



May 26, 2020

Via Electronic Mail

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

Re: Market Data Infrastructure (Rel. No. 34-68216; File No. S7-03-20)¹

Dear Ms. Countryman:

The Healthy Markets Association² appreciates the opportunity to continue offering our suggestions on reforming the provision of essential market data.³

We begin by noting that the current public market data infrastructure framework is complex, costly, and conflicted. The exchanges and FINRA collectively oversee the

¹ Market Data Infrastructure, Sec. and Exch. Comm'n, 85 Fed. Reg. 16726 (Mar. 24, 2020), *available at* <https://www.govinfo.gov/content/pkg/FR-2020-03-24/pdf/2020-03760.pdf> ("SIP Proposal").

² The Healthy Markets Association is an investor-focused not-for-profit coalition working to educate market participants and promote data-driven reforms to market structure challenges. Our members, who range from a few billion to hundreds of billions of dollars in assets under management, have come together behind one basic principle: Informed investors and policymakers are essential for healthy capital markets. To learn more about Healthy Markets or our members, please see our website at <http://healthymarkets.org>.

³ In November 2017, we released a comprehensive report on the state of equity market data, and called for several reforms. Healthy Markets Association, *US Equity Market Data Report*, Nov. 2017, *available at* <https://healthymarkets.org/product/market-data-report>. Since then, we have: (1) petitioned the Commission, (2) offered comments in the Commission's Market Data and Market Access Roundtable, and (3) commented more than a half-dozen times on the provision of market data. Letter from Tyler Gellasch, Healthy Markets Association, to Hon. W. Jay Clayton, Sec. and Exch. Comm'n, Jan. 17, 2018, *available at* <https://www.sec.gov/rules/petitions/2018/petn4-717.pdf>; Letter from Tyler Gellasch, Healthy Markets Association, to Brent J. Fields, Sec. and Exch. Comm'n, Oct. 23, 2018, *available at* <https://www.sec.gov/comments/4-729/4729-4554022-176182.pdf>; See, e.g., Letter from Tyler Gellasch, Healthy Markets Association, to Brent J. Fields, Sec. and Exch. Comm'n, Apr. 11, 2018, *available at* <https://healthymarkets.org/wp-content/uploads/2018/05/04-11-18-HM-letter-Market-Data-Reforms.pdf> (objecting to fee changes to the CTA/CQ Plans, as well as providing an extensive history of the public market data streams). Most recently, we offered support to the Commission's proposal to rescind the immediate effectiveness of NMS Plan fee filings and comments on the Commission's orders related to the NMS Plan governance, conflicts of interest, and confidentiality policies. Letter from Tyler Gellasch, Healthy Markets Association, to Vanessa Countryman, Sec. and Exch. Comm'n, Dec. 12, 2019, *available at* <https://www.sec.gov/comments/s7-15-19/s71519-6540703-200569.pdf>; see also Letter from Tyler Gellasch, Healthy Markets Association, to Vanessa Countryman, Sec. and Exch. Comm'n, Feb. 20, 2020, *available at* <https://www.sec.gov/comments/4-757/4757-6847748-209720.pdf>.

provision of the public market data streams, which compete with the exchanges' own private market data streams. At root, the SIP Proposal is part of a package of comprehensive reforms being offered by the Commission to ostensibly fix these problems and better fulfill the purpose underlying the SIPs' creation: the real-time provision of essential market data at reasonable cost.⁴ As described in greater detail below, we believe that some of these efforts may -- on the margins -- modestly improve the quality and timeliness of market data. We also believe that they may potentially apply some pressure against runaway cost increases.

However, we do not believe the Commission's SIP Proposal, either individually or in conjunction with other reforms, will result in the real-time provision of essential market information significantly better, faster or cheaper than what users experience today. Accordingly, we urge the Commission to revise the proposal significantly, as detailed below.

Timeliness

Under the SIP Proposal, a trading firm or other market participant would always be able to obtain more information more quickly from an exchange or exchange affiliate than it would be through any other party, including a third-party SIP distributor.

The SIP Proposal provides that the exchange shall make the SIP content available to third party SIP distributors on the same terms and using the same infrastructure as it makes the data available to other market participants, such as trading firms. This is a modest improvement over the current environment, wherein the SIP infrastructure is designed to be slower. However, by allowing an exchange (or an affiliate) to be the first to send that information out to anyone, this necessarily means that other market participants would be able to receive the information contained in the SIP faster than if they were to buy that from an unaffiliated SIP distributor. For example, a trading firm receiving information from the proprietary data feeds and then aggregating it all itself could presumably do that on the same terms as a third-party SIP distributor. However, the unaffiliated SIP distributor would then have to transmit the aggregated data to the

⁴ As then-SEC Chairman William J. Casey explained at the time, a public market data stream would "for the first time give us truly nationwide disclosure of prices and volume in listed stocks, and provide the basis for a truly national market in which investors will know where they can get the best price." Remarks of William J. Casey, Chairman, Sec. and Exch. Comm'n, before the Economic Club of New York, Mar. 8, 1972 (summarized at SEC News Digest, 72-45 (Mar. 9, 1972), *available at* <https://www.sec.gov/news/digest/1972/dig030972.pdf>). A copy of the remarks as prepared for delivery are *available at* <https://www.sec.gov/news/speech/1972/030872casey.pdf>. A public market data stream that lags a private market data stream would facially not serve this purpose, as the information provided by the SIP is not necessarily an accurate reflection of where investors may find the best price. To get that information today, they would have to access the proprietary data feeds. Stated differently, under the Exchange Act, the Commission is directed to "assure the prompt, accurate, reliable, and fair collection, processing, distribution, and publication of information with respect to quotations for and transactions in such securities and the fairness and usefulness of the form and content of such information."

trading firm after aggregation, meaning that its transmission time is a built-in latency. The Proposal thus ensures that the exchanges' proprietary data products would always provide the data -- including "core data" -- more quickly than any third parties.

