Opinion | Matt Levine, Columnist

High-Speed Traders Still Trading Faster than Low-Speed Traders

If you co-locate your chair next to mine, you'll be able to read my posts literally minutes faster than anyone else. Fees are quite reasonable.

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By Matt Levine

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I find myself unable to get all *that* mad at New York Attorney General Eric Schneiderman's weird quest to ban high-frequency trading. It has a lot of things I dislike -- overheated rhetoric, efforts to criminalize things that everyone including regulators thought were fine when they were done, vague unfulfillable promises of level playing fields -- but there's a good point at the core of it. The modern structure of U.S. equity markets is to some extent an accretion of accidental consequences of regulatory and exchange decisions made in simpler times, without complete foresight into how they would play out in today's faster world. No one is really all that stoked about building lasers to beam index-futures prices between New York and Chicago, not even the guys building the lasers.

QuickTake Trading on Speed

Someone probably should think about whether the structure we have is the structure we want, and ... I mean, Schneiderman may not be at the top of your list of who should do it, but who *is* at the top of your list? The Securities and Exchange Commission has had a

while, and anyway is largely responsible for the current system. The exchanges have their own conflicts. Schneiderman is not ideal, but at least he's, like, energetic.

But, ugh, I'm really not a fan of Schneiderman's tag of "Insider Trading 2.0," or his focus on doing stuff to "eliminate the unfair advantages enjoyed by high-frequency traders." As we've discussed before, the thing about high-speed traders is that their core advantage is *high speed*, and you can't eliminate that advantage with tinkering. They trade faster than other traders because their business is to trade faster than other traders, and because they invest time and money and labor and expertise in that business. If you cut down on their unfair advantages they will be left with their fair advantages.

Here is Schneiderman's list of unfair advantages provided to HFTs by exchanges:

> Those services, which in the hands of predatory high-frequency traders distort our markets, include, for example: allowing traders to locate their computer servers within trading venues themselves; providing extra network bandwidth to high-frequency traders; and attaching ultra-fast connection cables and special high-speed switches to their servers.

So, if you ban co-location, high-frequency traders will move their servers out of the exchange and into the building across the street, where they will *still be closer than your servers*, assuming you even have servers. If you stop providing extra bandwidth and fast cables to high-frequency traders inside exchanges, [1] they'll still have fast internet connections and fast cables *outside* the exchanges. More fundamentally, they will have fast computers, and those fast computers will run fast algorithms, and those algorithms will make trades faster than a human can. Co-location and cables and whatever save HFT firms maybe half a second per trade. Trading algorithmically, instead of relying on humans to make decisions and communicate those decisions with keyboards and telephones, saves them ... minutes? Hours?

The things that Schneiderman objects to are ways for stock exchanges to make money off of high-frequency traders who want to one-up *each other*. Not letting stock exchanges make money off those services will shift the ways in which high-frequency traders one-up each other, though it's hard to see how it would end them. But that has nothing to do with fairness or level playing fields or non-HFT investors getting fleeced. At most, it has to do with the barriers to entry to the algorithmic trading industry. Algorithms running on fast

computers will always trade faster than humans. Unless you plan to ban algorithmic trading, that's going to continue. [2]

Nor are Schneiderman's reasons for wanting to ban these advantages all that impressive. First:

> For instance, high-frequency traders look for arbitrage opportunities between and among the various exchanges, moving on price and order information before the rest of the market is even able to digest it -- all in order to capture momentary differences in stock prices.

And this is bad because ... ? Here is why it is good. Generally, people think that it is good for prices to reflect all available information; there is even a word for it, and the word is "efficiency." I don't actually think anyone thinks it's bad? People dislike the arms-race aspect of it, the socially wasteful investment in doing the arbitrage slightly faster than other HFT firms. [3] But Schneiderman seems to be saying that *the law of one price is illegal*, which is a fairly radical proposition.

But more substantively: [4]

> Co-location arrangements also help high-frequency firms to continuously monitor all the exchanges for large incoming orders. If a firm can detect a large order from an institutional investor - like a pension fund - it can instantaneously position itself on the other side of the trade, driving up the prices artificially.

You will find high-frequency trading firms who dispute this characterization and say that they are just providing market-making services more efficiently than the old guard of broker-dealer market makers. You will find people who think that, when a large buy order comes in, that doesn't drive up prices "artificially," that drives up prices *naturally*. Prices balance supply and demand; when more demand comes in, the price goes up to maintain the balance. HFT is just an efficient, and privately profitable, mechanism for performing that balancing.

On the other hand, you will find people who agree with Schneiderman's characterization. In particular, Schneiderman's contention that HFT "has forced large, institutional investors to develop complicated and expensive defensive strategies in order to conceal their

legitimate orders from parasitic traders" is not entirely wrong, suggesting that it's not just nosy regulators who think there's room for improvement.

