FA Center

Opinion: How high-frequency traders are costing the rest of us billions of dollars each year

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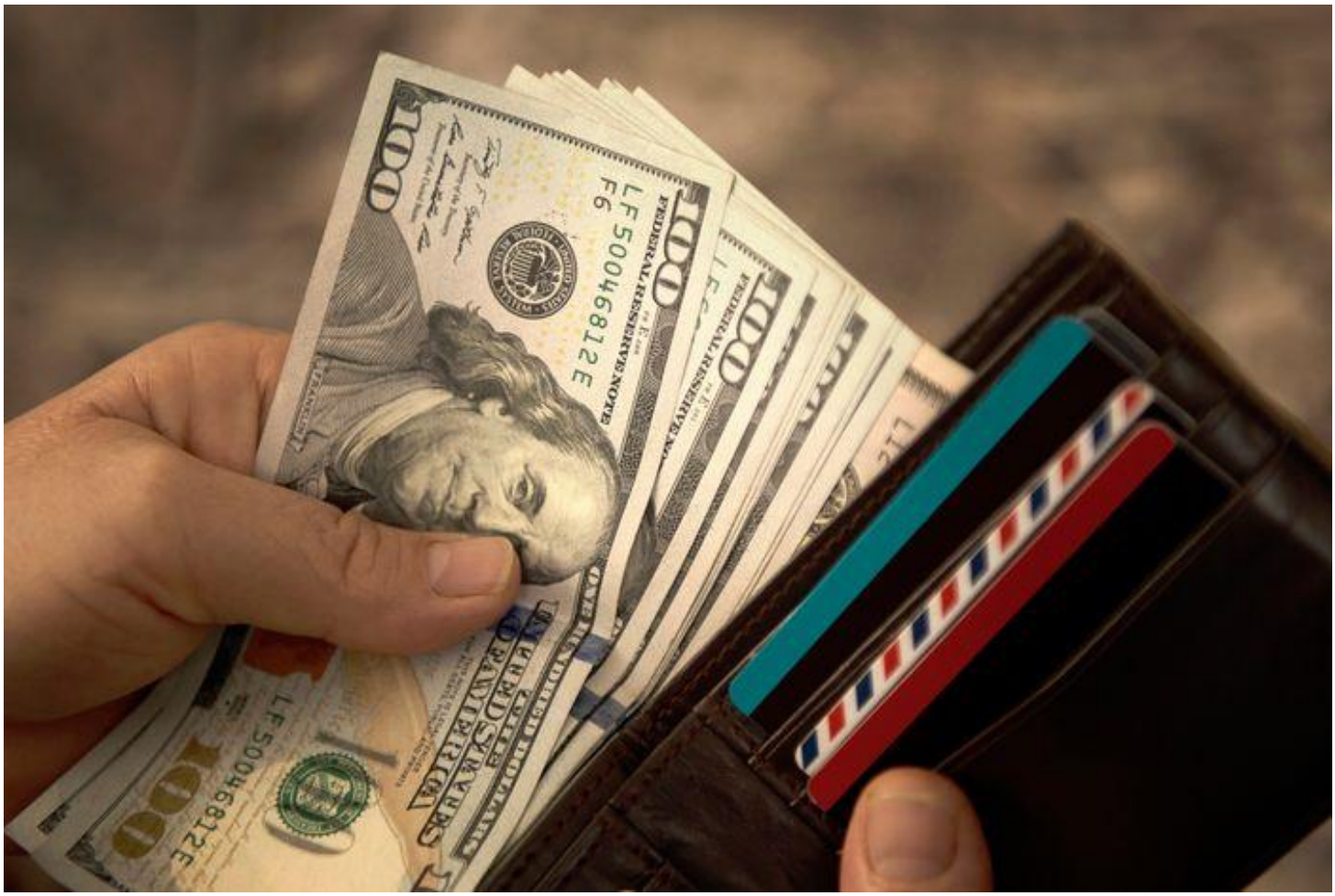
High-frequency trading improves market efficiency but reduces liquidity



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High-frequency trading costs global stock-market investors billions of dollars each year.

That estimate comes from an academic study that has recently been accepted for publication into the *Quarterly Journal of Economics*. Entitled "Quantifying the High Frequency Trader 'Arms Race'," the study's authors are Eric Budish of the University of Chicago, along with Matteo Aquilina and Peter O'Neill of the U.K.'s Financial Conduct Authority.

High-frequency trading (HFT) is the securities trading conducted by powerful computers with high-speed connections to the various exchanges. These computers are able to execute a large number of transactions in a fraction of a second. Budish, in an interview, said that, depending on how it is measured, HFT in 2016 amounted to nearly half of all total trading volume. I suspect that percentage is even higher now.