The Commission should instead put all market data distributors -- whether affiliated with the exchanges or not -- on the same footing. If an exchange were to wish to send market data directly to data customers other than SIP distributors (as they do today), the Commission should require that it be done through an affiliate that would receive the same data, at the same time, on the same terms, and at the same cost as any competing SIP distributor.

Put another way, only SIP distributors could send SIP data to market participants, and all SIP distributors would have to be treated identically in all material respects. This would effectively remove the built in latency advantage of the exchange's data feeds. It would allow the SIP distributors, whether exchange-affiliated or not, to compete on price, content, and timing of delivery on level terms. This revision is essential, as without this modest change, there will never truly be a competitive market for market data.⁵

We are also concerned about minimum timeliness expectations. Some market data users may wish to subscribe to a very low cost, or very low quality SIP product. The Commission should recognize that it must establish a minimum timeliness standard that should be readily adjustable over time, as technology improves.

Content

We agree with the determination to expand the information contained in the SIP to include odd-lots, auctions, and depth-of-book information, which we have previously requested be included in the SIPs. We particularly wish to focus on the importance of including odd-lot information, as odd-lots are a material portion of the markets today, and their exclusion from the SIPs and the auspices of the Order Protection Rule may give rise to significant abuse.⁶ We urge the Commission to include this information in the SIPs, but also allow for more timely tweaks and improvements over time, without needing to undergo a formal rulemaking. Put simply, the Commission should make it easier to update minimum SIP content requirements over time.

Cost

The SIP Proposal does not materially modify the governance or the Commission's interpretation of the Exchange Act's requirements and limitations related to market data fees. In these areas, the Commission has undertaken significant actions already and is

⁵ We fully recognize that many market participants may nevertheless be willing to accept potentially slower, third-party SIP providers. However, there will nevertheless always be brokers and other market participants who are unable or unwilling to accept this compromise. And for those firms, the only solution would remain as it is today -- to buy the exchanges' proprietary data feeds directly.

⁶ Letter from Tyler Gellasch, Healthy Markets Association, to Brent Fields, SEC, Mar. 5, 2019, *available at* <https://www.sec.gov/comments/4-729/4729-5020185-182987.pdf>, and attached as **Exhibit 1**.

in the process of taking more. However, we note that the potential competing SIP distributors would still face significant potential input and technology costs, and is unlikely, by itself, to create any downward pressure on pricing. Accordingly, we reiterate our request that the Commission finalize its proposal to rescind the “effective upon filing” treatment of NMS Plan fee filings, and take such actions as to ensure that all market data fees -- including fees for data provided by SIP distributors pursuant to the SIP Proposal -- comply with the Exchange Act’s mandates.

It is not entirely clear that the fees charged by non-exchange SIP distributors pursuant to the SIP Proposal would have to meet these requirements. We urge you to clarify that they must.

Lastly, we urge you to simplify pricing models within the SIP to eliminate the need to count end users, accounts or terminals, and eliminate the distinctions between professionals and non-professionals.⁷

Complexity and Increased Risks and Costs for Investors

Today, there is no clear “national best bid and offer,” as each firm may aggregate the various proprietary market data feeds to establish, what it believes to be, the NBBO. However, this construction is backstopped by the NBBO provided by the existing SIPs.

We have significant concerns that by creating multiple, alternative SIPs, that market participants may cherry-pick the data feed that costs them the least or makes them look the best. We have reason for this fear. The Commission has previously settled an enforcement case against a market maker that claimed to be providing the “best” prices, when it was instead providing executions based on the slower SIP, despite knowing better prices were available from the proprietary data feeds.⁸ Similarly, Nasdaq has attempted to offer its less-expensive BASIC product as a substitute for the SIPs for brokers seeking to satisfy the Vendor Display Rule, despite its facially inferior content.

While FINRA’s 2015 best execution guidance may provide some limited protections,⁹ we do not think that this material risk to investors should be entirely dependent upon FINRA guidance that may not be readily enforced or may be modified or rescinded at any time.

Could a market participant seek to deliberately subscribe to an inferior data feed? What are the permissible trade-offs for brokers regarding speed, content, and price? While the Commission has established details regarding minimum content, it has not established clear standards for timeliness and cost. We urge the Commission to

⁷ Healthy Markets Association, US Equity Market Data Report.

⁸ *In the Matter of Citadel Securities LLC*, Sec. and Exch. Comm’n, Admin. Proc. File No. 3-17772, Jan. 13, 2017, available at <https://www.sec.gov/litigation/admin/2017/33-10280.pdf>.

⁹ FINRA, *Best Execution: Guidance on Best Execution Obligations in Equity, Options and Fixed Income Markets*, Reg. Notice 15-46, Nov. 2015, available at https://www.finra.org/sites/default/files/notice_doc_file_ref/Notice_Regulatory_15-46.pdf.

establish objective standards, including policies, procedures, and documentation requirements for brokers regarding their selection and usage of competing data feeds.

Market participants may feel compelled to buy numerous, competing SIP products or alternatively use different SIPs for different purposes. Similarly, each broker may use a different SIP, thereby creating different comparisons for execution analysis. For a buy-side firm, this may lead to inconsistent or misleading execution quality analysis.

Further, several potential alternative benchmarks may increase costs and complexity for performing even basic, standardized execution analysis for buy-side firms.

Unjustified Modification of Order Protection Rule

We agree with the SIP Proposal to add odd-lot information to the “core data” content for inclusion in the SIPs. However, even in adding this information, the SIP Proposal engages in an inexplicable extraneous exercise—it redefines the application of the Order Protection Rule. As we have written previously, odd lots are now a material portion of the markets, and should be treated as such. Brokers who ignore odd-lots (for trading or execution quality analysis) may be providing inferior services for their customers. Worse, as we highlighted in our letter to you last year,¹⁰ there are risks of material abuse to investors.

