James J. Angel, Ph.D., CFA
Associate Professor of Finance
Georgetown University
McDonough School of Business
Washington DC 20057
angelj@georgetown.edu
1 (202) 687-3765
Twitter: #GuFinProf

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Securities and Exchange Commission
100 F St. NW
Washington, DC 20549-9303
Rule-comments@sec.gov

Re: IEX Exchange Application

File 10-222

Dear Securities and Exchange Commission:

Thank you for requesting comment on the IEX application for exchange status. Here are my comments:

Summary

- Competition reduces the need for the SEC to micro-manage market microstructure.
- The IEX speed bump will probably have a *de minimis* impact on the market and should not block exchange approval.
- Given the uncertainty over the impact of the IEX speed bump on NMS operation, its impact should be examined with a controlled pilot during rollout of IEX as an exchange.
- Exchange Form 1 updates should be clearly posted on the SEC web site.

Competition reduces the need for the SEC to micro-manage market microstructure.

One of the great features of the U.S. equity market structure is its open architecture. We have a competitive market structure in which no one trading platform has a majority of the volume in any one instrument. This brings on the many benefits of competition: Competing trading platforms compete on numerous dimensions, including price, speed, type of trading mechanism, and customer service. As a consumer-investor, I benefit greatly from this competition. My basic opinion is that any entity willing and capable of taking on the heavy regulatory burdens of exchange status should be allowed to do so. The job of the SEC is to make sure that applicants for an exchange license demonstrate that they can meet these obligations, which include showing that they have:

- Appropriate personnel, policies, and procedures to assure a compliance with laws and regulations
- Suitable surveillance and enforcement arrangements to police the marketplace
- Suitable technology capacity including appropriate disaster recovery facilities
- Appropriate cybersecurity and Reg SCI compliance
- Ability to properly participate in NMS plans
- Rules that treat customers fairly, adequately describe how the systems operate, and comply with national securities laws

Given the hyper competitive nature of the U.S. equity market, there is no need for the SEC to dictate many of the details of trading in a given venue: If a venue does not provide quality service to its patrons, it will be out of business very quickly. Exchange users are highly sophisticated broker-dealers who care highly about execution quality and monitor it very closely. An exchange will not survive in this competitive environment if it delivers bad executions. Thus, exchanges should have great operational flexibility in the services they offer, as ATSs do. For example, I believe that the SEC erred in not approving Nasdaq's benchmark order proposal.[1] The extended regulatory process over the NYSE's plan to give NYSE floor participants a peek at the book is another example of excess SEC micromanagement of exchange operations.[2]

One area where the SEC can have great value-added is in overseeing how the various pieces of the national market system function together. The SEC is basically the network referee, and must deal with the issues that affect the whole market network.

[1] File SR-NASDAQ-2012-059. See my comment letter at https://www.sec.gov/comments/sr-nasdaq-2012-059/nasdaq2012059-1.pdf.

[2] File SR-NYSE-2013-21. That proposal was finally approved after a lengthy regulatory delay. See my comment letter at http://www.sec.gov/comments/sr-nyse-2013-21/nyse201321-2.pdf.

<u>The IEX speed bump will probably have a *de minimis* impact on the market and should not block exchange approval.</u>

One of the unique and well publicized aspects of IEX is its 350 microsecond speed bump. This brings up the important question of how much of a delay is too much. Let us do a thought experiment. What if the delay were 17 seconds?[3] Clearly, a delay of 17 seconds in accessing protected quotes would throw a monkey wrench into the national market system. When the market is moving from one price level to the next, such a delay would lead to a delay in clearing out orders at the old price level. Other exchanges would not be able to update their quotes while waiting for the slow market to update. This would lead to even more need for and usage of complex orders that "slide" their displayed price to avoid locking and crossing the market.

At the other extreme, suppose the delay were 1 nanosecond, or a billionth of a second. That is the length of time it takes light to travel about one foot. Such a delay is far less than the typical latency of most trading platforms as well as far less than the variance of the latency on most trading platforms. Such a delay would be so *de minimis* as to have no appreciable impact on market behavior.

The question thus becomes: How much of a delay is acceptable? Or more precisely, how long can a delay be, either intentional or unintentional, and still have the quotes "protected" under Regulation NMS? I see no problem with an exchange experimenting with even longer delays as long as those quotes are no longer "protected" under NMS. This is the decision that the SEC must make in this case. Other than gut intuition, is there an objective standard for "how much latency is too much?"

In the IEX case, the delay of 350 microseconds is 350 millionths of a second, or .35 millisecond. That is not much more than the normal latency that all trading platforms impose. It is also approximately the time it takes for the speed of light to travel about 65 miles. Of course, users of IEX would experience the natural latency of the IEX trading system in addition to the speed bump.

