

Jack M. Burgess

[REDACTED]

December 26, 2015

Mr. Brent J. Fields
Secretary
U.S. Securities and Exchange Commission
450 Fifth Street, N.W.
Washington, D.C. 20549

pdf file via e-mail

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

Dear Mr. Brent J. Fields:

I sincerely thank you for the opportunity to write expressing my full support of the pending exchange application for Investors' Exchange, LLC ("IEX").

Background

I am a retired engineer who opened my first personal brokerage account in March 2012 in order to invest directly in Tesla Motors, Inc. (TSLA). While I hoped to profit from some TSLA investments, I also *very* much wanted to support the Company's mission as frequently articulated by the company's co-founder, chief architect & CEO, Mr. Elon Musk. From the "About Tesla" page on the Tesla Motors website (Musk):

Tesla's mission is to accelerate the world's transition to sustainable transport.

I had very little knowledge of investing, nor of economics in general. However, I did know about engineering & the Tesla Model S had groundbreaking, breath-taking engineering as well as a difficult to quantify appeal from a wide array of product attributes – aesthetics, safety, efficiency, performance, passenger & cargo space. Equally appealing, at least to me, was the idea of my investment helping to start that "ttransition to sustainable transport."

Also at this time, I had no idea how the US markets worked other than some vague notions that their primary purposes had to do with capital formation and allocation along with financing for new business endeavors and expansions. Recognizing my ignorance in these fields of study & wanting to put some assets at risk, I got to work.

¹ Personal information redacted from public display. This information is visible on all signed paper documents.

An Education -- with Rude Discoveries

As part of my investing/finance/market-structure self-education, I read a variety of books, watched several pertinent documentaries, attended a few educational meetings & read many, many financial articles. In regard to my somewhat recently gained knowledge pertinent to the IEX exchange application, I would like to acknowledge the following outstanding sources... I am most grateful to Scott Patterson for his books, *The Quants* and *Dark Pools*; to Sal Arnuk and Joseph Saluzzi of Themis Trading for their excellent book *Broken Markets*; to Roger Lowenstein for his book *When Genius Failed*; to PBS & Frontline for the documentary *The Warning* and especially for the four-part documentary *Money, Power and Wall Street*. And of course, a special thanks to Michael Lewis for his timely book, *Flash Boys*.

Regrettably, as my studies progressed and I learned more about the US financial industry and market-structures, the more disillusioned I became. It is now clear to me that the US markets have a long history of providing special access and information to powerful, wealthy participants at the expense of the lesser participants. Moreover, I discovered that my notions about capital formation/allocation and business financing serving as the primary purposes of the marketplace were exceedingly naïve. Disappointingly, it now seems evident to me that the primary purpose of many market stakeholders and participants is simply to make money. Considering the nature of most market transactions, I suspect that they could just as well be made in a casino. I've quipped to a few friends, "Stock markets or casinos, it makes no difference – other than the stock markets enjoy a more lenient tax code."

Of the enormous number of financial transactions that occur each day, I discovered that just a small portion directly result in capital formation/allocation or financing services tied to growing a business. But even when this happens, they are often secondary purposes at best and purely incidental at worst. And, in some instances where there really is capital involvement, I question the wisdom of its formation/allocation.

Reading further, I discovered many more unfair disparities between the wealthy, powerful, well-connected market participants and the rest of us. These privileged participants enjoy exclusive invitations to IPO subscriptions, hugely discounted fees and byzantine rebate programs where the exchanges often pay the participant to make a trade! So much of the system seems skewed to give the market participants that already have so much one advantage after another, all of which come at the expense of the participants that have much less.

For a capitalistic market to function well, the participants must have somewhat equitable access to the exchanges, information and consistent fee structures. Without a somewhat level field, how can there be productive competition? That said, today's existing disparities certainly explain a lot. But, how did they come about?

Market Rules & Self-Interest

It is important to note two things about markets:

1. Markets, almost by definition, must have rules in order to exist (Reich 13).
2. Markets and the rules that define them are human creations and by the nature of that fact imperfect.