While we are pleased that the SIP Proposal would include odd-lots, the benefits to investors are undermined by inexplicably exempting them from the protections afforded round lots under the Order Protection Rule. We urge you to simply add odd lots to the SIPs, and separately consider any modifications to the Order Protection Rule.

Conclusion

We urge the Commission to embrace this opportunity to remedy some deeply rooted problems in our existing market structure. We urge you to avoid the temptation of easy optical wins that would create new problems and potentially lock in already existing problems for years or decades to come.

Should you have any questions or would like to discuss our letter or exhibit further, please contact me at [REDACTED] or Chris Nagy at [REDACTED].

Sincerely,



Tyler Gellasch
Executive Director

¹⁰ Exhibit 1.

Exhibit 1



March 5, 2019

Via Electronic Mail (rule-comments@sec.gov)

Brent J. Fields
Secretary
Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-1090

RE: Market Data and Market Access Roundtable (Release No. 4-729)

Dear Mr. Fields:

The Healthy Markets Association appreciates the opportunity to supplement our comments¹ to the Commission's Roundtable on Market Data and Market Access. In particular, we wish to expand upon some of the discussions regarding the utility of odd lots in the public market data stream (the SIP). We urge the Commission to work with the NMS Plan participants to expand the SIP to include additional information regarding odd lot orders, auctions, and depth-of-book. We also reiterate our request to further modernize Rules 605 and 606.

In this submission, we wish to expand upon the importance of odd lot orders and executions in both the SIP and in execution quality calculations. Although they comprise a significant portion of all orders, odd lot orders are not subject to the same protections as others under Regulation NMS. Without appropriately considering odd lots, market participants may struggle to have an accurate understanding of best execution. Market participants need more and better information, and some modest reforms could help.

About Healthy Markets Association

The Healthy Markets Association is an investor-focused not-for-profit coalition working to educate market participants and promote data-driven reforms to market structure challenges. Our members, who range from a few billion to hundreds of billions of dollars

¹ Letter from Tyler Gellasch, Healthy Markets, to Brent J. Fields, SEC, October 23, 2018 *available at* <https://www.sec.gov/comments/4-729/4729-4554022-176182.pdf>.



in assets under management, have come together behind one basic principle: Informed investors and policymakers are essential for healthy capital markets.²

Rules 605 and 606 are Outdated

Within the past year, the Commission has finalized rules to (1) enhance ATS disclosures and oversight,³ (2) improve order handling disclosures for some institutional orders,⁴ and (3) adopt a transaction fee pilot.⁵ We support all of those efforts, which are designed to improve transparency for how orders are routed and executed.

While those rules are helpful steps, much more needs to be done. Rules 605 and 606 are still woefully out of date, and inadequate for most market participants. Rule 605 requires market centers that execute orders to post monthly statistics on their website. The required statistics are bucketed by stock and include metrics like effective spread, realized spread, speed of execution and price improvement. Rule 606 requires brokers that route orders to post information on a quarterly basis about where they route and any payment for order-flow arrangements or rebates received.

Rules 605 and 606 are not particularly helpful to providing accurate pictures of execution quality. For example, a recent article exposes the weaknesses in relying on current Rule 605 statistics.⁶

The article presents a chart of Historical Retail Wholesaler Execution Quality on S&P 500 Stock market orders from November 2001 through March 2018, which is reprinted below as FIGURE 1.

² To learn more about Healthy Markets and our members, please see our website at <http://www.healthymarkets.org>.

³ Regulation of NMS Stock Alternative Trading Systems, SEC, 83 Fed. Reg. 38768, (Aug. 7, 2018), available at <https://www.govinfo.gov/content/pkg/FR-2018-08-07/pdf/2018-15896.pdf>.

⁴ Disclosure of Order Handling Information, SEC, 83 Fed. Reg. 58338, (Nov. 19, 2018), available at <https://www.govinfo.gov/content/pkg/FR-2018-11-19/pdf/2018-24423.pdf>.

⁵ Transaction Fee Pilot for NMS Stocks, SEC, 84 Fed. Reg. 5202, (Feb. 20, 2019), available at <https://www.govinfo.gov/content/pkg/FR-2019-02-20/pdf/2018-27982.pdf>.

⁶ *IEX's Retail Execution Quality: Even an SEC Economist Can Get It Wrong*, TabbForum, July 16, 2018, available at

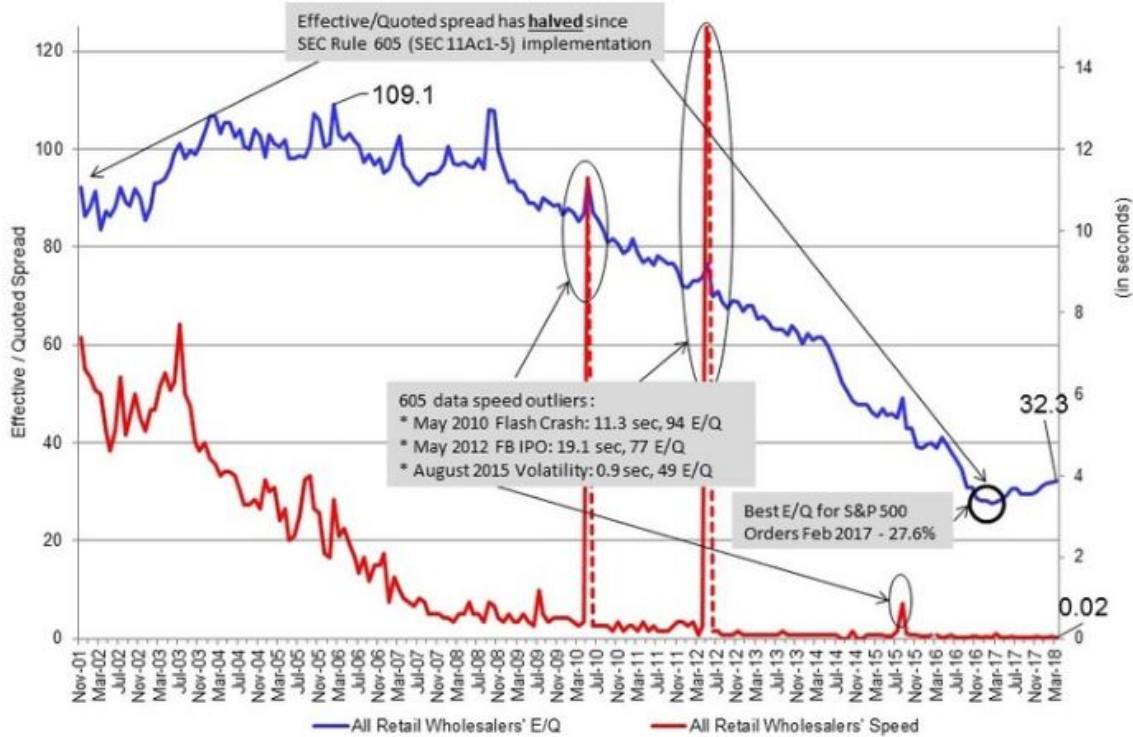
<https://tabbforum.com/opinions/iexs-retail-execution-quality-even-an-sec-economist-can-get-it-wrong?platform=hootsuite&ticket=ST-15512036996781-QWlbH7lsMg1xjxd7T8luvMvne26oYiZr5HCBns9F>.

