CITADEL

April 14, 2016

Brent J. Fields
Secretary
U.S. Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-0609

Re: Release No. 34-77406; File No. 10-222; Investors' Exchange, LLC; Notice of Filing of Amendment Nos. 2, 3, and 4 to, and Order Instituting Proceedings to Determine Whether to Grant or Deny, and Notice of Designation of Longer Period for Commission Action on Proceedings to Determine Whether to Grant or Deny, an Application for Registration as a National Securities Exchange Under Section 6 of the Securities Exchange Act of 1934, as Modified by Amendment Nos. 1, 2, 3, and 4 Thereto

Dear Mr. Fields:

Citadel LLC ("Citadel")[1] appreciates the opportunity to comment on the Investors' Exchange, LLC ("IEX" or the "Exchange") fourth amended application for registration as a national securities exchange (the "Application").[2] We applaud the Securities and Exchange Commission ("SEC" or "Commission") for apparently requiring IEX to remove the speed advantage that IEX initially proposed to give its affiliated router over all other market participants.

Unfortunately, the amended IEX Application still includes a proposed speed advantage for IEX pegged order types that is uniquely designed to enable certain inter-exchange latency arbitrage strategies. Specifically, IEX wants to intentionally and selectively delay the ability of market participants to place new orders on IEX or reprice orders on IEX, while allowing IEX pegged orders to reprice based on un-delayed high speed data feeds from other exchanges without being subject to IEX's intentional delay.[3]

The Commission should not approve the Application unless it is amended to remove this latency arbitrage mechanism. First, the pegged order speed advantage would favor hidden orders at the expense of displayed orders. This would discourage investors from using limit orders and

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[1] Established in 1990, Citadel is a leading global alternative asset manager and market maker. With over 1,500 employees, Citadel serves a diversified client base through its offices in the world's major financial centers, including Chicago, New York, London, Hong Kong, San Francisco, Dallas and Boston. On an average day, Citadel accounts for over 14 percent of U.S. listed equity volume, over 20 percent of U.S. listed equity option volume, and comparable market share in many of the world's leading financial markets.

[2] *Available at* https://www.sec.gov/rules/other/2015/investors-exchange-form-1.htm; Securities Exchange Act Release No. 77406, 81 FR 15767 (March 24, 2015) ("Order instituting Proceedings").

[3] Today, we are submitting a separate comment letter urging the Commission not to adopt its proposed interpretive guidance that would permit IEX and other exchanges to intentionally delay access to protected quotations. Letter to Brent J. Fields, Secretary, Commission, from John C. Nagel, Esq., Managing Director, Citadel LLC (April 14, 2016) (regarding Securities Exchange Act Release No. 77407, 81 FR 15660 (March 24, 2016)).

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thereby harm market transparency, which would ultimately increase bid/offer spreads and transaction costs for all investors. Second, allowing IEX to launch with this hidden pegged latency arbitrage mechanism would potentially open the door to displayed pegged orders with the same advantages. Displayed pegged orders using this latency arbitrage mechanism would eviscerate market transparency and effectively change the displayed market from firm immediately accessible quotes to a compilation of non-firm indications of interest. The resulting dramatic increase in bid/offer spreads would substantially increase transaction costs for all investors. Third, the pegged order speed advantage raises unfair competition concerns similar to the now-withdrawn IEX router speed advantages.

Aside from these access delay related issues, one of the pegged order types proposed by IEX called a discretionary peg order is concerning because it would break new ground into the realm of predictive exchange order types. Allowing exchanges to offer such order types would set the market on a dangerous path of rapidly increasing exchange order type complexity.

I. The IEX Pegged Order Speed Advantage Would Harm Displayed Limit Orders as Well as Exchanges Without Pegged Order Speed Advantages.

The significance of the latency arbitrage mechanism for IEX pegged orders, which are allowed to reprice without being subject to the IEX access delay, has been well-documented in previous comment letters.[4] It is nonetheless worth underscoring the implications of this scheme by discussing the following simple illustrative example:

1. Investor wants to buy 3,000 shares of a stock.
2. The national best offer is $10.00.
3. There are 2,000 displayed shares offered for $10.00 at two exchanges (1,000 shares each). These two exchanges offer immediate quotation access.
4. There is a hidden 1,000 share sell order on IEX pegged to the national best offer.
5. Investor decides to sweep the market to attempt to buy 3,000 shares for $10.00.
6. Investor simultaneously sends orders to buy 2,000 shares on the immediate access exchanges and 1,000 shares on IEX.
7. Investor immediately learns that it bought 2,000 shares on the immediate access exchanges and that the best offer thus moved up to $10.01.
8. While Investor's order sent to IEX is traversing the IEX delay mechanism, IEX receives a market data update indicating that the best offer is now $10.01.
9. IEX thus reprices to $10.01 the pegged order to sell 1,000 shares resting on IEX.