Even after learning about all the disparities between market participants, *I am still a firm believer in capitalism* (with a strong Keynesian twist) and in the productivity & efficiency of a well-regulated market. One of the more interesting traits of a capitalistic market is the essential (and at the same time pernicious) role that self-interest plays. **Self-interest** – the very human trait that directs Adam Smith’s invisible hand (A. Smith 340) in optimizing market resources and activities, also drives crony- or rentier-capitalism. Lamentably, I see the latter in much of today’s market-structure and practices as well as many, but not all, HFT activities.

A Failure of the Market?

In 2009, during the worst of the “Great Recession”, we had both:

- high unemployment; and,
- many long-neglected roads and bridges in need of maintenance and repairs between Chicago and New Jersey.

I.e., a pool of unemployed, qualified labor and work with clear safety and efficiency benefits for hundreds of businesses and millions of people that used and needed those roads and bridges.

US economic dogma would have us believe that capitalistic market participants, each motivated by self-interest, will generally behave in such a way that results in a collective market that will provide efficient, beneficial outcomes. In theory, this occurs via the formation/allocation of assets and resources that are used for the most needed and worthwhile economic pursuits.

Yet, it was in 2009 that a small group of investors formed a new company called Spread Networks (Lewis 14) to run a fifty-mile-long fiber optic cable between Chicago and New Jersey in order to decrease the signal latency time of market data transmissions 13/1000 of a second (Lewis 22). With an initial cost of \$300,000,000 (Lewis 14), employment peaked with over two-thousand full-time workers (Lewis 10). The existing communication cable between Chicago & New Jersey worked just fine; but, the new duplicate cable was 13/1000 of a second faster. And that speed was incredibly valuable to a small group of already very wealthy individuals and businesses (including the existing exchanges and ATS’s).

How could a capitalistic market preferentially direct vast resources to a redundant communication channel with a vanishing small (at least on a human scale) latency advantage over clearly needed infrastructure repairs and maintenance? One project benefits a small group of wealthy, powerful interests; the other, millions of people and hundreds, if not thousands, of businesses.

Was this a failure of the market? I would have to say “no.” The ROI on the Spread Network project was fantastic – partly because it was so easily monetized. The infrastructure project being difficult to monetize likely had a much poorer ROI. That said, I believe that this particular allocation was distressingly immoral due to the squandered social benefits. And this leads us to a more interesting question...

How did our social benefit interests become so very misaligned with “Wall Street” interests? It goes back to the rules that, by and large, define the market. The wealthy, powerful and well-connected interests have the resources to influence, and in many cases actually write, the rules of our markets. And thus, we see:

- hundreds of millions of dollars spent on tiny latency improvements;
- brokerages selling their clients’ order flows;
- exchanges selling colocation services and direct feeds; and,
- HFT strategies that routinely confound price discovery and harm sell/buy prices of other market participants.

The market is working. But, its defining rules that govern the way it works favor a small group of participants over the rest of us (Reich).

Complexity and Its Handmaiden -- Instability

The current exchanges support upward of 150 different order types (Lewis 133). By themselves, they can appear obscure if not impenetrable. I read Michael Lewis’ explanation of the “Hide Not Slide order” (Lewis 133) several times and I have yet to understand it completely. Moreover, I find it alarming that the “Hide Not Slide” order is just one of the approximately 150 order types. With all the optional add-on conditions and modifiers, the complexity of the algorithms that handle these orders must be extreme. Multi-leg orders add yet another level of complexity. Furthermore, it seems obvious that a significant portion of HFT strategies must also have knowledge of latency maps between all the exchanges and ATS’s if they are to capitalize on their very expensively purchased **latency arbitrage advantages** – more on this later.

Having to accommodate that level of complexity, the fact that the current exchange matching engines and order routers work as well as they do is a testament to the true genius of the software engineers that wrote the code. As a software engineer myself with experience in complex systems, I view the infamous 5/6/10 & 4/23/13 Flash Crashes and the numerous, lesser anomalous market events as both predictable and unavoidable. **Without a sweeping simplification of allowable order types, matching engine and routing procedures, rules and guidelines, we will continue to experience these technical system SNAFU’s on a regular basis.**

In absolute, stark contrast to the current exchanges’ extreme order complexity, IEX uses only three primary order types (Investors’ Exchange LLC.):

1. The Limit Order
2. The Market Order (I have never used this order type thanks to Sal Arnuk and Joseph Saluzzi (Arnuk and Saluzzi 195).)
3. The Pegged Order (If and when I do gain the capability to route my orders to IEX, I plan to use this order type with the midpoint peg modifier.)

