

May 14, 2018

Mr. Brent J. Fields  
Secretary  
Securities and Exchange Commission  
100 F Street, NE  
Washington, DC 20549-1090  
Re: Release No. 34-82873; File No. S7-05-18

Dear Mr. Fields:

Pragma Securities appreciates the opportunity to comment on the Commission's proposed rule concerning a transaction fee pilot for NMS stocks.

Pragma is an algorithmic trading technology provider. Our customers - mostly banks and brokers - use our software services to execute directional trades efficiently and with minimal shortfall. We don't act as an executing broker, but rather provide trading software which our customers use to control the moment to moment pricing and routing decisions when executing orders. We have a strong quantitative research focus, and have published a series of research notes since 2012 explaining and providing data illustrating various market structure issues, including the conflict brokers face as a result of the exchange fee structure. All are available for download from our website at [www.pragmatrading.com/research](http://www.pragmatrading.com/research).

Though our customers are strictly institutional, our focus when looking at market structure issues is always the perspective of how market structure affects investors – the individuals whom our customers are ultimately (if indirectly) serving.

In general we are pleased to see the Commission moving to act on this issue, and support the Commission's proposal. However:

### **1) The pilot should directly measure execution quality**

The goal of the pilot is “to evaluate the effect of transaction fees on order routing behavior, execution quality, and market quality.” The Commission asks if the Pilot is reasonably designed to achieve this goal (#16), and whether there is additional data the Commission should gather from the pilot (#73).

While the pilot as proposed would be effective in generating data on how capping access fees (and effectively rebates) would affect routing behavior and market quality, **the pilot would not provide adequate provision to evaluate the effects on execution quality.**

There is an important distinction between market quality metrics such as bid-ask spread, and execution quality metrics such as implementation shortfall. In the traditional stylized academic view of the markets, market makers provide liquidity, and the buy-side takes liquidity. In this view, market quality and execution quality are nearly interchangeable. However the reality of today's markets are quite different. Algorithmic trading technology has enabled institutional or “directional” traders to trade patiently using algorithms such as VWAP. Such algorithms attempt to reduce transaction costs by providing liquidity rather than always crossing the bid-ask spread. Many patient algorithms trade up to 90% of their volume as price makers, and such patient algorithms constitute upwards of 50% of institutional order flow. When institutions post passive orders, they are subject to adverse selection; the tendency to be executed only when prices are getting more favorable (e.g. ticking down for buy orders) and to remain unexecuted when prices are running away. Traditional market quality measures like bid-ask spread do not



reflect the fact that different market participants (for example high-frequency traders vs. patient institutional traders) may experience very different levels of adverse selection, and thus may have very different experiences of execution quality, though trading in the same market.

Measuring execution quality is critical to the success of the pilot, because the conflict between brokers' exchange access fees (and rebates) and their customers' execution quality is at the heart of the industry concerns that prompted the Commission to propose the pilot. If the only outcome of the pilot is confirming that exchange fees and rebates influence both broker routing practices and market quality measures, the pilot must be considered a failure.

This gap in the design of the pilot is of particular concern because it's to be expected that capping fees will widen quoted spreads and reduce quote depth somewhat, yet may still lead to better execution quality for investors. Currently rebates allow market makers to effectively post at an economic premium (i.e. effectively wider) than the nominal displayed .01 tick. To the extent this premium is reduced or eliminated, market makers may find fewer opportunities to profitably compete at the inside price, which (other things equal) will cause lower quoted interest at the inside price, thereby contributing to wider spreads on average, as there will sometimes be an extra-tick wide market because of that missing liquidity. Since the traditional rule of thumb is that wider spreads equate to higher transaction costs for traders, looking only at market quality metrics is likely to lead to the conclusion that capping fees harms investors.

