average percentage quoted spread, so it would not be necessary to include E/Q in the summary report. If the Commission determines to include E/Q in the summary report, the Commission should apply spread-based weighting for this summary E/Q, as discussed above.

[62] All calculations in this letter should be multiplied by 100 where required to convert to a percentage.

If average percentage effective and quoted spread are reported, as proposed above, a person also could derive the average percentage price improvement for the summary report.

Average order size

It is unclear from the proposed rule whether average order size would be reported as number of shares, number of round lots, principal value or another metric. As discussed above, because of the wide divergence in stock price across symbols, and the fact that the Commission's proposed round lot definitions in the Reg NMS Rule proposal do not address much of this price divergence, the most accurate indicator of order size is notional value. Average order size should be the total notional value of all orders divided by the total number of orders. FIF members also support reporting average order size in shares in the summary report as long as average order size is also reported as notional value.

FIF members recommend that average order size in shares be calculated as follows:

- For each individual execution, multiply the number of shares executed by the order size in shares
- Sum the results from the preceding bullet
- Divide this result by the total number of shares executed.

This can be written as an equation:

$$\frac{\sum_{i=1}^{n}[shares\ executed * order\ size\ in\ shares]_i}{\sum_{i=1}^{n}[shares\ executed]_i}$$

FIF members recommend that average order size in notional value be calculated as follows:

- For each individual execution, multiply the notional value executed by the notional value of the order
- Sum the results from the preceding bullet
- Divide this result by the total notional value executed.

This can be written as an equation:

$$\frac{\sum_{i=1}^{n}[notional\ value\ executed * order\ size\ in\ notional\ value]_i}{\sum_{i=1}^{n}[notional\ value\ executed]_i}$$

Consistent with the other statistics in the report, the notional value should be based on the midpoint at the time of order receipt.

Percentage of shares executed at the quote or better; percentage of shares that received price improvement

There is no need to reference "equal weighting by share volume" or any other weighting methodology with respect to these two data elements because the weighting is clearly understood from the data element itself. For example, it is clearly understood that "percentage of shares executed at the quote or better" would be calculated by dividing the total shares executed at the quote or better by the total shares executed:

$$\frac{\sum_{i=1}^{n}[shares\ executed\ at\ the\ quote\ or\ better]_i}{\sum_{i=1}^{n}[shares\ executed]_i}$$

Similarly, it is clearly understood that "percentage of shares that received price improvement" would be calculated by dividing the total shares executed with price improvement by the total shares executed:

$$\frac{\sum_{i=1}^{n}[shares\ executed\ with\ price\ improvement]_i}{\sum_{i=1}^{n}[shares\ executed]_i}$$

Average execution speed, in milliseconds

FIF members recommend calculating this as follows:

- For each individual execution, multiply the shares executed by the time to execution
- Sum the results from the preceding bullet
- Divide this result by the total shares executed.

This can be written as an equation:

$$\frac{\sum_{i=1}^{n}[shares\ executed * time\ to\ execution]_i}{\sum_{i=1}^{n}[shares\ executed]_i}$$

V. Adding weighted average realized spread

As the Commission discusses in the Order Competition Rule proposal, order flow that market participants classify as more informed is likely, on average, to receive less price improvement (and obtain higher E/Q) than order flow that market participants classify as less informed.[63] As further discussed by the Commission in the Order Competition Rule proposal, the size of an order relative to the ADV of a stock can impact the amount of price improvement received (and the E/Q obtained) for an order.[64] These are only two of a number of factors outside of the control of the order-handling parties that can impact the price improvement and E/Q for an order. As discussed by the Commission in the

[63] Order Competition Proposing Release, at 195-196 and 210-211.
[64] Ibid.