That article criticizes a research paper by a Commission staff economist. Edwin Hu, *Intentional Access Delays, Market Quality, and Price Discovery: Evidence from IEX Becoming an Exchange*, Feb. 7, 2018, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3195001. Notably: that paper found material improvements in the markets following the introduction of Healthy Markets Working Group Member, IEX.

FIGURE 1

Historical Retail Wholesaler Execution Quality: S&P 500, 100-1999 Shares, Market Orders

Source: TABB Group and IHSMarket



Notes: (1) "All retail wholesalers" includes firms no longer in business (i.e. Madoff, Herzog, GS, CS); (2) Data reflects public 605 data for 100-1999 share market orders in S&P500 stocks. (3) UBS 605 data is not available for May-16 execution speed and therefore excluded.

This graphic seemingly demonstrates that market orders executed by internalizing market makers received an Effective/Quoted "E/Q Spread" of 27.6%; which facially suggests that orders between 100-1999 shares are capturing about 30% of the quote spread.

That doesn't seem to square with our recollection that internalizers to retail orders often offer (1) an average of only \$0.001 or \$0.0001 in price improvement per share to the



investor and (2) an average up to \$0.0020 per share or more⁷ to the brokerage firm for the privilege of interacting with that retail order.

Collectively, this suggests that an internalizer giving up more than 30% of the quoted spread is also paying upwards of \$0.0020 per share, which would suggest those orders are receiving “all-in” pricing superior to the midpoint—at least according to the chart.

We find that highly unlikely, as it would be very difficult to make a profit. Something else is likely going on.

One possibility is that the numbers are not quite as they seem from the reported statistics. To look at this issue, Healthy Markets examined how effective over quoted spread (E/Q Spread) is calculated. Rule 605 does contain average Effective Spread which is calculated by double the difference between the trade price and midpoint of the National Best Bid/Offer NBBO at time of execution:

$$\text{Effective Spread} = 2 * (\text{trading price} - \text{midpoint})$$

However, Rule 605 does not contain a “quoted spread” statistic. Further, Rule 605 buckets orders by size, such as 100-499 shares, 500-1999 shares and so on. In order to derive Quoted Spread from 605 statistics, we must first take the average of both or the 605 buckets by stock and then extrapolate from the statistics contained with Rule 605, specifically (i) Effective Spread, (ii) Price Improvement Shares, (iii) Price Improvement Amount, (iv) Disimprovement Shares, (v) Disimprovement Amount, and (vi) Executed Shares using the following formula:

$$\text{Quoted Spread} = \text{EffSprd} + ((\text{PIshs} * \text{Plamt} - \text{DIshs} * \text{Dlamt}) / \text{Execshs}) * 2$$

Finally, The E/Q Spread can be calculated by dividing the Effective Spread over the Quoted Spread which provide an E/Q Spread ratio reflected as a percentage:

⁷ See, e.g., TD Ameritrade, Inc., SEC Rule 606 Report, Q42018, available at https://www.tdameritrade.com/retail-en_us/resources/pdf/AMTD2055.pdf; E*Trade Securities, E*TRADE Rule 606 Disclosure: 4Q2018, available at <https://content.etrade.com/etrade/powerpage/pdf/OrderRouting11AC6.pdf>; Charles Schwab & Co., Inc., Arrangements with Market Venues: For the Quarter Ending December 31, 2018, available at https://www.schwab.com/public/schwab/nn/legal_compliance/important_notices/material_aspects.html; and Fidelity Brokerage Services LLC, SEC Rule 606 Quarterly Report for the Quarter Ending December 31, 2018, available at http://www.fidelity.com/bin-public/060_www_fidelity_com/documents/applications/fbsquarterly.pdf.

E/Q Spread = Effective Spread/Quoted Spread

The formula is straightforward enough and from that you can derive the same statistics that are presented in the chart above. But simply looking at the chart, without considering recent market structure and reporting changes will give you some very odd, and likely misleading, results.

Changes in Odd Lot Reporting, Trading, and the SIP

For most of its history, the public market data stream, the Securities Information Processor (SIP) has not included odd lots. Then, in December 2013, odd lot transactions (but not quotes) began being reported to the SIPs.⁸ At the time, the NMS Plan Participants asserted that they did not include odd lot quotes in the best bid and offer calculations because of “the lack of economic significance of many individual odd-lot orders.”⁹ While the exchanges determined that odd lot quotations were not essential for the SIPs, many nevertheless began disseminating odd lot quotations in their proprietary data feeds.