[4] *See, e.g.*, Letters to Brent J. Fields, Secretary, Commission, from Charles M. Jones, Robert W. Lear Professor of Finance and Economics, Columbia Business School, New York, New York, at 3 (March 2, 2016) (noting that the advantage provided to pegged orders relative to non-pegged orders subject to the IEX intentional delay could equate to $400 million annually); and Order Instituting Proceedings 81 FR at n.43 (citing several comment letters critiquing the advantage provided by IEX to its pegged orders).

10. Investor's buy order sent to IEX does not execute on IEX even though 1,000 hidden shares were available on IEX for $10.00 at the time Investor's buy order arrived at IEX.
11. To buy the remaining 1,000 shares, Investor sends an order to IEX to buy 1,000 shares for $10.01, and is filled by the 1,000 share pegged order.

As this example illustrates, the IEX access delay and pegged order latency arbitrage mechanism would give pegged orders resting on IEX an unfair advantage over displayed orders resting on other exchanges. The 2,000 shares displayed on other exchanges sold for $10.00 per share, while the pegged order on IEX was able to use the IEX delay mechanism, its circumvention of this delay, and low-latency information about this Investor's own trading on other markets to reprice to a higher price.

The natural competitive response to this common type of scenario would be for market participants to change their routing techniques and sweep IEX for hidden liquidity before routing to other exchanges. This would in turn reward hidden pegged orders resting on IEX with higher fill rates at the expense of displayed orders posted on other exchanges. As market participants place more hidden pegged orders on IEX and fewer displayed orders on other exchanges, the displayed markets and market transparency would deteriorate.

These trends would thus punish any exchange that does not implement a similar access delay and latency arbitrage mechanism. IEX and its owners would also benefit from this dynamic. As a result, other exchanges would be compelled to respond by implementing their own access delays and pegged order speed advantages. As other exchanges do so, market transparency and the displayed market would erode further. As market transparency deteriorates, quoted bid/offer spreads would thus widen.[5] This would, in turn, increase transaction costs for all investors.[6]

Ironically, as other exchanges introduce similar delays and latency arbitrage mechanisms, the value of these arbitrage mechanisms will deteriorate as the market data from other exchanges becomes similarly stale. Eventually, once these mechanisms effectively neutralize each other, these mechanisms will have accomplished nothing other than rendering public quotations stale and unreliable.

When considering these negative consequences, it is also important to keep in mind that now that IEX has withdrawn its proposed router advantage, the only purpose to be served by the IEX delay mechanism is enabling IEX pegged orders to reprice based on un-delayed quotations

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[5] The correlation between access delays and bid/offer spreads is vividly demonstrated by a study that showed that when Deutsche Boerse reduced latency on its exchange, bid/offer spreads narrowed substantially. *See What do we know about high-frequency trading?*, Charles M. Jones, Columbia Business School, Version 3.4, at 23 (March 20, 2013).

[6] Bid/offer spreads are a standard measure of market quality. *See* Securities Exchange Act Release No. 43590, 65 FR 75414, n.20 (December 1, 2000).

from other exchanges.[7] This pegged order repricing advantage would only serve to harm investors seeking liquidity on IEX, which would often include market orders from retail investors. The biggest beneficiary of the IEX pegged order latency arbitrage mechanism would be the sophisticated market participants that have the technology and resources to engage in clever inter-market latency arbitrage strategies. Indeed, we believe that the biggest users of pegged orders on IEX are some of the largest global automated trading firms. In contrast, even with their speed advantages, IEX pegged orders would provide no benefits or utility whatsoever to the vast majority of retail orders.