Order Competition Rule proposal, the impact of these order flow characteristics can be measured, at least in part, through statistics such as realized spread and price impact.[65] Accordingly, FIF members recommend that the Commission require firms to include in the summary report the weighted-average realized spread over the relevant period. In this way, a firm that handles more informed order flow and order flow that is larger relative to ADV, while potentially reporting higher E/Q, would also potentially report a lower realized spread to offset some or all of the E/Q differential. A person reviewing the report could calculate the price impact based on the realized spread and the effective spread. FIF members recommend using the same 15-second and one-minute time intervals for calculating realized spread, consistent with the Commission's proposal for the (a)(1) report. This would mean firms reporting two average realized spread calculations in the summary report.

The following would be one method for calculating the weighted-average realized spread, as proposed by FIF members:

$$\frac{\sum_{i=1}^{n}[realized\ spread\ per\ share * number\ of\ shares\ executed]_i}{\sum_{i=1}^{n}[midpoint * number\ of\ shares\ executed]_i}$$

W. Format of summary report

As proposed, firms would be required to make the summary report available to investors in XML and PDF format.[66] FIF members recommend that CSV or another format that can be copied into a program like Excel be used in place of XML. This would allow investors to compare summary data across firms more readily.

X. Using CAT data to generate the Rule 605 reports

The Commission proposes as an alternative to the proposed amendments that, "… the Commission could use CAT data to have either the Commission or the CAT Plan Processor provide execution quality information to the public at monthly intervals – or more frequently."[67] The Commission writes that "[T]his alternative would effectively eliminate the need for Rule 605 reports."[68]

FIF members support this approach as an alternative to Rule 605. It is inefficient to have hundreds of individual firms generating the same report when the regulators have all the necessary data to generate these reports. Centralizing this function with the regulators also would prevent a scenario where different firms have different understandings as to the reporting requirements and thereby report inconsistently.

[65] Ibid.
[66] Proposed Rule 605(a)(2); Proposing Release, at 432.
[67] Id. at 401.
[68] Ibid.

The Commission requests feedback on whether the Commission's EDGAR system could be used for this purpose.[69] The EDGAR system is outdated technology. FIF members are opposed to the Commission using the EDGAR system for this purpose.

Y. Trading halts

As noted above, in the Current Rule 605 FAQs, the Division provides guidance that if an order is "… received five minutes or more prior to …" a trading halt "… and remains outstanding (in whole or in part) at the time of the trading halt, "the order continues to be covered by the Rule; provided, however, that for executions that occur after the end of the trading halt, a market center may deduct the time period during which trading was halted from the calculations using the time of execution of the order."[70] FIF members believe that in this scenario the order should be excluded from the report because the re-opening after a trading halt is similar to a market open, and the Commission is proposing to exclude the reporting of pre-open orders that are marketable.

Z. Implementation

The proposed rule and the proposing release do not appear to address implementation. Presumably, if the Commission adopts amendments to Rule 605, the participants of the "National Market System Plan Establishing Procedures Under Rule 605 of Regulation NMS"[71] (the "Plan") would need to amend this Plan to reflect the changes to the data that firms would be required to report under Rule 605. The Commission will need to allow a reasonable time period for the filing and approval of these Plan amendments. Any time period for implementation should run from the date that the Commission approves the applicable Plan amendments. FIF members propose that the implementation period should be a minimum of one year from the Commission's approval of applicable Plan amendments.

FIF members further note that any data relating to the "best available displayed price" should not be included in the report format until the best odd-lot order to buy and best odd-lot order to sell have been included in the SIP and firms have had a reasonable time period, subsequent to such inclusion, to incorporate this data into their Rule 605 reports.

More generally, FIF members recommend that the Commission implement the proposed Rule 605 reporting changes at least one year prior to implementing the other rule changes that the Commission proposed on December 15, 2022. This would provide a baseline for measuring market quality prior to introducing the other proposed changes and allow for a more accurate comparison of market quality by market participants and the public prior to and after the adoption of any other proposed changes.