Prior to the adoption of the odd lot transaction reporting, and even shortly thereafter, there was some speculation that trade reporting might reduce the amount of odd lot trading. In particular, at the time, there had been some speculation that traders were splitting orders to avoid reporting. Thus, the theory of some had been that requiring odd lot transaction reporting might stop potential abuses.

However, once the odd lot transactions began to be reported to the SIP, a study by the SEC staff found

no evidence of a decline in odd lot rates for US corporate stocks after the switch to reporting odd lot trades to the tape. This suggests that the prior lack of transparency of odd lot trades on the public tape may not have been one of the drivers of odd lot trading.¹⁰

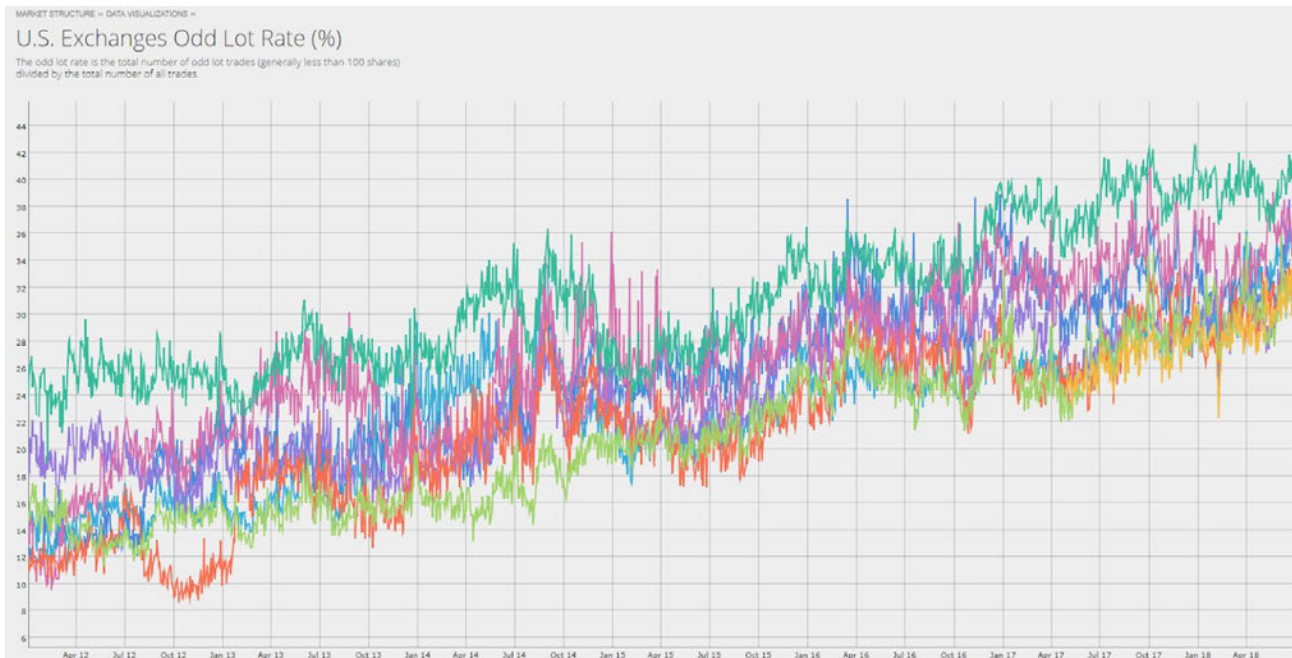
⁸ Order Approving the Eighteenth Substantive Amendment to the Second Restatement of the CTA Plan, SEC, Exch. Act Rel. No. 34-70794, Oct. 31, 2013, available at <https://www.sec.gov/rules/sro/nms/2013/34-70794.pdf>.

⁹ *Id.*, at 2.

¹⁰ *Odd Lot Rates in a Post-Transparency World*, SEC, Jan. 9, 2014, available at https://www.sec.gov/marketstructure/research/highlight-2014-01.html#footnote_5.

In fact, since 2013, odd lot trading and quoting has risen dramatically. Odd lots now account for over 40% of all NMS stock trades on Nasdaq and about the same on other exchanges as depicted in FIGURE 2, which is pulled from the SEC’s Midas site.

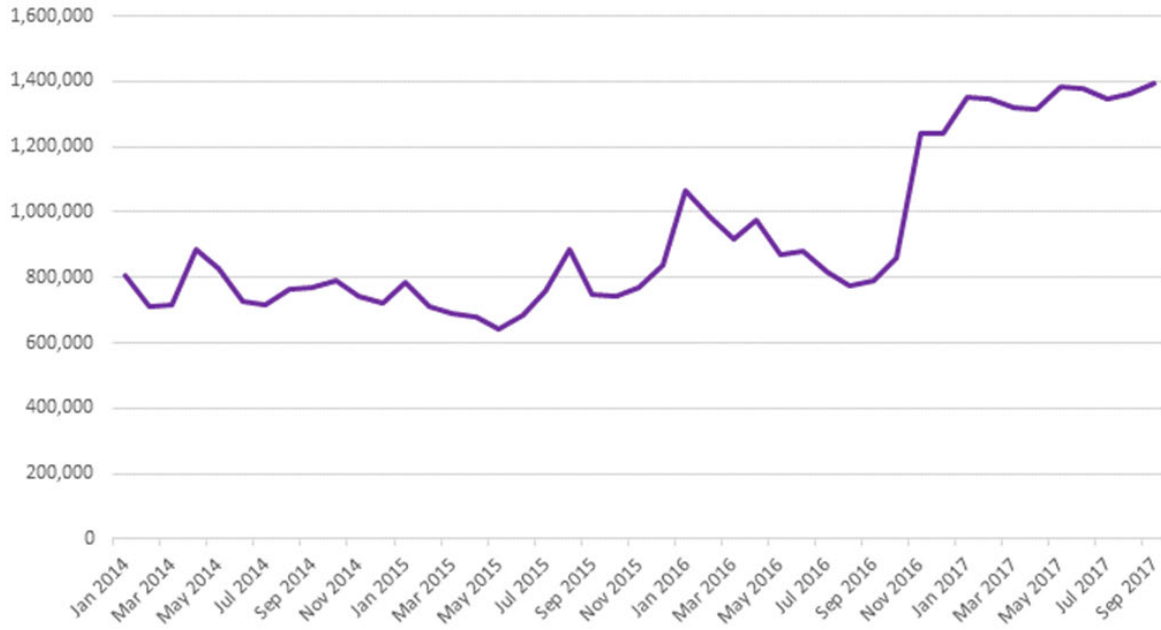
FIGURE 2



Unfortunately, the SEC’s Midas site does not provide information about the Trade Reporting Facilities “TRFs” that are commonly used by internalizers, so we pulled the TRF data separately from the TAQ data. As shown below in FIGURE 3, odd lot activity for the TRF has grown significantly in recent years.