This new study is the first that I am aware of that actually measures the cost of HFT. The researchers were able to calculate it because they had access to heretofore unavailable data on the attempts by HFT traders to execute profitable trades. Crucially, this newly available data included not just the attempts that were ultimately successful, but also those that were not.

High-wire act

It's called "high-frequency trading" because a big source of HFT's profitability comes from exploiting situations that are very short lived — a stock trading at different prices on two different exchanges. A HFT firm can lock in a sure profit if it can buy the stock on the exchange with the lower price and simultaneously sell it on the exchange with the higher price. But that requires executing the transactions before other firms discover the price differential and arbitrage it away.

(Keep in mind that a stock doesn't simply trade on one exchange. A company may be listed on, say, the New York Stock Exchange, but actually will trade on multiple exchanges. In fact, according to the researchers, "in the U.S. stock market, there are 16 different exchanges and 50+ alternative trading venues, all trading the same stocks.")

The victors in the HFT race win by a hair. Budish said the margin of victory is typically just five- to 10 microseconds — 0.000005 to 0.000010 seconds. This is why the large HFT firms have gone to such lengths to create high-speed connections to the floors of the various exchanges. The Wall Street Journal reported recently that HFT firms, which up until now have relied on technologies such as lasers, microwaves and advanced fiber-optics to gain a competitive edge, are now looking to satellites to eke out even faster connections.

HFT's defenders insist that all investors are better off because of these myriad tiny arbitrage transactions that occur numerous times every day. Bid-offer spreads are much smaller than they would be otherwise, for example, which reduces trading costs.

Budish doesn't disagree. The markets today are far more efficient than they were in previous decades when human beings were required to discover and correct price discrepancies. But, he added, HFT has a downside as well: It reduces liquidity.

This reduced liquidity is the result of "buyers and sellers worried that their offers to buy or sell shares will become stale and get picked off by HFT firms," Budish explained. To illustrate, imagine that stock XYZ is trading at $49 bid/$51 offer. (This example is mine, not Budish's, and is entirely hypothetical, since spreads currently are rarely more than a few pennies.) If liquidity in this stock hadn't been reduced because of HFT, perhaps 100,000 shares would be available at both the bid and the offer — meaning you could buy a 100,000 share block immediately at $51 or sell such a block at $49.

Because of the fear of stale prices getting picked off, fewer shares will be made available at either the bid or the offer — say 25,000 shares each. So you could only buy or sell a fraction of your 100,000 share block at those prices, and quite likely the price will have moved against you when you try to execute your transaction with the remaining 75,000.

To be sure, the price you get probably won't be worse by more than a small amount. On average, Budish estimates, the cost to any one trader who gets a poorer execution will be just a single price tick, or even just half of a price tick. But even though that is so small that you or I would probably not even detect it, it adds up to a huge sum across the global stock market. He and his fellow researchers estimate that, in 2016, this cost totaled $5 billion. It undoubtedly is much larger than this nowadays. And when you add in HFT trading in other markets, such as futures, Treasuries, currencies, options, the total cost would grow even more.

Rigged markets?

So does all this mean that the markets are rigged to favor these large and wealthy HFT firms? Many think so, prominently including author Michael Lewis in his best-selling book "Flash Boys."

Budish hedges when asked his opinion about this. On the one hand, he says that the HFT firms are doing nothing wrong. They are merely exploiting the fact that the same stocks trade on numerous different exchanges, thereby inevitably creating arbitrage opportunities. The "Law of One Price" — what

University of Chicago professor Richard Thaler refers to as the "Second Law of Economics" — implies that any nascent violations of that Law will quickly be arbitraged away.

On the other hand, Budish adds, this doesn't mean that we should allow the current situation to continue. The efficient stock market would become even more efficient if the billions of dollars accruing to the HFT firms were instead augmenting the market's liquidity. "Do we really want to encourage these firms to spend untold sums on an ever-escalating arms race to communicate their orders to exchanges by tinier and tinier fractions of a second?"

Budish and his fellow researchers recommend a simple — in concept — change to how the markets are structured, referred to as "frequent batch auctions." The specifics of such auctions are beyond the scope of this column. But their net effect would be to force HFT firms to compete on price rather than on speed. That is, assuming frequent batch auctions are adopted, HFT orders will be successful only if firms are willing to sell at higher prices than everyone else, or buy at lower prices. That's exactly the way the market should work, isn't it?

Mark Hulbert is a regular contributor to MarketWatch. His Hulbert Ratings tracks investment newsletters that pay a flat fee to be audited. He can be reached at mark@hulbertratings.com

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