

December 4, 2015

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

Re: Investors' Exchange LLC Form 1 Application  
(Release No. 34-75925; File No. 10-222)

Dear Mr. Fields:

Hudson River Trading LLC ("Hudson River Trading") appreciates the opportunity to comment on the proposed Investors' Exchange LLC ("IEX") exchange application. Hudson River Trading is a global, multi-asset class quantitative trading firm that develops automated trading strategies that provide liquidity and facilitate price discovery on exchanges and alternative trading systems.

Hudson River Trading believes it is critical that the Securities and Exchange Commission ("Commission") ensures fair, orderly and efficient markets. Hudson River Trading supports competition among exchanges and, as such, is supportive of the IEX application to become an exchange to the extent that the issues raised in this letter and others<sup>1</sup> are addressed. We believe that the application in its current state, however, raises a number of important issues and may set precedents that could adversely impact the fairness and efficiency of the U.S. equities market. While IEX seeks to create an exchange that eliminates perceived advantages for certain participants, we believe the IEX Point of Presence ("POP") would create an unequal playing field that has a far-reaching impact on competition and market quality. We thank IEX for providing greater clarity with respect to its proposed operations in its letter responding to comments<sup>2</sup> and believe that IEX's rules and exchange application should be updated as they have committed to so doing in the letter. However, even with these updates, the application will still present important issues and as a result, IEX's exchange application should be repropose with an adequate notice and comment period.

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<sup>1</sup> Several commenters have raised important policy issues related to the IEX exchange application. *See* Letter to Brent J. Fields, Secretary, SEC, from Mary Ann Burns, Chief Operating Officer, FIA Principal Traders Group (November 6, 2015); Letter to Brent J. Fields, Secretary, SEC, from Elizabeth King, General Counsel, NYSE Group, Inc. (November 12, 2015); Letter to Brent J. Fields, Secretary, SEC, from Eric Swanson, EVP and General Counsel, BATS Global Markets, Inc. (November 3, 2015); Letter to Brent J. Fields, Secretary, SEC, from Joan C. Conley, SVP and Corporate Secretary, NASDAQ Inc. (November 12, 2015); and Letter to Brent J. Fields, Secretary, SEC, from John Nagel, Esq., Managing Director, Citadel LLC (November 6, 2015).

<sup>2</sup> *See* Letter to Brent J. Fields, Secretary, SEC, from Sophia Lee, General Counsel, IEX Group, Inc. (November 13, 2015).

While the existence of the POP raises some concerns with respect to Regulation NMS<sup>3</sup>, this letter will focus on how the POP provides certain IEX order types and the IEX-affiliated broker dealer router (“IEX BD Router”) with an unfair advantage over its members and other exchanges. Our comments address three specific issues caused by this disparity. First, while the POP’s intended effect is limited in scope to non-displayed pegged orders and routed orders, it would have a broad impact on overall market efficiency. Second, the POP as currently proposed will harm competition. Third, the POP delay may cause additional far-reaching and unintended consequences in the markets.

## **I. Background**

IEX describes the POP as follows: “The POP is provided as a service to all IEX users uniformly and involves approximately 350 millionths of a second of latency for all inbound orders and outbound messages to members and proprietary market data customers to ensure that no market participants can take action on IEX in reaction to changes in market prices before IEX is aware of the same price changes on behalf of all IEX members.”<sup>4</sup>

Similarly, the POP allows the IEX BD Router to take action on other exchanges before it informs IEX members of their IEX executions in order to ensure that such members do not send orders or cancel requests to other markets before the IEX BD Router.

To summarize, all messages from members to IEX and all messages from IEX to members, including direct market data, go through the POP. However, for order types for which IEX (including the IEX BD Router) manages the pricing and execution—non-displayed pegged orders and routable orders—IEX systematically bypasses the POP when receiving market data, allowing it to update pegged order prices and routing orders to other exchanges, as shown in the examples below.

### **A. The POP offers no protection to transparent limit orders – it simply slows them down**

The POP has no impact on pricing or execution when regular displayed IOC and DAY limit orders interact, and it is these displayed limit orders that provide the foundation for price discovery. Thus, in most cases<sup>5</sup>, the POP does not advantage slower participants relative to faster participants. For regular orders, the POP simply slows everyone down for 350 microseconds. Similar to a 100-meter sprint, if you simply add 350 microseconds to each participant’s time, neither the order in which they finish nor their time differentials will change.

