Via Electronic Submission

Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-1090
rule-comments@sec.gov

Re: File No. S7-29-22: Proposed Disclosure of Order Execution Information

Summary

We are the authors of the study entitled "The Actual Retail Price of Equity Trades" referenced in the Disclosure of Order Execution Information proposal (Release No. 34-96493, supra note 529).[1] In summary, we placed 85,000 market orders simultaneously at five different brokers using six different accounts. Our analysis revealed a wide, unexpected dispersion in execution prices, leading to our conclusion that "the current disclosure environment" is "inadequate." As a result, we strongly support the need for the proposed disclosure changes, with some suggested revisions.

Broker-Dealer Requirement

A major proposed change is to expand the Rule 605 reporting requirement of execution statistics from market centers to broker-dealers above a certain size. Indeed, a major finding of our research is that price execution for our market orders varies widely across brokers, and the magnitude of the variation is economically and statistically significant.

Table 1 below presents statistics on price improvement for our six accounts.

- *% Dark* is the percentage of our trades that are executed off-exchange.
- *% of Trades* is the percentage of our trades that receive "price improvement," i.e., relative to the national best bid and offer quotes (NBBO).
- *% of Spread* is the size of the price improvement measured relative to the quoted spread, where 50% represents execution at the quote midpoint and 0% represents no price improvement.
- *E/Q* is the effective spread, i.e., twice the execution price relative to midpoint, divided by the quoted spread.[2]

[1] Our paper is available here: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4189239
[2] This is also $E/Q = 2 \times (50\% - \%Spread)$.

Table 1. Execution Statistics across Selected Brokers

		Price Improvement Statistics		
	% Dark	% of Trades	% of Spread	E/Q
TD Ameritrade	99%	99.4%	47.2%	0.056
E*Trade	98%	96.2%	36.1%	0.284
Fidelity	97%	92.9%	35.8%	0.278
Robinhood	93%	85.0%	26.8%	0.464
IBKR Lite	96%	63.4%	19.5%	0.610
IBKR Pro	83%	76.4%	18.8%	0.624

We note that most of our trades are executed in dark pools, which is expected given the broad use of wholesalers by broker-dealers. More importantly, our trades are systematically executed within the quoted spread (i.e., the *% of Trades* numbers are all very high).

Furthermore, and totally unexpectedly, the price improvement we receive is markedly different across brokers. E/Q, the ratio of the effective spread to the quoted spread (or, equivalently, the ratio of half the effective spread to half the quoted spread) varies from 0.056 to 0.624 across the brokers at which we traded. The differences in E/Qs across brokers represent large differences in trading costs. Annual trading by wholesalers just in non-S&P stocks, for example, is approximately $3 trillion.[3] The average quoted half-spread for these stocks was 11.6 bps.[4] Thus, as an illustration, $100 billion of trade in non-S&P 500 stocks at a broker with an E/Q of 0.056 would cost its retail investors $6.5 million.[5] In contrast, $100 billion of trades at a broker with an E/Q of 0.624 would cost that broker's retail investors more than 10 times as much, or $72.4 million. Currently, investors at the two brokers would be completely unaware of these large and material differences in trading costs. Even in this example which considers only $100 billion of the trillions in retail trading, the magnitude of the cost differences greatly exceeds the estimated costs of addition disclosure of $3.9 million per year (Table 9 SEC Release No. 34-96493; File No. S7-29-22 Table 9).

The reaction to the release of our study also suggests that centralized and systematic public disclosure is needed for improving transparency. Our findings have reached a broad audience through reports in a variety of outlets such as the Wall Street Journal, Bloomberg, Barron's, Yahoo! Finance, and CNBC. It seems that the large broker execution differences we document were not only unknown to the retail trading community, but also unknown to a large portion of the financial industry.

---

[3] Table 6 of SEC Release No. 34-96495; File No. S7-31-22 reports Q1 2022 wholesaler dollar volume of $842.66 billion, or annually more than $3 trillion, for non-S&P 500 stocks.

[4] For non-S&P 500 stocks, the same table reports an E/Q of 0.49 and an effective half-spread of 5.70 bps. Thus, the quoted half-spread is 11.6 bps = 5.7/0.49.

[5] Using $100 billion as an illustration would give a cost of 11.6 bps × 0.056 × $100 billion = $6.5 million.