IEX's limited number of relatively simple, understandable order types leads to cleaner and inherently more trouble-free matching engine algorithms. Their router algorithms enjoy similar benefits. Furthermore, IEX's straightforward operational structure and procedures give rise to a highly desirable (and lamentably scarce) attribute – **transparency**. The order types, matching engine and router operations are clearly documented right on their website (Investors' Exchange LLC.).

With my current brokerage, I really don't know if my order flow is being sold to a third party, or if various HFT's routinely front-run my orders. In contrast, IEX clients have easy access to documentation and educational videos that detail IEX's order types, handling and routing.

Note: I have requested in writing the ability to direct my orders to IEX. My brokerage, ██████████², responded that this was not possible since IEX was an ATS rather than an exchange. In all other regards, I have been very pleased with the many services provided by my brokerage. My hope is that the approval of the IEX exchange application will resolve this issue.

If Not Investments, Where Does All the HFT \$ Come From?

By and large, HFT's strive to end each day holding no unhedged positions (High-frequency trading -- Wikipedia). They are clearly not investors. However, HFT's accounted for 49% of the August 2015 average daily traded volume ("ADTV") of shares (Cheng). 49% -- a typical percentage of average daily traded volume of shares for HFT's (Lewis 135); yet, astoundingly, HFT's regularly account for a mind-boggling 99% of all daily orders (Lewis 135). So it follows that 51% of the ADTV is accomplished with a mere 1% of the daily orders. This bears repeating...

STRIVING TO HOLD NO UNHEDGED POSITIONS AT THE END OF EACH DAILY TRADING SESSION, HFT'S TYPICALLY ACCOUNT FOR ALMOST HALF OF THE AVERAGE DAILY TRADED SHARES WHILE GENERATING 99% OF THE DAILY ORDERS. THUS LEAVING THE REMAINING 1% OF DAILY ORDERS TO ACCOUNT FOR SLIGHTLY MORE THAN HALF OF THE ADTV.

It appears that HFT's generate an enormous order flow creating only the most ephemeral of acquisitions as part of their sophisticated trading strategies. If HFT's make no true investments, how do they prosper? I believe the simple answer is volume. With an ADTV of about 7.5 billion shares, a successful HFT needs to make only a tiny profit on a fraction of this huge trading volume. Roger Lowenstein documented a colorful metaphor for this type of trading strategy in his book, *When Genius Failed* – "You're picking up nickels in front of bulldozers..." (118). The nickels are the tiny profits made on the trades; the bulldozers are the equities they have to briefly hold to make the trades.

Latency Arbitrage and Quote Fade

Many discussions and arguments have been made in previous comments about IEX's generation of data feed latency via the famous fiber cable shoebox. Yes, IEX is manipulating latency – for the purpose of creating a more equitable market environment for investors. Unlike other exchanges, IEX in no way directly profits from this latency manipulation. However, in the long run, they are likely to profit from investors preferring their

² Name redacted from public display. This information is visible on all signed paper documents.

more equitable trading environment – a good thing for IEX; and, I believe ultimately a good thing for the broader market.

Other exchanges are also manipulating data feed latencies. When an exchange sells collocations services for hundreds of millions of dollars a year and they advertise that all clients in the same service tier will have exactly the same lengths of cable to the exchange servers, this is latency manipulation using the exact same method of the IEX shoebox – cable length modification. Consequently, I find the arguments from other exchanges against the IEX delay disingenuous in the extreme.

It seems clear that these humanly imperceptible slivers of time are pure gold for the current exchanges and the HFT's that deal in latency arbitrage strategies. So, how does it work?

Since the market exchanges' server farms exist in different physical locations, they receive market data at slightly different times. This provides the underlying condition necessary for **latency arbitrage** strategies. In general, it works like this:

1. An HFT sets out 100-share buy and sell orders at the NBBO for any number of stocks at every exchange.
2. An actual investor sees a large interest for a particular stock and enters the market with a large order that hits one of the exchanges.
3. The order is partially filled with the remainder sent on to one or more of the other exchanges.
4. HFT's see the remainder of the large order before it hits the follow-on exchanges.
5. Their old standing orders on the stock at the follow-on exchanges are canceled (**Quote Fade**) & new orders are initiated in such a way that the stock price has now changed from what the actual investor saw when they sent their large order into the system.
6. The HFT picks up its "nickel".
7. The actual investor says, "Where did all those orders at X price go?"

