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December 17, 2018

Mr. Brent J. Fields
Secretary
U.S. Securities and Exchange Commission
100 F Street NE
Washington, DC 20549

Re: Proposed Transaction Fee Pilot (Release No. 34-82873; File No. S7-05-18)

Dear Mr. Fields:

Nasdaq is pleased to submit the two attached documents by its Chief Economist, Phil Mackintosh, to the comment file for the Commission's proposed Transaction Fee Pilot ("Pilot") for NMS Stocks. The documents include:

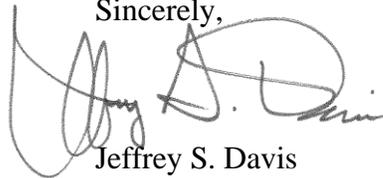
1. A study of market quality across exchanges and across securities. Importantly, it shows that liquidity incentives (rebates) are important to creating two-sided markets across all stocks, especially thinly traded stocks. In addition, our data and analysis shows that liquidity incentives contribute significantly to market quality, liquidity and spreads. The report is attached as Exhibit A, and it can be found here: <https://www.nasdaq.com/article/three-charts-that-show-how-important-a-competitive-bidoffer-nbbo-is-cm1064579>
2. A report that discusses routing and how to quantify the opportunity cost of routing decisions and how they interact with liquidity incentives. The Commission's current cost-benefit assessment of the Pilot is missing key costs and risks and is therefore understated; its assessment of benefits does not accurately account for the actual level of orders impacted by conflicted broker routing. By failing to account properly for opportunity costs in routing, the SEC has failed to perform a proper cost benefit analysis of the Pilot. The report is attached as Exhibit B, and is located here: <https://www.nasdaq.com/article/routing-101-identifying-the-cost-of-routing-decisions-cm1069708>

Together, these reports demonstrate through data and analysis what every listing venue and dozens of publicly-listed issuers have been telling the Commission for months: limiting or eliminating liquidity incentives will likely harm market quality, liquidity, and spreads, thereby harming publicly-traded companies and their shareholders. Furthermore, they demonstrate that

Brent J. Fields
December 17, 2018
Page 2

the Commission could, if it chose, utilize existing data to evaluate the existence and impact of potential conflicts of interest and to conduct the fulsome and realistic cost-benefit analysis required by the Administrative Procedures Act.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey S. Davis". The signature is written in a cursive style with a large initial "J" and "S".

Jeffrey S. Davis

cc: Chairman Jay Clayton
Commissioner Robert J. Jackson, Jr.
Commissioner Hester M. Peirce
Commissioner Elad L. Roisman
Commissioner Kara M. Stein
Brett Redfearn, Director, Division of Trading and Markets

Three Charts That Show the Importance Of A Competitive Bid/Offer NBBO

December 04, 2018, 03:33:54 PM EDT By [Phil Mackintosh](#)



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We in equity markets sometimes take for granted the level of transparency and the quality of information available. We forget how that creates a competitive market for bids and offers that benefits all investors.

What a National Bid and Best Offer (NBBO)? [Learn more here.](#)

Not all markets have bids and offers that are publicly available. Some don't even disclose last trade. That makes it hard to value your portfolio or decide when it's efficient to reallocate assets. In fact, [studies have shown](#) that the lack of a protected bid and offer cost investors well over a billion dollars a year – in markets that trade a lot less than the \$70tr US stock market.

Market Quality is Important to All Investors

The public ("lit") prices found on US equity exchanges are important for all investors, as they represent volume and prices which can be traded by investors as well as arbitrageurs.

But perhaps more importantly, lit prices set the bounds for off-exchange trades too.