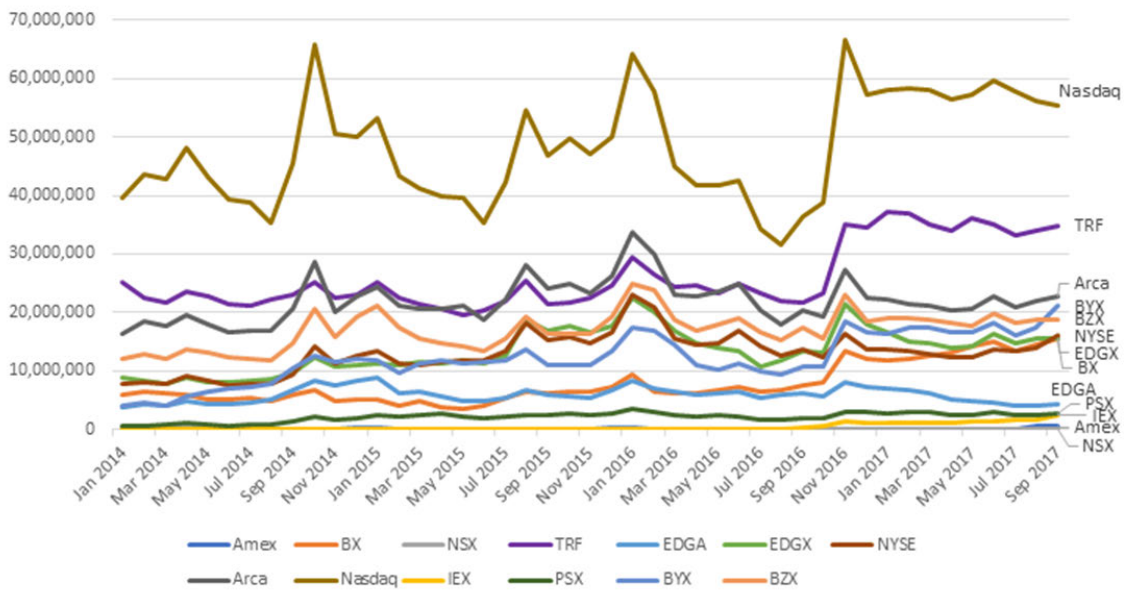
FIGURE 3

Average daily odd lot trade count on TRF
(TAQ; Jan. 2014 - Sept. 2017)



And odd lots account for significant average daily volumes, as shown in FIGURE 4.

Odd lot monthly ADV by exchange/TRF
(TAQ; Jan. 2014 - Sept. 2017)



How Odd Lots Can Skew Execution Quality Measures

Odd lot quotes are not protected under Reg NMS and odd lot quotations are not included in the calculation of effective spread for Rule 605. That matters.

As calculated, the effective spread measures double the amount of difference between the execution price and the midpoint of the SIP NBBO. While odd lot prints are included in the exchange quote, they are not in the NBBO quote for calculating effective spread. This makes the effective spread benchmark itself potentially subject to manipulation.¹¹

Let's consider an example to see how an odd lot can dramatically impact the 605 statistics. FIGURE 5 is an actual depiction of Apple Common Stock (AAPL) which also happens to be consistently one of the most active retail traded stocks.

FIGURE 5

209.57 2.32 (1.12%)			B 209.56 x 5		A 209.58 x 13		V 19,645,929	
Shares	Bid	Market	Ask	Shares	Market	Price	Shares	Time
400	209.56	NSDQ	209.57	69	NSDQ	209.57	15	15:41:18
460	209.56	ARCA	209.58	1,300	NSDQ	209.57	2	15:41:18
300	209.56	EDGX	209.58	500	ARCA	209.57	31	15:41:18
500	209.56	BATS	209.58	100	BATY	209.57	69	15:41:18
100	209.56	BOSX	209.58	600	BATS	209.57	69	15:41:18
100	209.56	BATY	209.58	300	EDGX	209.57	69	15:41:18
100	209.56	PHLX	209.59	624	NSDQ	209.57	31	15:41:18
100	209.56	EDGA	209.59	500	ARCA	209.57	100	15:41:18
300	209.56	NYSE	209.60	1,038	NSDQ	209.57	400	15:41:18
1,400	209.55	NSDQ	209.60	2,500	ARCA	209.57	69	15:41:18
200	209.55	ARCA	209.61	800	ARCA	209.57	154	15:41:18
1,000	209.54	NSDQ	209.61	1,406	NSDQ	209.57	77	15:41:18
300	209.54	ARCA	209.61	100	BOSX	209.57	77	15:41:18
900	209.53	NSDO	209.61	100	NYSE	209.57	77	15:41:18

As seen in FIGURE 5, the national best bid using the SIP is \$209.56 and the national best offer using the SIP is \$209.58. The proprietary exchange data feeds, however, show a “best bid” of \$209.56 and an odd lot “best offer” of 69 shares at \$209.57 (one penny inside the “national best offer” from the SIP).

¹¹ See Mark Melin, *Are Odd Lot Trades Predatory? Potentially, Says Credit Suisse*, Valuewalk, Feb. 18, 2014, available at <https://www.valuewalk.com/2014/02/are-odd-lot-trades-predatory/>.