Schneiderman's suggestion that co-location is what enables this problem -- that HFTs would be unable to front-run "legitimate orders" if they just had to move their servers across the street -- is of course very silly, but to be fair he knows that. His actual idea for reducing the speed arms race, and the potential for front-running, is more radical:

> Attorney General Schneiderman today called on the exchanges and other regulators to review the feasibility of certain market structure reforms that could help eliminate some of the fundamental unfairness in our markets. Currently, securities are traded continuously, so that orders are accepted and matched by price, with ties broken by which order arrives first. This system emphasizes speed over price, rewarding high-frequency traders for flooding the market with orders. One detailed proposal would seek to correct this imbalance by processing orders in batches in frequent intervals, to ensure that price - not speed - is the deciding factor in who obtains a trade.

Frequent batch auctions are totally a thing; here is what seems to be the leading proposal. The attraction of the proposal is primarily that it attacks the arms race of high frequency trading: The time horizon for everyone becomes the batch interval -- call it one second -- and so making a decision in less than a second is less valuable. [5] So co-location, cross-country lasers, etc., become less of an advantage, as does (probabilistically) 100-millisecond early access to data feeds. And there's less order flow information available, meaning that it's harder to make money picking off real-money orders.

On the other hand, it is a little odd that Schneiderman's most substantive proposal is to *reduce* market transparency, by limiting the amount of order information that is available to traders. [6] Maybe that will improve market function, but it's not obvious *a priori*. Maybe it'll just increase trading costs, as liquidity providers have to charge more to make up for the less transparent risks they face. [7] In any case, reducing market transparency is sort of a weird fit with the rest of Schneiderman's Insider Trading 2.0 program.

And that weird fit worries me. Yes, equity market structure is the result of many individual decisions, each aimed at solving a different problem, that don't all work perfectly together. And it might make sense for someone to reconsider it. But Schneiderman's reconsideration is just as confused: His proposals don't really relate to his goals, and his main goal -- equal speed for everyone -- is obviously unachievable and also extremely weird. Whatever

Schneiderman does, high-speed traders will have a speed advantage. The hard question is whether that advantage compensates them for providing efficient markets, or is just used to rip other people off. Schneiderman doesn't seem all that interested in figuring out the answer.

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1. Possibly unnecessary if you've banned co-location, but whatever. View in article

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2. Also, the things that Schneiderman has already cracked down on are mostly pretty silly. View in article

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3. I mean, that assumes that it's socially wasteful. A lot of it involves building faster computers and better communications infrastructure, which maybe isn't that socially wasteful? You can probably use those lasers to communicate things other than stock prices. There's a decent argument that HFT drives non-financial innovation. View in article

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4. The other substantive problem that people associate with high-frequency trading is that it encourages market instability, with computers occasionally forgetting how to trade and causing flash crashes. Schneiderman is less focused on this, and you can see why: It's not the sort of fraud-esque issue that he has jurisdiction over. It's a pure market structure issue that seems like the SEC's problem -- and one that is in part the SEC's fault. View in article

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5. In the Budish/Cramton/Shim proposal, "Orders are not visible to other market participants during the batch interval, i.e., the auction is 'sealed bid.' " Otherwise speed would still be rewarded, as the ability to change your order 1 microsecond before the auction closes would be profitable. One objection to this is that sealed-bid auctions would increase volatility, but really only on an intra-second horizon, and who cares about that but high-frequency traders? Another suggested solution to the speed arms race is to eliminate the sub-penny pricing rule and allow everyone to compete on price rather than speed. This has its own problems, and in fact regulators seem to be moving in the other direction.Still another proposal is to have pro-rata matching, which exists and doesn't seem super popular. View in article

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6. I guess it is also arguably a little odd that, if batch auctions are in fact better for equity markets, no trading venue really offers them as a way to gain market share. View in article

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7. One simple way to think about HFT is:In the olden days, if you wanted to sell a million shares of stock, you'd go to Goldman and ask for a bid, and they'd bid you down 3 percent to compensate for the risk they're taking buying that stock.
   In modern times, if you want to sell a million shares of stock, you post some orders in a bunch of places, and HFTs figure out that you're a big and probably informed seller, and they move their prices down to compensate for the risk they're taking buying that stock.
   The modern version is faster and more iterative and more "transparent" in one sense -- it's all based on public orders -- though less transparent in another sense, since the old-time market maker would charge you that risk price up front. If you take away HFTs' ability to understand the order book, though, they will need to build in some more of that up-front risk pricing. As a matter of theory you'd think that risk pricing in non-transparent markets would be wider than pricing in perfectly transparent markets, though that is not necessarily true either. View in article

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