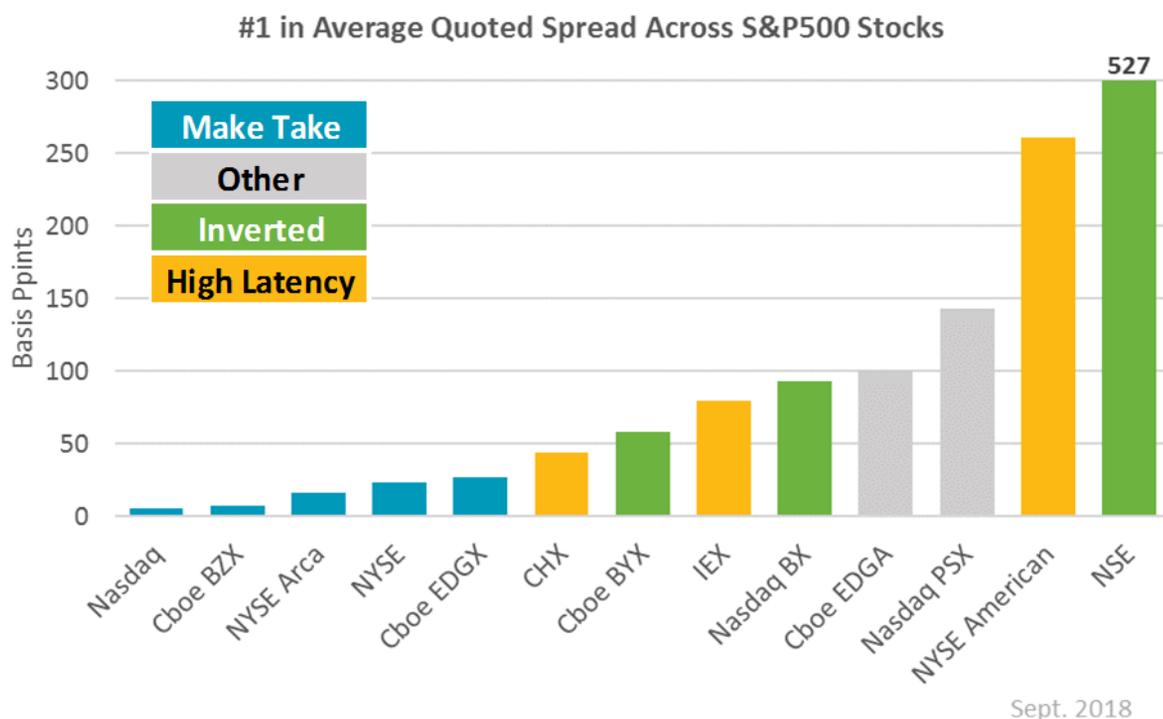
This means a more competitive exchange quote should also reduce costs for retail and dark pool investors, even though their trades usually happen off-exchange.

So how do we incent more competitive spreads in US markets?

Tighter Spreads Reduce Costs

One thing we learned from the tick pilot is that **wider spreads increase costs** for investors. So the tighter we can make spreads, the lower transaction costs should go.

Data shows that not all exchanges are good at providing consistently tight spreads. Given the current debate around access fees, it's important to note that the best spreads are found most often on markets that reward liquidity providers. Not surprisingly, these markets also typically have the best liquidity too.