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<sup>3</sup> *Supra* note 1.

<sup>4</sup> See Letter to Brent J. Fields, Secretary, SEC, from Sophia Lee, General Counsel, IEX Group, Inc. (November 13, 2015).

<sup>5</sup> Usage of non-displayed pegged order types like the ones the POP would affect is limited. For instance, approximately 3.87% of executed volume on NYSE ARCA results from pegged orders and on BATS, approximately 6.81% of executed volume was non-displayed in November 2015. See [https://www.nyse.com/publicdocs/nyse/markets/nyse-arca/NYSE\\_Arca\\_Order\\_Type\\_Usage.pdf](https://www.nyse.com/publicdocs/nyse/markets/nyse-arca/NYSE_Arca_Order_Type_Usage.pdf); [http://www.batstrading.com/market\\_data/order\\_types/](http://www.batstrading.com/market_data/order_types/).

### Example 1: Regular Orders – POP has no effect

- Members A and B both see a quote update on another exchange that would lead them each to take action.
- Member A responds to the price change in 150 microseconds by canceling a resting displayed sell limit order at 20.00 on IEX.
- Member B responds to the same price change in 100 microseconds by sending a marketable IOC buy limit order at 20.00 to IEX to trade with Member A.
- Both Member A and Member B will go through the POP, adding 350 microseconds to their messages. The result is that Member A's cancel message reaches the IEX matching engine in 500 microseconds and Member B's order message reaches the IEX matching engine in 450 microseconds.
- Since Member B is faster than Member A, its IOC buy order would beat Member A's cancel and the two members would trade.

The result of the POP is that IEX members have the same relative speed when using displayed orders. In the above example, the POP would simply result in the trade being executed after the 350 microsecond delay. Member B was 50 microseconds faster with or without the POP and was able to execute against Member A's displayed quote. In this case, the POP simply slows down the trade execution process but does not alter the outcome. In other words, if IEX applied the POP equally to all order types and users, including itself, it would accomplish nothing with respect to members' relative latency, but it would increase members' absolute latency. In this regard, IEX is similar to other exchanges in that the closer a firm is located to the POP, the faster they are able to respond and trade on IEX.

### **B. The POP is designed to create an advantage for pegged orders and the IEX BD Router**

The POP is designed to ensure that IEX is faster than other exchanges and market participants in two unique scenarios: (1) when IEX is managing non-displayed pegged orders<sup>6</sup> (including primary, mid-point and discretionary pegged orders) and (2) when IEX is managing routable orders. The POP is not simply a speed bump for members; it is a speed bump for members that IEX bypasses in order to gain a competitive advantage for IEX relative to market participants and other exchanges when it is managing the pricing and execution of an order.<sup>7</sup> In contrast to the example above, in these cases IEX adds 350 microseconds to the other sprinters' times, but not its own, in order to ensure that it always wins.

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<sup>6</sup> All pegged orders on IEX are non-displayed. See Investors' Exchange LLC Form 1 Application (Release No. 34-75925; File No. 10-222).

<sup>7</sup> We note that this makes the POP materially different than other exchange-introduced latencies that are designed to equalize latency of member connections as part of the exchanges' fair access requirements. We also believe that all exchanges should be required to have their affiliated broker dealers connect in the same manner as members.

Example 2: Non-Displayed Pegged Order – IEX bypasses the POP allowing it to beat a member by updating the pegged order price

- Member B and IEX see a quote update on another exchange in which the best offer goes from 20.00 to 20.01 that would lead them each to take action.
- Member A has a non-displayed primary peg order that is available to sell at 20.00 on IEX, where IEX manages the price of pegged orders on behalf of members (primary peg sell orders peg to the best offer).
- Member B responds to the price change in 100 microseconds by sending a marketable IOC buy limit order at 20.00 to IEX to trade with Member A.
- Only Member B will go through the POP, adding 350 microseconds to its order. The result is that Member B's order message reaches the IEX matching engine in 450 microseconds.
- IEX does not go through the POP and therefore it is able to update the price of the pegged order to 20.01 before Member B reaches the matching engine. As such, no trade occurs.

Here, IEX added 350 microseconds to Member B's time, but did not add any time to its own, effectively giving itself an insurmountable head start. IEX would be able to do this because when it receives information from other markets, it does not go through the POP, and as a result, the pegged order on IEX was repriced while Member B was attempting to trade with it.