II. Approving the IEX Application Would Potentially Open the Door to Displayed Pegged Order With Speed Advantages.

If the Commission allows intentional protected quotation access delays and further allows pegged orders to circumvent those access delays, the Commission would soon be faced with the question of whether to also allow displayed pegged orders to circumvent those delays. Other exchanges already offer displayed primary peg orders and it would only be a matter of time before IEX or another exchange proposes to allow such pegged orders to reprice with the same type of speed advantage as IEX pegged orders.[8]

Such a result would severely damage the displayed market as market participants would never know in advance the extent to which displayed quotations include displayed pegged orders that will reprice before anyone sweeping the market can trade against those quotes. This would ultimately raise significant questions about whether such displayed pegged orders were actually firm for the NBBO to which they were pegged. The only recourse that a market participant would have would be to attempt to avoid this liquidity fade by first sending orders to markets with the longest delays.

While IEX's pegged orders are currently non-displayed, it is not immediately apparent whether, and if so, on what grounds the Commission would disapprove a proposal from IEX or another delayed market to make its pegged orders displayed if the Commission approves the Application in its current form. The Commission should thus carefully consider how it would treat displayed pegged orders before deciding whether to approve the amended IEX Application.

III. The Pegged Order Speed Advantage Would Give IEX an Unfair Advantage Over its Members

The competitive issue raised by the 350 microsecond speed advantage in the repricing of pegged orders is comparable in many ways to the competitive 350 microsecond speed advantage

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[7] *See generally* Letter to Brent J. Fields, Secretary, Commission, from Adam Nunes, Hudson River Trading LLC (December 4, 2015).

[8] *See, e.g.*, Nasdaq Rule 4702(b)(7)(B) (noting that Nasdaq's "Market Maker Peg Order" are always displayed) and 4703(d) (describing displayed orders with primary pegging).

that IEX initially proposed to give its affiliated router.[9] In the case of its affiliated router, IEX initially proposed that orders routed to away markets by IEX's router would not be subject to the same 350 microsecond access delay that applied to all other outbound messages from IEX. Although anyone could freely choose to use the IEX router with its speed advantage, this router advantage presented competitive concerns because IEX's affiliated router would have had an insurmountable and artificially created advantage over its broker-dealer members attempting to perform the same function.

Just like the IEX router, all IEX members could use IEX's pegged orders with their inherent speed advantage, but this too raises competitive concerns. Similarly, IEX's pegged orders would have a very significant and artificial trading advantage that exchange members could not otherwise recreate or acquire elsewhere. Moreover, dynamically repricing orders in response to market movements is likewise a traditional broker-dealer service that competes directly with members of IEX.

The Commission would thus presumably object if IEX proposed to have its affiliated broker-dealer manage the repricing of IEX pegged orders without any delay. Although IEX pegged orders would in fact be repriced by the IEX exchange and not by an IEX affiliated broker-dealer, the pegged order speed advantage is nonetheless objectionable because the competitive advantage over members of the exchange is so significant.

IV. The Dangers of Predictive Exchange Order Types

Approval of IEX's proposal to offer a special pegged order type called discretionary peg orders ("DPOs") would raise additional concerns regardless of whether IEX intentionally delays access to IEX or allows pegged orders to circumvent these delays. This is a significant issue because at least one exchange has already proposed an order type virtually identical IEX's DPO,[10] and other exchanges would be sure to follow approval of the IEX Application with their own versions or other types of predictive orders.[11]

IEX DPOs would generally operate by posting to the primary quote (national best bid or offer or "NBBO") and, limit price permitting, exercising discretion to execute up to the midpoint of the NBBO.[12] A DPO would exercise the least amount of discretion possible when executing.[13]

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[9] *See* Order Instituting Proceedings 81 FR at 15767 (describing IEX affiliated routing broker-dealer advantage and IEX's proposal to "eliminate this aspect and instead create a new structure intended to place its outbound routing function on parity with competing broker-dealers).

[10] Securities Exchange Act Release No. 77441, 81 FR 17749 (March 30, 2016) (SR-NYSEArca-2016-44).

[11] Predictive order types in this context generally refers to formula-based order types whose execution, non-execution, pricing, or other action is determined based on other events or actions in the market or on the exchange.

[12] *See* proposed IEX Rule 11.190(b)(10).