Competition for the Quote Tightens Spreads

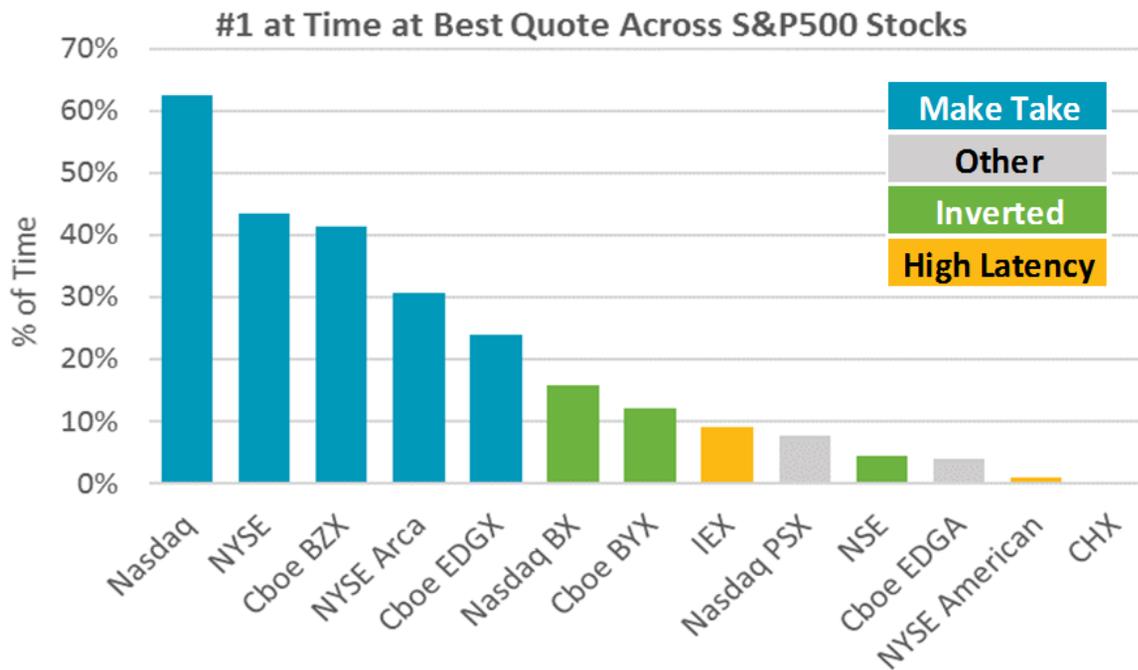
We think the best way to tighten spreads is to encourage competition for the NBBO.

We're not alone – when the SEC invented the SIP revenue allocation formula they clearly agreed – as they decided 50% of the SIP revenue should reward those who post lit liquidity at the best bid and offer.

In Europe corporates can pay for market makers. However in the US that's not allowed, so it's only exchanges, and only via liquidity rebates, who can incentivize liquidity provision and better market quality.

Data in the chart below again shows that markets with incentive programs are far more likely to be contributing to competition for the NBBO.

However, because US ticks are mostly very small and less than a few basis points, there are few exchanges with quotes at the NBBO most of the time – even in S&P500 stocks.



Sept 2018

By rewarding liquidity providers, rebates encourage tighter spreads and deeper markets.

But liquidity incentives not “free money” for providers. That’s because not every fill on the “near touch” (bid for a buyer, offer for a seller) represents spread capture. For many stocks, a fill can represent adverse selection – often caused by larger or “more informed” traders.

Competitive market forces then optimize the economics of spread compression by weighing the value of the adverse selection against the liquidity provider rebates earned. Somewhat ironically, rebates paid to liquidity providers even benefit liquidity takers, who despite paying the take fees, benefit from tighter spreads and increased depth on their spread crossing trades.

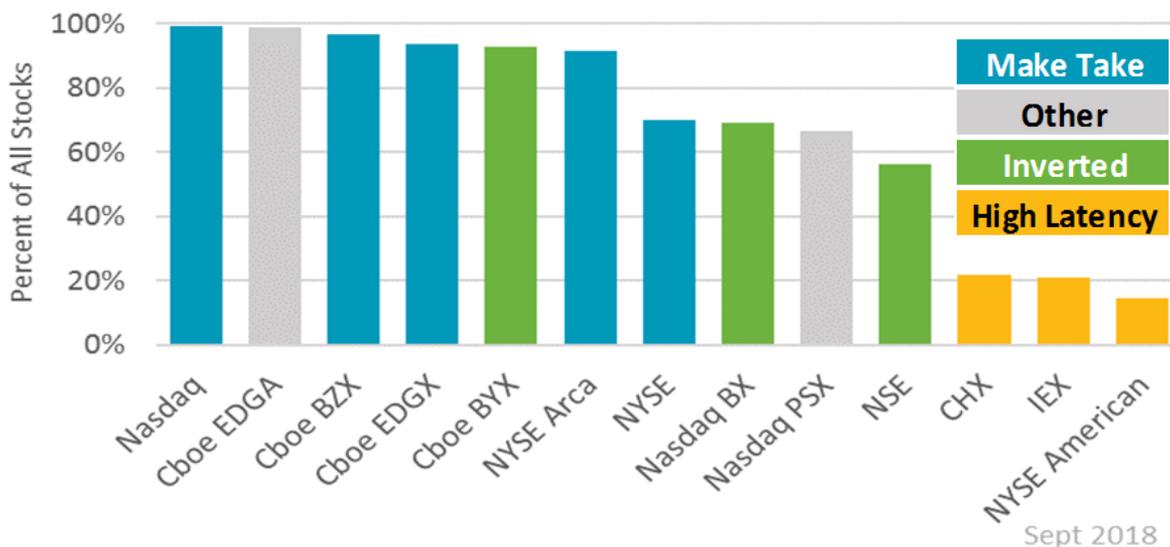
What Might a World Without Incentives Look Like?