In this scenario, the HFT did not create a market; nor did it provide liquidity. It did skim a "nickel" from the actual investor. It also created the following market inefficiencies...

1. The 100-share quick-canceling/non-executing orders presented a false view of the interest in the security that directly interfered with price discovery – a false information inefficiency.
2. The quantity and complicated nature of the orders that facilitate these questionable practices created unnecessary exchange expenses – a resource allocation inefficiency.
3. The enormous additional complexity required to support the HFT orders types in question increased market operational instabilities – an increased risk inefficiency.

Rules, Regulation & Unintended Consequences

Before the exchanges and trading floors were computerized and automated there were also many access and information asymmetries that favored the powerful (Patterson, Dark Pools).

However, as exchanges moved toward automated, electronic orders, feeds, matching engines and routers, for a brief time, hopes were raised high in the belief that the coming automation would provide a much more accessible, egalitarian and efficient marketplace (Patterson, Dark Pools). Further bolstering these hopes, the

SEC put forth a heroic effort (in my view) in producing Reg NMS. Moreover, the Reg NMS document (Securities and Exchange Commission) -- at least the parts I have read -- *show a clear intent of achieving and safeguarding these worthy goals.*

Unfortunately, in the US markets these goals seem ever-elusive in a culture of

- virtually unlimited campaign finance spending;
- government/industry revolving-door regulators; and,
- constant, unremitting lobbying by extremely powerful interests with seemingly infinite resources.

Acting in complete opposition of the Reg NMS intent, clever manipulators used the language of the document to “discover” and argue loopholes in order to gain asymmetric advantages – again. Over time, new additional regulations, no matter how well-intentioned, would almost certainly fall prey to the same types of detrimental manipulations.

There is an old saw (origin unknown),

The road to Hell is paved with good intentions.

I would argue that the “road to Hell” is paved with the *unintended consequences* of good intentions.

A Market Solution

Today there are many crony- or rentier-capitalism based problems in the US markets. As detailed above, they are confounding price discovery and injecting instabilities which are causing regular technical anomalous events; but, perhaps worst of all, via access, information and fee structure asymmetries, *they are impeding competition – the true engine of capitalism.*

Nevertheless, I find myself hopeful that positive changes have already started. Today, IEX is providing a **market based solution** to these problems with the simple mission of fairly serving *all* investors. IEX’s growth is proof that they are becoming a favorite of institutional and knowledgeable individual investors alike. See the following November yearly numbers of matched orders:

- Nov 2013: Single-Counted Average Daily Volume -- 2,903,371 (Investors’ Exchange LLC. Nov 2013)
- Nov 2014: Single-Counted Average Daily Volume -- 55,805,516 (Investors’ Exchange LLC. Nov 2014)
- Nov 2015: Single-Counted Average Daily Volume -- 110,939,330 (Investors’ Exchange LLC. Nov 2015)

IEX gaining exchange status will immediately broaden and accelerate these benefits via the *simple competition* they will bring to the other exchanges and ATS’s.

Consequently, I strongly urge the approval of the IEX exchange application.

Mr. Brent J. Fields
December 26, 2015
Page 8 of 10

Thank you again for the opportunity to express my complete support for the approval of the pending IEX exchange application.

Sincerely,

/s/ Jack M. Burgess

cc: Signed paper copies with cover letters sent to...