Example 3: IEX BD Router – IEX bypasses the POP allowing it beat a member to another exchange

- Member C has an order to buy at 10.00 resting on IEX.
- IEX has a routable sell order that fully executes Member C's buy interest on IEX.
- When executed, Member C decides to update its buy order prices on another exchange from 10.00 to 9.99.
- The POP would delay Member C's execution information by 350 microseconds. As a result, although Member C's buy order on IEX has been executed, it does not know this for at least 350 microseconds.
- Before Member C is informed of its buy order execution, the IEX BD Router sends an order to the other exchange to execute against Member C's buy order at 10.00 on the other exchange.
- Since Member C was not informed of its execution on IEX, its order at 10.00 on the other exchange is executed by the IEX BD Router before Member C can update the price to 9.99.

Without the POP, if Member C were faster than IEX and could update its price to buy at 9.99 on the other exchange before the IEX BD Router could reach the other exchange, the IEX BD Router would not be able to execute against the buy order at 10.00. Because the IEX BD Router has privileged information about the execution, it is systematically advantaged to allow it to

“pick off” Member C on the other exchange.<sup>8</sup> This behavior is similar to what IEX describes as latency arbitrage.

IEX states that “the POP enables a market participant to safely send an order concurrently to IEX and other trading venues, without the risk that the order execution on IEX will provide a signal to market participants engaged in latency arbitrage who can then cancel their quotes on other trading venues to avoid execution.”<sup>9</sup> However, when a market participant sends an order concurrently to IEX and other trading venues, it has the risk that the order execution on another exchange will provide a signal to IEX to reprice a pegged order on IEX.<sup>10</sup> The risk exists because while the market participant’s order to IEX goes through the POP, IEX bypasses the POP for market data updates from the other exchange. Therefore, IEX is designed to know about the new price and update pegged orders accordingly before the market participant’s order reaches the matching engine. The POP enables IEX to engage in exactly the behavior they claim it is designed to help avoid. So whereas IEX claims that this functionality is designed to allow them to combat latency arbitrage, in fact, this functionality allows IEX to engage in latency arbitrage and update their pegged order prices before participants can access their quotes.

Example 4: Member’s concurrent orders to two exchanges are harmed by the POP

- The current best offer is 25.00 on another exchange for 1000 shares.
- IEX has a primary peg sell order that is available at 25.00 (primary peg sell orders are pegged to the best offer).
- Member D sends a 1000 share buy order at 25.00 to the other exchange and a 1000 share buy order at 25.00 to IEX.
- The buy order executes on the other exchange for 1000 shares and the market changes to a new best offer of 25.01.
- Since the POP is designed to ensure that IEX receives the other exchange’s market data feed with sufficient time to update pegged orders, IEX will update the price of its primary peg order to 25.01.<sup>11</sup>
- Member D’s buy order will not reach the IEX matching engine until 350 or more microseconds later, at which time it will not be executable at 25.00.

In this case, Member D was unable to execute against shares that would have been available in the absence of the POP. IEX responded to a price change on another market by updating the

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<sup>8</sup> IEX describes being “picked off” as “(i.e., executed) at disadvantageous prices in very small time increments just before adverse changes in the NBBO.” See Letter to Brent J. Fields, Secretary, SEC, from Sophia Lee, General Counsel, IEX Group, Inc. (November 13, 2015).

<sup>9</sup> See Letter to Brent J. Fields, Secretary, SEC, from Sophia Lee, General Counsel, IEX Group, Inc. (November 13, 2015).

<sup>10</sup> Similarly, the execution could trigger IEX’s novel “discretionary peg” order to update its price.

<sup>11</sup> Note that if IEX had a limit order to sell at 25.00 and the Member canceled the sell order upon receiving the price change from the other exchange, Member D’s buy order would likely execute against the sell order at 25.00 because both Member D’s buy order and the Member selling at 25.00 would go through the POP delaying both orders equally.

price of a pegged order. This is exactly the latency arbitrage behavior that IEX claims the POP is designed to prevent with respect to price changes that originate on IEX.