Note that despite the wide spreads in some venues, the charts above only show data for S&P500 stocks, and only calculate spread when a 2-sided market actually exists.

What is perhaps the most surprising result of this study is how uncommon two-sided markets actually are – especially for thinly traded stocks.

The data below shows the percentage of all stocks with a 2-sided market at least half of the time, by venue. Note that this chart isn’t looking for “competitive” 2-sided markets. It’s looking for ANY bid *and* offer on a ticker.

#1 for Stocks with Two-Sided Market >50% of the Day



Amazingly, markets with high latency are one-sided (or worse) most of the day across more than 6,000 stocks. That likely highlights the additional costs delays create, which act as a disincentive for market makers.

It's less surprising that inverted markets are more likely to be one-sided – as they're most valuable to those who want queue priority on the “cheap” side of the spread.

Importantly, these three charts show maker-taker markets, with incentives for liquidity providers, are the only markets with a competitive quote, tight spreads, and a two sided market for almost all stocks. That, and an efficient close, are two critical metrics for issuers.

It's important to connect all this data to a number of the debates occurring right now. The Access Fee Pilot proposal will significantly affect how rebates can be used to incent two-sided liquidity and maintain market quality. As the data in these three charts show, that's also especially important to thinly traded stocks – the same stocks that the SEC's Tick Pilot was trying to help.

Attracting more IPO's to the US market is good for everyone. It's especially important that we don't harm thinly traded market quality.

More from Economic Research

Three Charts that dispel the Price Improvement Myth

The views and opinions expressed herein are the views and opinions of the author and do not necessarily reflect those of Nasdaq, Inc.

Routing 101: Identifying the Cost of Routing Decisions

December 14, 2018, 04:47:05 PM EDT By [Phil Mackintosh](#)



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It's no surprise the Access Fee Pilot proposal has received comments from all over the industry, it represents a dramatic shift in the decades old philosophy of [incentivizing market quality](#), and could affect spreads and depth across the market cap spectrum.

The comments below talk about the real reason behind the pilot and what it is trying to fix. Hint: it's all about routing economics.

How do Algos and Routers Work?

Large trades have almost always been “worked” as a series of smaller pieces so they have less impact.

These days, institutional investors work most of their trades using sophisticated broker algorithms.

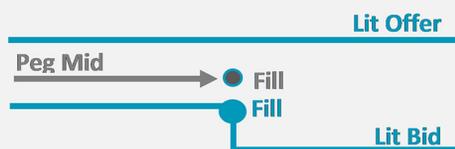
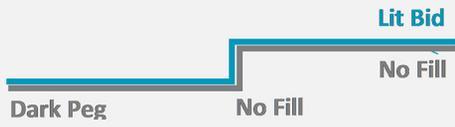
Those algorithms use a variety of posting strategies to minimize signaling and spread costs, as well as trading costs. How they send each slice into the market is mostly known as routing.

Routers have a lot of choices to make for every single order. There are around 50 venues, some lit and some dark, using marketable or limit prices, speed bumps and even conditional trading. Plus the economics of each venue are different, adding explicit costs to the impact and signaling costs.

Most routing choices are a trade-off between impact cost and the probability of fill. It is a choice between taking what you see now, or waiting, and sometimes hiding, in the hope of saving a penny (or less).