[13] In this way, the DPO is advantaged over any liquidity taking order that might narrow the NBBO. For example, if the market for a security is $10.00 x $10.05, and there this a DPO sell order resting at the offer of $10.05, an incoming, displayable buy order priced at $10.03 would cause an execution at $10.03, rather than at the midpoint of

A DPO would not exercise discretion in the event that IEX determines that a quote is crumbling, which is generally measured by assessing the number of other venues that have fallen away from the primary quote on the opposite side of the market from the DPO over a given period of time. A crumbling quotation is determined by using five preset coefficients and four distinct variables at a given point in time.

The problem with IEX DPOs is that they run contrary to the SEC's recent initiatives to curb the increasingly "large number of complex order types offered by the exchanges" including Chair White's recent request for the exchanges to review their order types.[14] We are not aware of any other comparable exchange order type that operates based on a complex algorithm to determine whether it will execute and at what price. This raises the question of the extent to which the Commission has the expertise and resources to, and has in fact, proactively vetted the integrity or operation of this formula-based order type for consistency with the Exchange Act. Moreover, as other forms of predictive order types emerge and evolve, it is unclear how the Commission would review and police such order types and whether the Commission would propose guidance or limitations on how predictive order types may operate.[15]

For example, would the Commission ever permit an order type that essentially operated as anti-DPO? Such an order might use a formula that is aimed at executing against resting DPOs before they are able to hold back from exercising discretion (*i.e.*, the anti-DPO might aggressively take available liquidity at the midpoint or beyond if it senses, based on a formula, that the crumbling quote indicator for DPOs would soon be triggered). Would the Commission approve a reserve order type that would withhold replenishing its displayed size when a predictive formula determines that quotations are crumbling, or post additional displayed size at a more aggressive limit price if a predictive formula indicates a favorable market? Would the Commission approve an order type that rests non-displayed on the primary quote, similar to IEX's primary peg order, but becomes displayed when a predictive formula indicates that the quotation is stable and there is substantial non-displayed liquidity ahead in the queue?

If the Commission approves IEX's proposed use of DPOs, it would potentially open the door to a virtually infinite range of exchange predictive order types. We submit that the utility of these order types is marginal and does not outweigh the additional complexity that such order types would impose on the market. Moreover, the evolution of such order types may eventually require

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$10.025. In this way, all of the price improvement advantage is provided to the resting, non-displayed DPO, rather than the aggressively priced buy order seeking to narrow the spread for the security.

[14] *See* Mary Jo White, Chair, Commission, Enhancing our Equity Market Structure, Speech at the Sandler, O'Neill & Partners, L.P. Global Exchange and Brokerage Conference (June 5, 2014) *available at* www.sec.gov/News/Speech/Detail/Speech/1370542004312#.U5HI-fmwJiw.

[15] It is also unclear whether the current regulatory structure for exchanges is appropriately designed to govern exchange provision of what is essentially a broker-dealer like algorithmic execution service. For example, broker-dealers are subject to regulatory capital requirements, are potentially liable to clients for trade execution algorithm malfunctions, and are subject to extensive self regulatory organization ("SRO") oversight. In contrast, exchanges do not have a regulatory obligation to hold capital, claim immunity from civil liability, and have no SRO oversight.

broker-dealers to employ their use to protect against certain other order types, further encroaching into and complicating the traditional role of broker-dealers. Moreover, dramatically increasing the complexity of exchange matching engines in this manner would reduce the resilience of the markets, particularly on volatile and high message traffic days.

V. Conclusion

IEX's proposed structure raises a number of important issues that will substantially impact the future of our equity market structure. Even if the Commission departs from prior guidance and allows intentionally delayed access to protected quotations in its proposed interpretive guidance, the Commission should not permit IEX pegged orders to have a speed advantage over other orders. Creating such a latency arbitrage mechanism for this type of order would weaken the displayed market, increase transaction costs for all investors, and ultimately increase the cost of capital and reduce employment and job creation. Moreover, it would distort the competitive balance between exchanges and their members. Finally, IEX's complex predictive order type would be a precedent for adoption and proliferation of predictive order types across exchanges, which would make the markets far more complex, less transparent, and less resilient.

Please do not hesitate to contact me with any questions.

Sincerely,

John C. Nagel, Esq.
Managing Director and
Sr. Deputy General Counsel
Citadel LLC

cc: Mary Jo White, Chair
Kara M. Stein, Commissioner
Michael S. Piwowar, Commissioner
Stephen Luparello, Director, Division of Trading & Markets