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[69] Proposing Release, at 394.
[70] Current Rule 605 FAQs, Question 8 (Trading Halts).
[71] Available at http://www.nasdaqtrader.com/content/MarketRegulation/SECRule605/appendixa1.pdf.

FIF appreciates the opportunity to comment on the Commission's rule proposal on Disclosure of Order Execution Information. If you would like clarification on any of the items discussed in this letter or would like to discuss further, please contact me at howard.meyerson@fif.com.

Very truly yours,

/s/ Howard Meyerson

Howard Meyerson
Managing Director, Financial Information Forum

Attachment 1
Impact of Different Weighting Schemes on Aggregate E/Q Results

The tables in this Attachment 1 demonstrate that a firm can manipulate its share-based and notional-based E/Q (but not its spread-weighted E/Q) to its advantage by allocating a higher portion of price improvement to executions where there is a lower NBBO spread (with the NBBO spread measured as of time of order receipt). For each table, Order 1 has a narrower spread than Order 2.

Table 1: Orders 1 and 2 have the same number of shares and NBBO midpoint

Example: Aggregation of BUY orders in 2 different stocks

	Shares	Bid	Offer	Midpoint	Quoted Spread	$ Quoted Spread
Order 1	300	$ 20.00	$ 20.02	$ 20.01	$ 0.02	$ 6.00
Order 2	300	$ 19.96	$ 20.06	$ 20.01	$ 0.10	$ 30.00

Case A: All PI given to First Order; nothing to Second Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	300	$ 20.010	$ 0.010	$ 3.00	$ 0.0000	$ 0.00	$ 6.00	0.00%	$ 6,003.00				
Order 2	300	$ 20.060	$ -	$ -	$ 0.1000	$ 30.00	$ 30.00	100.00%	$ 6,018.00				
Totals	600			**$ 3.00**		**$ 30.00**	$ 36.00		**$ 12,021.00**	**50.0%**	**83.3%**	**50.0%**	**50.1%**

Case B: 1/2 of PI given to each Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	300	$ 20.015	$ 0.005	$ 1.50	$ 0.0100	$ 3.00	$ 6.00	50.00%	$ 6,004.50				
Order 2	300	$ 20.055	$ 0.005	$ 1.50	$ 0.0900	$ 27.00	$ 30.00	90.00%	$ 6,016.50				
Totals	600			**$ 3.00**		**$ 30.00**	$ 36.00		**$ 12,021.00**	**70.0%**	**83.3%**	**70.0%**	**70.0%**

Case C: All of PI given to Second Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	300	$ 20.020	$ -	$ -	$ 0.0200	$ 6.00	$ 6.00	100.00%	$ 6,006.00				
Order 2	300	$ 20.050	$ 0.010	$ 3.00	$ 0.0800	$ 24.00	$ 30.00	80.00%	$ 6,015.00				
Totals	600			**$ 3.00**		**$ 30.00**	$ 36.00		**$ 12,021.00**	**90.0%**	**83.3%**	**90.0%**	**90.0%**
									E/Q Range:	40.0%	0.0%	40.0%	39.9%

Table 2: Order 1 has fewer shares than Order 2; Orders 1 and 2 have the same NBBO midpoint

Example: Aggregation of BUY orders in 2 different stocks

	Shares	Bid	Offer	Midpoint	Quoted Spread	$ Quoted Spread
Order 1	200	$ 20.00	$ 20.02	$ 20.01	$ 0.02	$ 4.00
Order 2	400	$ 19.96	$ 20.06	$ 20.01	$ 0.10	$ 40.00

Case A: All PI given to First Order; nothing to Second Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	200	$ 20.010	$ 0.010	$ 2.00	$ 0.0000	$ 0.00	$ 4.00	0.00%	$ 4,002.00				
Order 2	400	$ 20.060	$ -	$ -	$ 0.1000	$ 40.00	$ 40.00	100.00%	$ 8,024.00				
Totals	600			**$ 2.00**		**$ 40.00**	$ 44.00		**$ 12,026.00**	**50.0%**	**90.9%**	**66.7%**	**66.7%**