However waiting sometimes has a cost. If you don't get the price you were looking for you might end up paying even more. When that happens there is an opportunity cost. We demonstrate how routing, and opportunity cost, works in the diagram below:

Routing 101

ROUTE	What happens	Opportunity Cost
TAKE ROUTES		
Take lit 	Lit quotes are actionable. Should see 100% fills at the same price regardless of venue (unless hardware is slow)	NONE
Take dark 	Because size is not advertised, partial fills are likely. The market can reprice before order completion	MAYBE
MAKE ROUTES		
Rest Dark Mid (Trade through) 	Resting mid gives you queue priority but no advertising. On a trade through, fill prices are worse than resting lit	MAYBE
Rest Dark Near touch 	Resting dark avoids signaling, but also no advertising means you might miss fills when lit quotes would fill	MAYBE
Lit Trade Trough 	Both filled at the same time and price , investor indifferent to route venue	NONE
Both filled 	Both quotes filled at the same price , investor indifferent to route venue	NONE <i>Although Slower fills affect size</i>
Neither filled 	Neither quotes filled , investor indifferent to route venue	NONE <i>Although signaling might be important</i>
Inverted only trades 	Inverted venue fills, then price ticks up, forcing maker taker route to pay more for a fill	YES

¹ estimates based on generic venue market share and a moderately aggressive strategy

² total adds to 125% on purpose, routes with neither filled result in new routes.

Source: Nasdaq Economic Research estimates

Click image to see full-size version

How can you Compare the Cost of Routing Decisions

We're not going to pretend that this is easy – but you can garner some insight from an [academic study](#) that computed the costs of this “waiting game” for passive, lit, orders routed to different exchanges (the last four rows of the diagram above).

They did this by running “horse races”. The academics compared two identical orders resting at the bid, one in an “inverted” versus “maker taker” venues.

Inverted venues pay incentives to liquidity takers whereas maker-taker venues pay incentives to liquidity providers. Not surprisingly, what they found is that the cheaper-to-take (inverted) orders typically got filled first. Over time they also found that sometimes the maker-taker order missed fills at that limit price and had to chase prices higher. They had quantified an *opportunity cost* of being more patient. We show this in the diagram above as the difference between the green and blue routing strategies.

In essence, given opportunity cost is the cost of doing something different, you could quantify this yourself by running a simulation, or an A/B test, of the alternate strategy you *didn't* do.

What about the Benefit?

Few would argue that best execution should account for *all* the costs of trading. The benefit of the more patient route is that some, or maybe all, of the opportunity cost may be offset by the [incentives paid to liquidity providers](#) resting in the maker-taker venue.

The problem, as the academics highlighted, is that those incentives are paid directly to brokers – and the academics assumed that the brokers would keep them all. That ultimately led to the SEC's proposed Access Fee Pilot – which is designed to change market structure specifically to reduce the agency conflict that brokers have with respect to routing and investor queue priority.

So what are the Cost Benefit of the Access Fee Pilot?

This is a good question. We're not aware of anyone that's done that calculation.

The **costs** could be large – and some are predictable – from brokers retooling for another complex pilot, to institutions paying more for liquidity, to worse market quality in thinly traded stocks potentially even harming the IPO market.

The **benefit** is basically the “better fills” that institutional investors will get after the pilot is introduced. We've been trying to quantify this, but it's difficult, and likely overstated.

- For a start, institutions who are affected by the conflict represent **only 20% of all trading**
- Plus most of their lit routes have **no opportunity cost**
- Although a lot of the routes *with* opportunity cost are **dark routes**, which are excluded from the pilot.
- That's complicated by the fact that urgent investors can't wait as long to capture spread and rebates, giving them **different optimal routing**.
- Which is further complicated by **higher priced stocks**, which have much less opportunity cost and, sometimes it seems, **inverted venues lose horse-races and also signal more**.
- Finally, the broker dealer market is competitive, potentially all of the costs of routing are offset by **lower commissions**, made possible by rebates collected.

Being data driven is important. Work is progressing on institutional 606 rules. But we highlight that those new reports will only show routing patterns and fulfillment by venue.

Data required to quantify routing costs already exists, we don't need a pilot for that. Traders using it are not only aware of where their orders are routing but also what they need to change to improve their costs.

More from Economic Research

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