The Honorable Jeff Merkley, United States Senate, Salem OR District Office

The Honorable Ron Wyden, United States Senate, Salem OR District Office

The Honorable Elizabeth Warren, United States Senate, Springfield MA District Office

The Honorable Peter DeFazio, United States House of Representatives, Eugene OR District Office

Bibliography

- Arnuk, Sal and Joseph Saluzzi. *Broken Markets: How High Frequency Trading and Predatory Practices on Wall Street Are Destroying Investor Confidence and Your Portfolio*. Ed. Kristy Hart, Jovana San Nicolas-Shirley and Apostrophy Editing Services. First. Upper Saddle River: FT Press a service of Person Education LTD., 2012. NOOK eBook. 22 12 2015.
- Cheng, Evelyn. *Dow, S&P close lower in biggest reversal since Oct. 08*. 25 August 2015. CNBC LLC. Web. 23 12 2015. <<http://www.cnbc.com/2015/08/25/us-markets-attempt-recovery.html>>.
- Investors' Exchange LLC. "IEX Users Manual." Vers. 1.00. 20 August 2015. *IEX Group | A Market That Works For Investors*. Investors' Exchange LLC. . Web. 23 12 2015. <<http://www.iextrading.com/docs/IEX%20User%20Manual.pdf>>.
- . "Stats for November 2013 | IEX Group | A Market That Works For Investor." n.d. *IEX Group | A Market That Works For Investors*. Investors' Exchange LLC. Web. 25 12 2015. <<http://www.iextrading.com/stats/archive/2013/nov/>>.
- . "Stats for November 2014 | IEX Group | A Market That Works For Investor." n.d. *IEX Group | A Market That Works For Investors*. Investors' Exchange LLC. Web. 25 12 2015. <<http://www.iextrading.com/stats/archive/2014/nov/>>.
- . "Stats for November 2015 | IEX Group | A Market That Works For Investor." n.d. *IEX Group | A Market That Works For Investors*. Investors' Exchange LLC. Web. 25 12 2015. <<http://www.iextrading.com/stats/archive/2015/nov/>>.
- Lewis, Michael. *Flash Boys: A Wall Street Revolt*. Ed. Janet Byrne. First. New York: W. W. Norton & Company, Inc., 2014. NOOK eBook. 22 December 2015.
- Lowenstein, Roger. *When Genius Failed: The Rise and Fall of Long-Term Capital Management*. Ed. Ann Godoff. First. New York: Random House, Inc., 2001. NOOK eBook. 22 12 2015.
- Money, Power and Wall Street*. By Martin Smith, et al. Dir. Michael Kirk. Perf. Martin Smith. Prods. Michael Kirk, et al. 2012. Web. 22 12 2015. <<http://www.pbs.org/wgbh/frontline/film/money-power-wall-street/>>.
- Musk, Elon. "About Tesla." n.d. *Tesla Motors*. Web. 24 12 2015. <<https://www.teslamotors.com/about>>.
- Patterson, Scott. *Dark Pools: The Rise of the Machine Traders and the Rigging of the U.S. Stock Market*. Ed. Julian Pavia Rick Horgan. First. New York: Crown Publishing Group a division of Random House, Inc., 2012. NOOK eBook. 22 12 2015.
- . *The Quants: How a New Breed of Math Whizzes Conquered Wall Street and Nearly Destroyed It*. Ed. Julian Pavia Rick Horgan. New York: Crown Publishing Group a division of Random House, Inc., 2010. NOOK eBook. 22 12 2015.

Mr. Brent J. Fields
December 26, 2015
Page 10 of 10

Reich, Robert B. *Saving Capitalism: For the Many, Not the Few*. Ed. Jonathan Segal. First. New York: Alfred A. Knopf, a division of Penguin Random House, LLC., 2015. NOOK eBook. 25 12 20015.

Securities and Exchange Commission. "Final Rule: Regulation NMS." Vers. [Release No. 34-51808; File No. S7-10-04]. 9 June 2005. *U.S. Securities and Exchange Commission*. Web. 21 December 2015. <<http://www.sec.gov/rules/final/34-51808.pdf>>.

Smith, Adam. *The Wealth of Nations*. New York: Digireads Publishing, a subsidiary of Neeland Media LLC., 2011. NOOK eBook. 23 12 2015.

The Warning. By Michael Kirk. Dir. Michael Kirk. Perf. Jim Gilmore. Prods. Michael Kirk, Jim Gilmore and Mike Wiser. 2009. Web. 22 12 2015. <<http://www.pbs.org/wgbh/pages/frontline/warning/>>.

Wikipedia contributors. "High-frequency trading." 30 November 2015. *Wikipedia, The Free Encyclopedia*. Wikipedia, The Free Encyclopedia. Web. 23 12 2015. <https://en.wikipedia.org/w/index.php?title=High-frequency_trading&oldid=693141828>.