Case B: 1/2 of PI given to each Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	200	$ 20.015	$ 0.005	$ 1.00	$ 0.0100	$ 2.00	$ 4.00	50.00%	$ 4,003.00				
Order 2	400	$20.0575	$ 0.002	$ 1.00	$ 0.0950	$ 38.00	$ 40.00	95.00%	$ 8,023.00				
Totals	600			**$ 2.00**		**$ 40.00**	$ 44.00		**$ 12,026.00**	**72.5%**	**90.9%**	**80.0%**	**80.0%**

Case C: All of PI given to Second Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	200	$ 20.020	$ -	$ -	$ 0.0200	$ 4.00	$ 4.00	100.00%	$ 4,004.00				
Order 2	400	$ 20.055	$ 0.005	$ 2.00	$ 0.0900	$ 36.00	$ 40.00	90.00%	$ 8,022.00				
Totals	600			**$ 2.00**		**$ 40.00**	$ 44.00		**$ 12,026.00**	**95.0%**	**90.9%**	**93.3%**	**93.3%**
									E/Q Range:	45.0%	0.0%	26.7%	26.6%

Table 3: Order 1 has more shares than Order 2; Orders 1 and 2 have the same NBBO midpoint

Example: Aggregation of BUY orders in 2 different stocks

	Shares	Bid	Offer	Midpoint	Quoted Spread	$ Quoted Spread
Order 1	400	$ 20.00	$ 20.02	$ 20.01	$ 0.02	$ 8.00
Order 2	200	$ 19.96	$ 20.06	$ 20.01	$ 0.10	$ 20.00

Case A: All PI given to First Order; nothing to Second Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	400	$ 20.010	$ 0.010	$ 4.00	$ 0.0000	$ 0.00	$ 8.00	0.00%	$ 8,004.00				
Order 2	200	$ 20.060	$ -	$ -	$ 0.1000	$ 20.00	$ 20.00	100.00%	$ 4,012.00				
Totals	600			**$ 4.00**		**$ 20.00**	$ 28.00		**$ 12,016.00**	**50.0%**	**71.4%**	**33.3%**	**33.4%**

Case B: 1/2 of PI given to each Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	400	$ 20.015	$ 0.005	$ 2.00	$ 0.0100	$ 4.00	$ 8.00	50.00%	$ 8,006.00				
Order 2	200	$20.05	$ 0.010	$ 2.00	$ 0.0800	$ 16.00	$ 20.00	80.00%	$ 4,010.00				
Totals	600			**$ 4.00**		**$ 20.00**	$ 28.00		**$ 12,016.00**	**65.0%**	**71.4%**	**60.0%**	**60.0%**

Case C: All of PI given to Second Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	400	$ 20.020	$ -	$ -	$ 0.0200	$ 8.00	$ 8.00	100.00%	$ 8,008.00				
Order 2	200	$ 20.040	$ 0.020	$ 4.00	$ 0.0600	$ 12.00	$ 20.00	60.00%	$ 4,008.00				
Totals	600			**$ 4.00**		**$ 20.00**	$ 28.00		**$ 12,016.00**	**80.0%**	**71.4%**	**86.7%**	**86.7%**
									E/Q Range:	30.0%	0.0%	53.3%	53.3%

Table 4: Orders 1 and 2 have the same number of shares; Order 1 has a lower NBBO midpoint than Order 2

Example: Aggregation of BUY orders in 2 different stocks

	Shares	Bid	Offer	Midpoint	Quoted Spread	$ Quoted Spread
Order 1	300	$ 20.00	$ 20.02	$ 20.01	$ 0.02	$ 6.00
Order 2	300	$ 50.00	$ 50.06	$ 50.03	$ 0.06	$ 18.00