However, there may be offsetting benefits that are harder to observe. The reduction in competition from market-makers to provide liquidity may provide directional traders' passive orders better queue priority when attempting to provide liquidity. Better queue priority for orders leads to less adverse selection and better execution quality. Then, apart from the reduction in competition from market makers, to the extent that lowering fees and rebates reduces the amount of adverse selection on the venues where their orders are posted, investors' execution quality may benefit a second way. Indeed, if there were no such benefit to execution quality then the broker conflict would, by definition, not be a conflict. These benefits may offset and exceed the costs entailed by somewhat wider spreads and less displayed depth.

The Committee touches close to this issue:

Researchers can carefully select and apply sophisticated econometric techniques to distinguish the proportion of changes in order routing decisions resulting from execution quality considerations from those resulting from potential conflicts of interest.

But "the proportion of changes in order routing resulting from execution quality" is a very abstract quantity that may be quite impossible to weigh meaningfully against very tangible market quality metrics like average bid-ask spread and quote depth at the NBBO. This proportion does not directly relate to execution quality, either qualitatively or quantitatively.

We have heard several commentators in the industry suggest that the Commission should articulate what would constitute success or failure of the pilot. We also urge the Commission to undertake this exercise, and we believe doing so will highlight the lack of measurement of execution quality.

Unless the pilot's data includes direct measurement of execution quality, it will not allow regulators, academics or investors to determine whether the net effect of the fee cap is beneficial or harmful. And to the extent the pilot might be made permanent, and the Commission finds itself choosing which of the pilot groups it likes best, this missing data will be fatal to the most important practical goals of the pilot.

As discussed above, the execution quality of passive orders, along with bid-ask spread, is the major determinant of execution quality for the large, low-urgency trades through which institutional asset managers such as mutual funds represent ordinary investors. It is these passive orders which market quality metrics fail to address; where the conflicts of interest brokers are subject to are the greatest; and where existing best-execution guidance for brokers is least clear.



We therefore urge the committee to add the following (or similar) execution quality metrics to the data to be provided by the exchanges under the pilot.

- Define the shortfall of an individual order placed on an exchange as follows:
  - $(p(\text{exec}) / p(\text{t\_arrival}) - 1) * \text{side}$  (for executed orders)
  - $(p(\text{t\_cancel}) / p(\text{t\_arrival}) - 1) * \text{side} * -1$  (for canceled orders)
  - Where:
    - $p(\text{exec})$  is the execution price of the order
    - $p(\text{t\_arrival})$  is the NBBO midpoint at the time the order is received by the exchange
    - $p(\text{t\_cancel})$  is the NBBO midpoint at the time the order was canceled by the exchange
    - side is 1 for a buy order, -1 for a sell order.
    - NBBO prices and times should be the most precise available to the reporter, i.e. using microsecond timestamps and direct feeds, if available within the firm.
- For each data bucket defined in the pilot, i.e. for each <date, stock, broker, order type, order size> entry, the Order Routing Dataset should include the value-weighted average shortfall of orders (as defined above) in addition to the statistics listed.
- Ideally each such data bucket would be further split into two, one for executed orders and one for canceled orders.

The basic intent of this shortfall metric is to capture not just the realized shortfall of executed orders, but also the cost of non-execution for passive orders. This type of shortfall metric is easier and more intuitive to interpret than raw fill rates, especially since customers cancel orders for many different reasons. Only by combining these costs can the impact of market changes on execution quality begin to be measured.

We provide this metric by way of example. Several details would need to be worked out before finalizing such a metric, such as how to deal with different order types such as minimum fill size, hidden or iceberg orders, post-only, etc. And there may be other similar, or superior execution quality metrics that could be substituted.

The shortfall seen at individual exchanges will be influenced by complex routing decisions and biases. Nevertheless, this data will help observers form and quantify a more complete picture the relationship between execution quality and fees, including seeing how execution quality and rebates are inter-related. By looking at the average across exchanges, the metric may provide a better quantitative window into the net benefit (or cost) in execution quality to investors of the different market structure manipulations of the pilot. In particular the ability to separate the execution quality enjoyed by market makers from the execution quality experienced by directional traders, and the variation in behavior across brokers is very valuable, and precisely where the evaluation of success should lie.

