March 10th, 2016
Mr. Brent J. Fields
Secretary
Securities and Exchange Commission
100 F Street, NE
Washington, D.C. 20549-1090

Dear Mr. Fields,

Themis Trading appreciates the opportunity to comment on the proposed Investor's Exchange LLC Exchange Application (File No. 10-222) for a third time.

We write you today to discuss the March 2nd Columbia Business School Comment Letter written by Professor Charles M. Jones, *who urges the SEC to "think twice before approving a national securities exchange application with these anti-competitive features."*

Often times, letters from academia carry special weight with policy makers, especially with stock market regulators like the SEC, who have made it clear that market structure regulator decisions need to be grounded in data. As such, we would not be surprised to see an extra amount of focus and weight in Washington D.C. afforded to opinions of respected academia, like Professor Jones's – especially when it is entered into the public record, as Jones's March 2nd letter has been.

Professor Jones has weighed in on modern market structure in the past. Three years ago he wrote an Op-Ed - The Reality of High Speed Trading - in Politico, an influential and widely-read policy-maker-oriented website. That Op-Ed was adapted from a research paper he wrote (*What Do We Know About High-Frequency Trading*) that was funded by Citadel.

Themis Trading wrote a rebuttal to his piece, which was also featured on Politico, titled High Speed Trading Remains Risky. We pointed out his Citadel funding. We felt it was appropriate for reader's to not be afraid to "follow the money" when they read any academic research.

However, reminding The Commission of who has funded past research of Professor Jones is not the focus of our comment letter today. Instead, we want to examine some points raised in his March 2nd Comment Letter.

Problems with Professor Charles M. Jones's March 2nd Comment Letter

Let's examine the Professor's core argument:

> *"Over the sample period, within 350 microseconds after a transaction, the NBBO moves adversely 15.07% of the time....This means that pegged order repricing would potentially come into play for 15.07% of transactions if IEX marketable order flow ends up being similar to existing Nasdaq order flow. When the NBBO fades during this 350-microsecond interval, the average NBBO change is 1.67 cents (with a standard error of 0.01 cents).* ***Thus, when repricing comes into play, the 350- microsecond advantage***

that a pegged order enjoys on IEX is worth an average of 1.67 cents per share. This is also the disadvantage faced by IEX liquidity demanders and limit-order submitters, who are both subject to the speed bump."

A marketable order on Nasdaq trades on Nasdaq if-and-only-if Nasdaq is at the NBBO. If you hit the NBBO, the NBBO fades (by definition, by either price or quantity, or by both), certainly on Nasdaq and often enough on away exchanges as market makers adjust their quotes on away exchanges. So what exactly is Professor Jones measuring here? ***He's just measuring transient effects on an NBBO after a trade and then attributing all of that fade as a "disadvantage" of the speed bump, which he puts at $400 million annually just for Nasdaq activity***.

As far as we can tell, Jones is not offering evidence that there is actually a subsequent trade at the new NBBO on any exchange. He is just tallying up sum of those NBBO changes and pronouncing it an "unfair subsidy." Why? Is he measuring whether there's actually any trade within 350 microseconds at the original NBBO price, or is he just implying that there could be, *in each and every case*, and also implying *in each and every case* if there is a speed bump it's an unfair subsidy to IEX users.

Does Professor Jones consider the flip side - that without a speed bump, *in each and every case* a trade at a stale price is an unfair subsidy to the aggressive trader? Nope.

This is questionable enough, but for the moment let's agree it's a $400 million hit (as he calculates) which he says will be a new "subsidy" to IEX's pegged orders.

Does this "subsidy" already exists today, and if it does who benefits? As we know from Nasdaq's router rule filing, Nasdaq will spray away exchanges concurrent with or before sending trade confirms to participants (and at that moment Nasdaq also knows the NBBO has changed before anyone else does), *so for any marketable and routable orders on Nasdaq those "subsidies" are already in the market, going solely to Nasdaq users since 2012.*

Also important - the NBBO still changes in response to trades today, and those changes take time to propagate, and someone somewhere is still at a stale price for some period of time. Trading like this is a zero-sum game. Today, it's the pegged orders that are paying the $400 million because they're pegged to old prices. All Jones has done is tell us what this kind of latency arbitrage might cost pegged order users today.

Finally, *based only on Nasdaq volume Jones puts latency arbitrage at $400 million*. Since Nasdaq volume is about 13.5% of the market these days, if we straight-line that estimate across the entire market, latency arbitrage of this kind is worth as much as $3 billion/year. That's a lot of latency arbitrage! We want to point out that the University Of Michigan's Elaine Wah and Michael Wellman also arrived at a latency arbitrage estimate in US stock trading of about $3 billion per year. So if nothing else, we thank Professor Jones for agreeing with other estimates of the costs associated with latency arbitrage.

Professor Jones is worried about the advantages in a latency-arbitrage-infested marketplace possibly being altered so that some of it accrues to pegged orders on the IEX exchange.

In the past, and pre IEX, latency arbitrage a catch all phrase for sure) in the marketplace has *largely been paid for by pegged orders priced off feeds (like the SIP) slower than the market's faster feeds.* We guess Professor Jones just wants to keep things the way they are so that those non-IEX pegged orders keep on paying.

There will never be a perfect trading system that makes trading "fair" for all market participants at all times. Of course, we all know this. However, is there not room in the Exchange Act (and in the Commission's thinking) allowing for free market competition, where an alternative is proposed that tilts the "fairness" towards investors instead of the fastest intermediaries?

Respectfully submitted,

Sincerely,
Sal Arnuk and Joe Saluzzi,
Themis Trading LLC