Indeed, the industry has failed to implement common standards for comparisons of execution quality. Appendix C in our paper compares voluntary disclosures of execution quality by brokers and concludes that the information is haphazard and generally not comparable across brokers, making it very difficult for retail clients to compare execution quality across brokers.

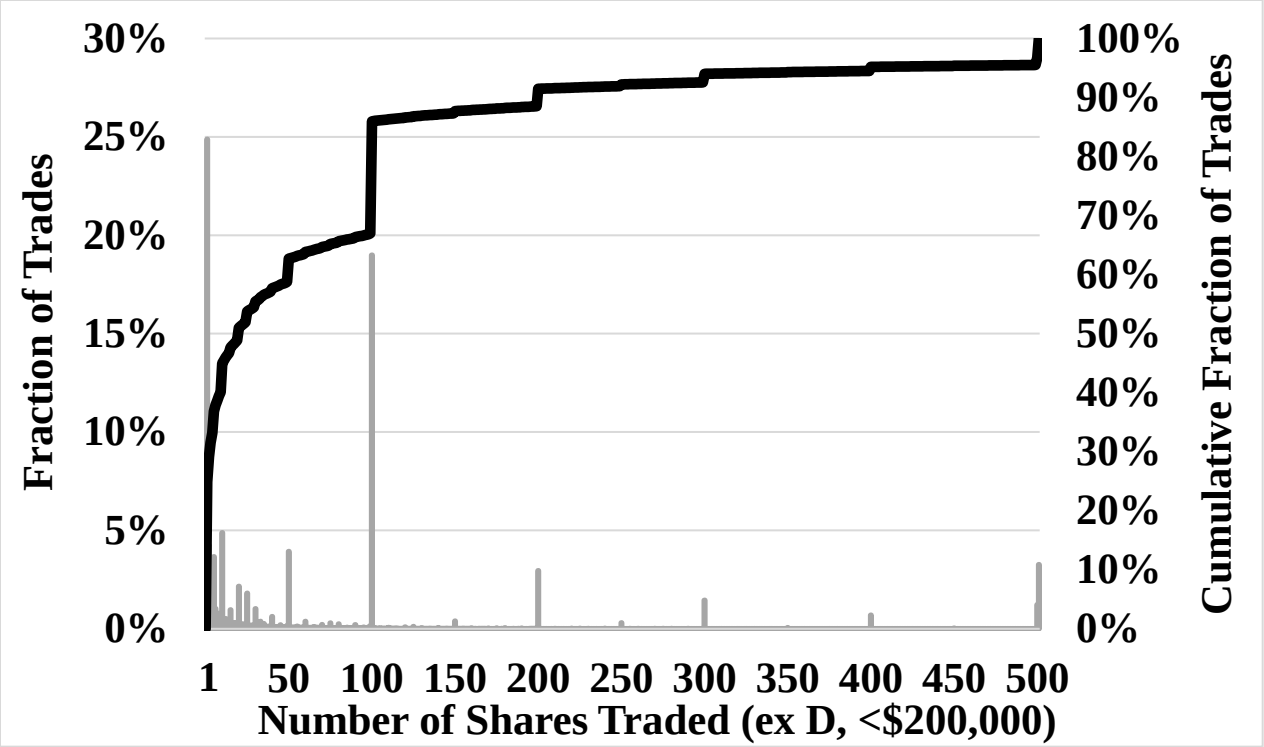
One counterargument against the need for broker-level disclosure is that retail traders should know that they pay the bid-ask spread when trading and therefore that these execution statistics do not need to be disclosed. However, that logic is akin to arguing that borrowers should know that loans carry interest costs and therefore lenders should not have to disclose the interest rates they charge.

Another counterargument is that these disclosures may not be useful because retail clients may not pay attention to execution quality if the dollar cost to them is relatively low. Even so, these disclosures are likely to be closely scrutinized by brokers, leading to greater competition across market centers, and ultimately better execution for retail investors.

Odd-lot and Fractional Trade Execution Quality Disclosure

The proposed disclosure rules also require Form 605 to include execution statistics for fractional trades and odd lots. Indeed, odd lots have increased steadily over time, accounting now for over 60% of trades. Using TAQ and our stratified sample of stocks, we create a histogram and cumulative distribution for the number of trades across "bins," defined as number of shares traded. We only include trades on exchange "D" (i.e., off-exchange trades) for less than $200,000.