## **II. While purported benefits of the POP are limited in scope, it will have a broad impact on price discovery and market efficiency**

As we have described, all orders on IEX—including transparent, displayed orders—will be delayed by the POP along with the resulting quote updates on IEX’s direct market data feed. However, although these orders are delayed, they are afforded no benefit from the POP as we described above. Yet IEX delays these orders and its quotes for the benefit of non-transparent, pegged orders and to allow the IEX BD Router to respond to information faster than other market participants. While IEX’s order usage makeup could differ from existing exchanges, non-transparent orders make up less than 10% of exchange volume on NYSE ARCA and BATS.<sup>12</sup> IEX should not be permitted to have features that harm the price discovery function of transparent orders and market data, market-wide, for the benefit of a small minority of hidden dark orders. Similarly, IEX should not be able to degrade price discovery to provide its router with a clear view of the market while clouding the view for other market participants. Transparent orders and timely market data are the backbone of price discovery and help to ensure market efficiency.

## **III. The POP will harm competition**

The idea of the POP is simple: IEX wants to have fast access to other exchanges’ matching engines and market data by bypassing the POP, but it wants other exchanges and market participants to have slower access to IEX’s matching engine and market data by forcing them through the POP. Allowing IEX to structure its rules in this manner would harm competition as these features will provide IEX with a systematic advantage relative to those features on other exchanges. We believe that an approval of these features would result in an unfair advantage for IEX. To the extent that the Commission allows other exchanges to implement similar functionality, we expect a competitive response where more exchanges will seek to implement similar systematic advantages for their pegged orders and routers.

Specifically, the above examples make clear that IEX wants to be able to update pegged orders on IEX based on price changes on other markets before other market participants can respond to them, but IEX does not want market participants or other exchanges to be able to respond to price changes on IEX to update their prices on other exchanges before the IEX BD Router can execute against them. If you use the pegging feature on IEX, the POP protects your orders from trading immediately following a price change. If you use the pegging feature on another exchange, the POP exposes your orders to potential executions at stale IEX prices due to the POP. We believe that other exchanges will feel compelled to respond by introducing similar features. Not only will adding these features create a more level playing field for other exchanges, but it would also have the effect of substantially mitigating the purported benefits of the POP. When another exchange introduces a similar feature, IEX will no longer have a clear view of prices; indeed, no one will.

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<sup>12</sup> *Supra* note 5.

#### **IV. Possible far-reaching unintended consequences of the POP**

As described above, the POP provides IEX with a distinct advantage relative to other exchanges. We believe that if such an advantage is approved, other exchanges will inevitably request similar treatment. While IEX's operation, in a vacuum, is not more complex than other exchanges, IEX does not operate in a vacuum. We are concerned that as multiple exchanges adopt similar features, the complexity in overall market structure will increase dramatically. Further, during periods of high volatility, several quotes may be intentionally delayed, clouding the view of the NBBO and leading to greater uncertainty for market participants that could contribute to market instability.

#### **V. Conclusion**

The POP aims to intentionally delay incoming orders and outgoing market data with the goal of improving executions for non-displayed pegged orders and orders routed by the IEX BD Router. Given that the POP is designed to delay access to information, we are concerned that any such feature will cloud market participants' view of the current price and harm price discovery. We do not believe that the potential benefit to non-displayed pegged orders or routable orders justifies the harm to market efficiency that is inherent in the POP. Further, the POP harms competition by providing IEX with fast access to other exchanges' matching engines and market data by allowing it to bypass the POP, while forcing other exchanges and market participants to have artificially delayed access to IEX's matching engine and market data by forcing them through the POP. We believe that, if approved, other exchanges will seek to implement similar features to those on IEX in order to seek the same advantages that the POP provides to IEX. As proposed, the POP creates complex order interactions within IEX and across markets. These complex order interactions will only be exacerbated when other exchanges, inevitably, introduce similar features.

Hudson River Trading believes that there is room for exchanges to innovate in order to address market structure concerns. However, these innovations must meet the standards outlined in the Securities Exchange Act of 1934 (the "Exchange Act") by protecting investors and promoting efficiency, competition and capital formation. While some of IEX's proposed features, such as discretionary peg orders, are innovative and may meet the standards required, we do not believe that the POP meets those standards because it will harm efficiency and competition while failing to better protect investors and promote capital formation. It is critical that the Commission ensures that all exchange features meet the standards required by the Exchange Act.

Please do not hesitate to contact me if you have any questions or would like to discuss this letter.

Sincerely,

/s/ Adam Nunes

Adam Nunes  
Head of Business Development