Case A: All PI given to First Order; nothing to Second Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	300	$ 20.010	$ 0.010	$ 3.00	$ 0.0000	$ 0.00	$ 6.00	0.00%	$ 6,003.00				
Order 2	300	$ 50.060	$ -	$ -	$ 0.0600	$ 18.00	$ 18.00	100.00%	$ 15,018.00				
Totals	600			**$ 3.00**		**$ 18.00**	$ 24.00		**$ 21,021.00**	**50.0%**	**75.0%**	**50.0%**	**71.4%**

Case B: 1/2 of PI given to each Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	300	$ 20.015	$ 0.005	$ 1.50	$ 0.0100	$ 3.00	$ 6.00	50.00%	$ 6,004.50				
Order 2	300	$ 50.055	$ 0.005	$ 1.50	$ 0.0500	$ 15.00	$ 18.00	83.33%	$ 15,016.50				
Totals	600			**$ 3.00**		**$ 18.00**	$ 24.00		**$ 21,021.00**	**66.7%**	**75.0%**	**66.7%**	**73.8%**

Case C: All of PI given to Second Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	300	$ 20.020	$ -	$ -	$ 0.0200	$ 6.00	$ 6.00	100.00%	$ 6,006.00				
Order 2	300	$ 50.050	$ 0.010	$ 3.00	$ 0.0400	$ 12.00	$ 18.00	66.67%	$ 15,015.00				
Totals	600			**$ 3.00**		**$ 18.00**	$ 24.00		**$ 21,021.00**	**83.3%**	**75.0%**	**83.3%**	**76.2%**
									E/Q Range:	33.3%	0.0%	33.3%	4.7%

Table 5: Orders 1 and 2 have the same number of shares; Order 1 has a lower NBBO midpoint than Order 2

Example: Aggregation of BUY orders in 2 different stocks

	Shares	Bid	Offer	Midpoint	Quoted Spread	$ Quoted Spread
Order 1	300	$ 50.00	$ 50.02	$ 50.01	$ 0.02	$ 6.00
Order 2	300	$ 20.00	$ 20.06	$ 20.03	$ 0.06	$ 18.00

Case A: All PI given to First Order; nothing to Second Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	300	$ 50.010	$ 0.010	$ 3.00	$ (0.0000)	$ (0.00)	$ 6.00	0.00%	$ 15,003.00				
Order 2	300	$ 20.060	$ -	$ -	$ 0.0600	$ 18.00	$ 18.00	100.00%	$ 6,018.00				
Totals	600			**$ 3.00**		**$ 18.00**	$ 24.00		**$ 21,021.00**	**50.0%**	**75.0%**	**50.0%**	**28.6%**

Case B: 1/2 of PI given to each Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	300	$ 50.015	$ 0.005	$ 1.50	$ 0.0100	$ 3.00	$ 6.00	50.00%	$ 15,004.50				
Order 2	300	$ 20.055	$ 0.005	$ 1.50	$ 0.0500	$ 15.00	$ 18.00	83.33%	$ 6,016.50				
Totals	600			**$ 3.00**		**$ 18.00**	$ 24.00		**$ 21,021.00**	**66.7%**	**75.0%**	**66.7%**	**59.5%**

Case C: All of PI given to Second Order

										Aggregate E/Q by Weighing			
	Shares	Fill Price	PI/Share	$ PI	Effective Spread	$ Effective Spread	$ Quoted Spread	E/Q	Notional	None	Spread	Share	Notional
Order 1	300	$ 50.020	$ -	$ -	$ 0.0200	$ 6.00	$ 6.00	100.00%	$ 15,006.00				
Order 2	300	$ 20.050	$ 0.010	$ 3.00	$ 0.0400	$ 12.00	$ 18.00	66.67%	$ 6,015.00				
Totals	600			**$ 3.00**		**$ 18.00**	$ 24.00		**$ 21,021.00**	**83.3%**	**75.0%**	**83.3%**	**90.5%**
									E/Q Range:	33.3%	0.0%	33.3%	61.8%