At the outset, we want to point out a few things. First, 69 shares are alone at the inside offer. Second, there are a lot of odd lot trades -- both exchange and Trade Reporting Facility (TRF) prints. Third, while this is just a snapshot of a single point in time where an odd lot is alone at the inside, this phenomenon appears to happen frequently.

Now let's take an example based on the above to understand how this looks under Rule 605. Assume that a retail investor wanted to buy 100 shares of AAPL at the market and just entered the order through her retail brokerage firm, which, in turn, sent the order to an internalizer, who then nearly instantly filled the order in two lots. The first fill is 50 shares at \$209.5699 and the second fill is 50 shares at \$209.5799. The midpoint for Rule 605 is \$209.57 (halfway between \$209.56 and \$209.58). Since our hypothetical order was filled in two executions, the first 50 shares executed at \$209.5699 receives an effective spread of -0.0002 ($2 * \text{midpoint price} - \text{buy price}$), which is slightly better than half way between the bid/offer. The second 50 shares were executed at \$209.5799 resulting in an effective spread of 0.0198. The E/Q Spread on the first order is -1.00% (Effective Spread of -0.0002 divided by quoted spread of .02) and on the second order the E/Q Spread is 99% (Effective spread of 0.0198 divided by a quoted spread of .02). The weighted average E/Q Spread for the average price of \$209.5749 for our hypothetical order is 49.00%. Furthermore, according to Rule 605, the subject order would have been designated as receiving 100% price improvement which is a statistic many brokers publish on their associated websites.

However, if the odd lot quote, which would have largely filled the order, had been included in the Rule 605 statistics, the midpoint would be 209.565 which would have led our hypothetical order to an E/Q Spread of 198% ($2 * (209.5749 - 209.565) / 0.01$).

Notably, anything over 100% is considered price disimprovement. Thus, the swing from price improvement to price disimprovement is extremely significant for investors assessing whether they received high or low-quality executions.

Some may question whether that odd lot actually accessible. However, what if the odd lot from our example was for 99 shares instead of 69? We wonder how 100 shares would be considered adequate for reference in pricing, but 99 would not, especially since it could have largely filled our hypothetical 100 share order. What happens if several odd lots collectively at the better prices could have been used to fill our hypothetical retail investor's order?

Let's consider another example of a lower priced and less active security. Figure 6 below is a actual depiction of the order book for Mylan N.V. (MYL).

FIGURE 6

36.755 ▼ 0.145 (0.40%)			B 36.74 × 3		A 36.77 × 2		V 264,246	
Shares	Bid	Market	Ask	Shares	Market	Price	Shares	Time
68	36.75	ARCA	36.77	300	NSDQ	36.755	10	09:33:45
100	36.74	ARCA	36.77	100	ARCA	36.76	10	09:33:43
200	36.74	NSDQ	36.77	100	PHLX	36.76	78	09:33:43
300	36.74	BOSX	36.77	100	BATS	36.76	100	09:33:43
100	36.74	BATS	36.78	100	NSDQ	36.76	100	09:33:43
200	36.73	NSDQ	36.78	100	ARCA	36.76	200	09:33:43
300	36.73	ARCA	36.79	100	ARCA	36.76	200	09:33:43
200	36.71	NYSE	36.80	200	NSDQ	36.77	22	09:33:43
100	36.71	NSDQ	36.80	100	ARCA	36.76	22	09:33:43
13	36.70	NSDQ	36.80	100	BATY	36.76	22	09:33:43
168	36.69	NSDQ	36.81	100	EDGX	36.76	22	09:33:43
68	36.69	ARCA	36.81	300	NYSE	36.76	22	09:33:43
313	36.68	NSDQ	36.82	250	NSDQ	36.76	22	09:33:43
300	36.68	ARCA	36.82	237	ARCA	36.77	22	09:33:43

As seen in FIGURE 6, the national best bid using the SIP is \$36.74 and the national best offer using the SIP is \$36.77. The proprietary exchange data feeds, however, show an odd lot “best bid” of 68 shares at \$36.75 and a “best offer” at \$36.77 (one penny inside the “national best bid” from the SIP). Again very similar to the Apple example above, 68 shares are alone at the inside bid. And again, there are a lot of odd lot trades -- both exchange and TRF prints.

Let's assume now that our retail investor wants to sell 100 shares of MYL at the market price. She again enters the order again through her online brokerage firm, who again sends the order to an internalizer. The investor subsequently receives a near-immediate fill of all 100 shares at \$36.745. The midpoint for Rule 605 is \$36.755 (halfway between \$36.74 and \$36.77). The Effective Spread for the order is 0.03 (2* Midpoint price minus sell price) so the order received an E/Q Spread of 66.67%. However, if the odd lot quote, which would have largely filled the order at a price of \$36.75, had the order not bypassed ARCA, and included in the Rule 605, the midpoint would have been \$36.76, and our hypothetical order would have received an E/Q Spread of 150% (2* (36.76-36.745)/0.02). Again, this would be a swing from a significant price improvement to a significant price disimprovement for our retail investor.

Ultimately, these situations seem to appear across stocks with high and low prices and high and low trading volumes. We have a number of questions, including:



- Does including odd lot quotes in several exchanges' proprietary data feeds but excluding them from the SIP feeds give rise to unfair and discriminatory information asymmetries between different market participants?
- Does the inclusion of odd lot quotes in the exchange feed but not the SIP feeds create opportunities for manipulative practices? If so, how?
- Is it possible that traders are intentionally breaking up round lots to widen the quote and distort Rule 605 metrics?
- Would including odd lot quoting in Rule 605 statistics provide a more accurate reflection of execution quality?
- While firms disclose their Rule 605 statistics, are they appropriately disclosing whether and to what extent those execution measures may be affected by the exclusion of odd lot quotations?
- Should firms consider ensuring that odd lot quotes are appropriately used in their Transaction Cost Analysis?