One approach to figuring out "how much latency is too much" is to examine the enforceability of any ban on intentional delays. Suppose that the SEC said that 350 microseconds is too much of a delay. An exchange wishing to impose a type of speed bump of 350 microseconds or more could locate its primary data center 65 or more miles away from the other exchange data centers. Even though the exchange itself could have low latency, all of the users of that exchange would have to wait at least 350 microseconds to receive and use the data from the other exchanges, providing much the same result as the IEX speed bump. Thus, any SEC rule or staff activity banning a speed bump of less than about 10 milliseconds (10,000 microseconds) could easily be subverted by establishing a data center in other parts of the continental United States. If the SEC staff were to counteract this by insisting that all primary data centers be in New Jersey, then there would be huge political fallout from the governors, senators, representatives, and real estate interests from the other 49 states.

[3] In the days of old when market makers were bold and giants traded on wooden trading floors, a Nasdaq market maker had up to 17 seconds to reject an order when it was updating its quote.

Thus, I feel that IEX's speed bump probably falls in the *de minimis* category and should not be grounds for denying its exchange application. Indeed, its delay comparable to the natural latency of all of the exchanges just a few years ago.

The rollout of symbols onto the IEX exchange platform should be designed as a controlled pilot experiment.

However, a practical question does remain. Will designating IEX's quotes as protected quotes under NMS unduly interfere with the operations of the rest of the market in today's high-speed market network? Will the delay mess up the routing that currently occurs between different markets? Will it mess something else up? Note that the latency of all exchanges is quite variable, and the exchanges deal with this variable latency on a daily basis. As I would guess that IEX's delay plus average latency is within the 95th percentile of what the other exchanges deal with daily, my guess is that the delay will not cause unacceptable problems to the rest of the market.

Note that I am guessing here, as are most market participants. How then should the SEC deal with this regulatory uncertainty as to whether designating IEX quotes as protected quotes will mess up the market? Public policy should be based on more than guess work. I suggest that the integration of IEX into the NMS be carefully piloted during the initial phase-in of the IEX. When Direct Edge became an exchange, there was an orderly phase in of ticker symbols onto the exchange trading platform from the old ECN platform. I suspect that a similar orderly rollout will occur when IEX gets its exchange license. This rollout can be designed as a carefully controlled pilot experiment to measure the impact of the IEX speed bump.

One possible rollout sequence would look like this:

Pre-launch: Test symbols only

Week 1: Four low-volume symbols (one each listed on NYSE, NYSE Arca, Nasdaq, and BATS) using the speed bump. There would also be four matching controls listed on the same exchanges but they would be implemented ***without*** the speed bump. This would permit industry wide testing of connectivity. If there are no obvious problems, then the rollout would proceed to the next step. All IEX exchange quotes would be treated as protected quotes under NMS for both groups of symbols.

Week 2: Remaining ticker symbols beginning with letter A. These would be divided into two groups, one with and one without the speed bump. One possible method for designing the control group would be to rank the stocks by average daily trading volume over the prior 90 days and

then pick every other stock for the control group. In this way, each stock would be matched with a stock with very similar trading volume.

If there are no obvious problems, then the rollout would proceed to the next step. If there are material problems with the speed bump group, then the rollout would be halted. IEX could still operate as an exchange, but its quotes would not be protected quotes under NMS.

Week 3: All remaining symbols, again divided into two groups, one with and one without the speed bump.

Week 4: Reverse the treatment of the two groups, so that now the symbols that did not have the speed bump get the speed bump, and the group that previously had the speed bump no longer has it.

Week 5: End pilot. All symbols get the speed bump.

This pilot program would not have to last long. A few weeks during the rollout should provide enough data to see if any material harm is being done. If there is, I am sure that the affected parties will scream very loudly to the SEC and the pilot would be halted at that point. Again, IEX could still operate as an exchange, but its quotes would not be protected quotes under NMS.

Unlike other pilot experiments such as the Reg SHO pilot and the upcoming tick pilot, such a pilot would not impose material costs on other market participants. The other exchanges and the firms that connect to them would not have to change their systems for the pilot. IEX would have to by-pass its speed bump coil for the control stocks, but that should not be very expensive.

Some delays may provide more liquidity to the market.

The issue of delays brings up some other interesting questions. Is it acceptable to impose any delay on one set of actions but not others? For example, should there be different or no delays for cancellations, trade reports, resting limit orders, pegged orders, or liquidity taking market orders? There seems to be widespread confusion among market participants as to exactly what gets delayed and what does not, and this should be clarified.

For example, should liquidity providers be able to cancel orders without any delay in order to get out of the way when the market is moving? In this way, market makers would avoid being picked off by the sons of the SOES bandits when the time comes to update their quotes. This would make it safer for market makers to make markets, leading to more depth and more liquidity in the market. Or would such a feature make “phantom liquidity” a problem in which investors cannot access posted liquidity?

Exchange Form 1 updates should be clearly posted on the SEC's web site.

Exchanges are required to periodically update the information that they have submitted to the SEC on their Form 1. Although the SEC has posted the Form 1 application submitted by IEX on the web, the SEC does not generally post the updates that the other exchanges are required to file. This information is extremely useful for understanding the structure and operation of the market. As with other useful SEC filings, all of the Form 1 updates should be posted clearly on the SEC's web site.

Respectfully submitted,

James J. Angel
Georgetown University