Figure 1. Distribution of Number of Shares Traded



In TAQ, 25% of reported trades are for one share, which includes fractional trades for less than one share. More generally, two-thirds of all trades represent odd-lots. Thus, under current disclosure requirements, retail traders are unable to evaluate market center execution quality for a majority of their trades. This fact alone justifies adding fractional and odd-lot trade data to disclosure reports. We also note that 100-share trades are widely used and account for close to 20% of trades.

Additionally, since our paper has been made public, we have also traded fractional shares on three of the platforms that allow for fractional trading of any stock – IBKR Lite, Fidelity, and Robinhood. Table 2 compares price improvement for our fractional trades to our full share trades.

Table 2. Execution Statistics for Full and Fractional Shares across Selected Brokers

	Price Improvement Statistics			
	Full Shares		Fractional Shares	
	% of Spread	E/Q	% of Spread	E/Q
TD Ameritrade	47.2%	0.056		
E*Trade	36.1%	0.284		
Fidelity	35.8%	0.278	13.9%	0.721
Robinhood	26.8%	0.464	43.6%	0.127
IBKR Lite	19.5%	0.610	4.2%	0.915
IBKR Pro	18.8%	0.624		

As with our full share trades, our fractional market orders also receive widely different price improvement across brokers. Importantly, the full share price improvement statistics are not informative for the execution quality of our fractional trades. Indeed, some brokers emphasize better execution quality for some types of retail trades. Thus, these results justify the need for fractional trades to have their own category in the 605 disclosures.

Suggested Revisions

Although we strongly support the proposed changes, we also have some additional suggestions:

1. Some broker-dealers have multiple account types. For example, IBKR has a Pro account, which has no payment for order flow (PFOF) but has commissions, and a LITE account, which has PFOF but no commissions. We recommend separate disclosures for each account type at each broker-dealer to reflect the observation that execution quality differs across platforms with different commission and PFOF structures.

2. Figure 1 shows that round lots account for a large fraction of trade sizes, and even more so for their dollar values. As a result, we recommend having a separate entry solely for round lot trades.

3. Some broker-dealers convert a customer's order type into a different one. For example, Robinhood converts regular buy market orders to marketable limit orders with a 5% collar.[6] IBKR Pro converted all of our market orders to limit orders.[7] Most of these orders were then routed to their ATS. However, their ATS Form 605 does not have any entry for market orders even though we did place such orders.[8] Thus, we recommend requiring broker-dealers to provide execution statistics based on the order type placed, not on how it was ultimately executed. This would provide more transparency on order types as selected by the clients.

4. Although some of the new disclosure requirements may be helpful for a subset of trades (e.g., the size improvement proposed in IV.B.4.e), we suggest limiting changes on Form 605 to the new bin requirements (odd lots, fractional, updated bins based on new round lot definitions, and a separate entry for round lots) and adding the proposed E/Q statistics. This will reduce implementation costs and surely speed up adoption.

5. Finally, we would recommend reporting execution cost relative to the midpoint as well. The measures reported by brokers, such as "price improvement" all rely on the prevailing bid and ask quotes (NBBO).[9] This is measured, however, relative to a benchmark that is easily beaten; furthermore, this practice hides the true cost of trading.

   Instead, trade execution should also be measured relative to the midpoint, perhaps calling it "execution cost". For example, for buys this could be computed as the price paid minus the midpoint whereas for sells it would be computed the midpoint minus the price received. This will remind customers that trading is not free and also materially improve market transparency. Given that broker-dealers already have the capability to display price improvement based on NBBO, the cost of extending this to execution costs based on mid-prices should be minimal.

---

[6] https://robinhood.com/us/en/support/articles/market-order/
[7] To our knowledge, this is not disclosed on their website or other material.
[8] For example, see https://www.interactivebrokers.com/iats605Reports/tiats202201.html. Searching for "mrkt " (market orders) returns no result.
[9] See https://www.fidelity.com/trading/execution-quality/overview or https://www.tdameritrade.com/tools-and-platforms/order-execution.html

Conclusions

Our trading experiment strongly supports the need and cost-benefit tradeoff for the proposed changes to the retail trading Rule 605 disclosures. Based on our experiences at different brokers, we also suggest some modifications to the proposal.

Sincerely,

Professor Christopher Schwarz, University of California, Irvine
Professor Brad Barber, University of California, Davis
Professor Xing Huang, Washington University in St. Louis
Professor Philippe Jorion, University of California, Irvine
Professor Terrance Odean, University of California, Berkeley