Other Issues with Execution Quality Reporting

The rise of odd lot quotes and trades are far from the only market structure change that has happened in last two decades. Prior to Reg NMS, markets in S&P 500 stocks were in locked or crossed conditions as much as 24% or more of the trading day.¹² Further, while Rule 605 excludes crossed market conditions from calculation, it does not exclude lock market conditions.

Back then, internalizers would often not execute orders in locked or crossed market conditions.¹³ So, if a broker had a market order, and the market was locked, the market maker would have held that market order until the first unlocked uncrossed market. Since 605 includes locked but not crossed markets our order would have been applied an E/Q Spread over 100% or worse during that time.

Importantly, there has been tremendous growth in usage of non-market order-types since Reg NMS, including midpoint orders. Mid-point and some other types of orders are also excluded from Rule 605 calculations. Any exchange that offers midpoint orders would not have those orders included within Rule 605, but internalizers consider it price improvement, which we believe is included within their 605 reports.

¹² See Andriy V. Shkilko, Bonnie F. Van Nessb, and Robert A. Van Nessb, *Locked and Crossed Markets on Nasdaq and the NYSE*, Mar. 28, 2007, available at <http://faculty.bus.olemiss.edu/rvanness/Accepted%20Papers/L&C-JFM.pdf>.

¹³ See Knight Trading Group, Inc., *Knight Trading Order Handling and Execution Protocols*, Mar. 14, 2005, available at <https://web.archive.org/web/20050314011138/http://knight.com/EquityMarkets/orderHandling.asp>.

We also note that execution quality metrics may be subject to significant concerns regarding latency. For example, a recently-released study funded by the Departments of Defense and Homeland Security found that nearly 24 percent of orders were executed at prices inferior to those available on the proprietary data feeds.¹⁴ These findings come despite FINRA’s Best Execution rule and related guidance.¹⁵ Similarly, in January 2017, the Commission settled an enforcement action against one internalizer for representing that it was providing customers with the “best” prices then-available in the marketplace, when it was actually providing them with prices that were inferior to those available on the exchanges’ proprietary data feeds.¹⁶

Of course, the benchmark against which execution quality is measured will have dramatic impacts on the calculations. For example, the first time bucket for Rule 605 reporting is 0-9 seconds--an effective eternity in a world in which sophisticated market participants measure their trading times in nanoseconds.

Potential SIP Reforms

As we urged in October, the public market data stream could use several improvements to its governance, costs, quality, and oversight.¹⁷ And the content is important. As one Nasdaq executive told the Commission staff at the October 2018 Market Data Roundtable, adding odd lot quotations to the SIP “seems like a no brainer, the way the markets have evolved over the years.”¹⁸ This sentiment was shared by executives from Cboe¹⁹ and NYSE.²⁰ We agree. We are aware of no reason why odd lot orders and

¹⁴ David Rushing Dewhurst, et al, *Scaling of inefficiencies in the U.S. equity markets: Evidence from three market indices and more than 2900 securities*, Feb. 14, 2019, available at <https://arxiv.org/pdf/1902.04691.pdf>.

¹⁵ See e.g., *Best Execution: Guidance on Best Execution Obligations in Equity, Options and Fixed Income Markets*, FINRA, Reg. Notice 15-46, Nov. 2015, available at http://www.finra.org/sites/default/files/notice_doc_file_ref/Notice_Regulatory_15-46.pdf.

¹⁶ In the Matter of Citadel Securities LLC, SEC, Exch. Act. Rel. 34-79790, at 4-5, Jan. 13, 2017, available at <https://www.sec.gov/litigation/admin/2017/33-10280.pdf>.

¹⁷ Letter from Tyler Gellasch, Healthy Markets Association, to Brent J. Fields, SEC, 40-41, Oct. 23, 2019, available at <https://www.sec.gov/comments/4-729/4729-4554022-176182.pdf>.

¹⁸ Statement of Oliver Albers, Nasdaq, before the Roundtable on Market Data Products, Market Access Services, and Their Associated Fees, SEC, at 158, Oct. 25, 2018, available at <https://www.sec.gov/spotlight/equity-market-structure-roundtables/roundtable-market-data-market-access-102518-transcript.pdf>.

¹⁹ Statement of Chris Concannon, Cboe, before the Roundtable on Market Data Products, Market Access Services, and Their Associated Fees, SEC, at 98, Oct. 25, 2018, available at <https://www.sec.gov/spotlight/equity-market-structure-roundtables/roundtable-market-data-market-access-102518-transcript.pdf> (“I think we can add more core data to the SIP. I think odd lots does make sense to include. We can include auction and balance information.”).



executions should not be included in the SIPs and in execution quality statistics. In addition, as we have said before, the SIP should also include depth-of-book and auction information.

Lastly, given the significant market structure changes over the past several years, comparing outdated Rule 605 statistics backwards or even against different types of venues (e.g. internalizer to an exchange or ATS) is akin to comparing apples to oranges to Range Rovers. We urge the Commission to update the reporting and calculation requirements to improve investors' and other market participants' abilities to measure and compare their execution quality. Best execution must be a priority for market participants, and we hope the Commission will empower investors to better understand how their brokers are performing.

If you have any questions or comments related to this submission, please contact me or Chris Nagy at [REDACTED] or [REDACTED]. Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Tyler Gellasch", written in a cursive style.

Tyler Gellasch
Executive Director

²⁰ Statement of Michael Blaugrund, NYSE, before the Roundtable on Market Data Products, Market Access Services, and Their Associated Fees, SEC, at 116, Oct. 25, 2018, available at <https://www.sec.gov/spotlight/equity-market-structure-roundtables/roundtable-market-data-market-access-102518-transcript.pdf> ("NYSE has recommended four potential changes to the core data regime, some of which Stacey [Cunningham] mentioned earlier. The first would be to expand the definition of core data to include odd lots priced better than the BBO and auction imbalance information.").