**1a) The Commission should require ATSes and brokers who provide electronic execution services to provide the same data as exchanges, even if they are not bound by a fee cap or rebate prohibition.**

On the order of 40% of volume is traded off-exchange. Because the incentives for firms to route orders to exchanges will be changing so dramatically, and in such complex ways, it is not safe to assume that execution quality at ATSes will remain unchanged, or that they are changing in the same ways or in the same direction as orders on exchanges. There could easily be a systematic bias in the type of the order flow that migrates between ATSes and exchanges, even if the net volume migration is small. The Commission, industry, and academics will be unable to form even a qualitative picture of the overall impact of the pilot's interventions on execution quality unless they have data regarding this very material subset of orders. Not having any insight into what's happening at ATSes seems to set up a true "garbage in, garbage out" situation for the pilot.

**2) The Commission should issue new guidance on broker-dealers' obligations of best execution**

The lack of clarity on what constitutes best execution exacerbates the conflict of interest brokers face in handling client orders. In particular, for the large fraction of buy-side orders that are traded using a passive algorithm like VWAP, existing guidance provides little help. It is precisely the treatment of passive orders, where adverse selection is a statistical property that is difficult to measure directly, where the conflict is greatest. Not only can't clients



observe it directly, but brokers themselves can't observe it directly, and must infer it by conducting careful randomized experiments, which many are not equipped to do.

The guidance would ideally address whether and to what extent brokers are obligated to incur costs to improve client execution quality, and what steps brokers must take to ascertain the relationship between their routing policies (or those of their execution providers) and their clients' execution quality.

For example, are brokers required to accept a dollar of cost in order to save a dollar of execution quality for their customer? Are they required to accept two dollars of cost to save a dollar of execution quality for their customer? Are they required to accept fifty cents of cost to save a dollar for their customer? Or are there no such requirements provided they satisfy Reg. NMS? And if there are such requirements, are brokers required to make diligent and sophisticated efforts to understand where such tradeoffs exist, or is passive ignorance acceptable? And are brokers who use the execution services of other brokers required to ascertain those brokers' policies and how they influence execution quality, or can they rely passively on those other brokers to fulfil their obligations?

We believe clear answers to these questions would not only relieve brokers from an uncomfortable ambiguity, but would likely also reduce the conflict that asset managers face in trading off between explicit commissions and execution quality which often accrue differently to the ultimate asset owners. Clear answers to these questions would doubtless have a strong impact on broker behavior, and might materially address the industry's underlying concerns regarding broker conflict. Although providing this clarification would be a reasonable step to take absent or prior to a pilot, given the control group and pre-pilot period we see no reason not to make the clarification in conjunction with undertaking the pilot.

### **3) We strongly support introducing a half-penny tick bucket for highly liquid stocks (#25)**

We believe that for highly liquid stocks (those with deep book and rarely widening to a .02 spread), introducing a half-penny spread (or smaller in some cases) would provide great benefit to investors.

In *The Difficulty of Trading 'Ultra-Liquid' Stocks* (Pragma Research Notes, July, 2012), and *HFT and the Hidden Cost of Deep Liquidity* (Pragma Research Notes, July, 2012), we presented evidence that low priced, high-volume stocks are actually more expensive for directional traders to trade, and argue that the most liquid stocks have artificially long queues because the penny tick is too big, creating inflated incentives for market makers and ultimately un-needed and expensive intermediation between directional traders. Thus, artificially wide bid-ask spread for highly liquid stocks has bigger negative impact on investors than broker conflict, and we are very encouraged to see this question raised by the Commission. Though it was not explicitly suggested by the Commission, we would strongly support inclusion of a half-penny spread bucket, or consideration of a separate small-tick pilot for highly liquid stocks.

Thanks for proposing this pilot, and providing us the opportunity to comment.

Sincerely,

David Mechner  
Chief Executive Officer  
Pragma Securities