In the Dark
THE LATEST HYPE ABOUT HIGH-FREQUENCY TRADING OVERLOOKS DEEPER PROBLEMS

By Dennis Dick, CFA

Is the market rigged? That is the question that many investors have been asking ever since Michael Lewis made the allegation on the TV show 60 Minutes. In his new book Flash Boys, Lewis outlines his perspective on how the market is rigged against the little guy, with high-frequency traders using their speed to rip off individual investors.

Is this true? Is the market really rigged? In many areas, it always has been.

Before electronic trading, market makers and specialists had a virtual monopoly on the trading floor. They controlled the order flow in their individual stocks and held the order book, giving them a tremendous informational advantage over every other participant. They could lean on the orders in their book and step ahead of those orders when it was advantageous to do so. But they were the market intermediaries, providing valuable liquidity by quoting a two-sided market. When someone wanted to buy the stock, the market maker would be the seller. If someone wanted to sell the stock, the market maker would be the buyer. They provided the liquidity that allowed participants to get in and out of their stocks. Their payment for providing this service was the bid–ask spread.

But with the rise of the internet and the evolution of electronic trading, competition in the market-maker space became intense. Electronic traders started playing a market-making role, and once decimalization came in 2001, these electronic traders had the upper hand. Spreads got tighter, squeezing traditional market makers out of the game. In their place, a new type of market maker thrived—the automated market maker, or (as automated traders are now known) the high-frequency trader (HFT).

THE NEED FOR SPEED
These automated market makers are much more efficient at doing their job than are their human counterparts, which is why speed is essential. Market makers are always trying to balance their return (the spread) with the adverse-selection risk (the risk of getting picked off by a more informed trader). HFTs can quickly adjust their market-making orders to account for all new information. Whether the new information takes the form of fundamental news, a movement in the S&P futures, or a sudden order-flow imbalance, HFTs are constantly cancelling and adjusting their orders to avoid getting picked off.

The most common adjustment is made by HFTs when the quote is about to roll, which means when the bid is about to become the offer.

For example, assume stock XYZ is bid at $20.00 for 20,000 shares and offered at $20.01 for 20,000 shares. You could say this quote is in equilibrium. But suddenly, the offer starts to grow and the bid starts to transact. The new quote is $20.00 for 5,000 shares by $20.01 for 30,000 shares. This quote is getting ready to roll. The HFTs quickly cancel their remaining shares that they are bidding at $20.00 and hit the rest of the $20.00 bid. By using co-location and direct data feeds, they can very accurately predict when the quote is about to roll, and they can do this in a matter of milliseconds. This speed advantage allows them to lean on the rest of the quote (and the slower traders) for protection. If they just bought the stock at $20.00, they can quickly sell it back at $20.00 when the quote is about to roll, scratching the trade in a worst-case scenario. This method works as long as they stay at the top of the order queue.

And HFTs are very efficient at staying at the top of the order queue. Co-location and speed help, but there are also other advantages, such as special order types. For example, take the hide-not-slide order (which Lewis mentions in his book). This order is designed to automatically jump to the top of the order queue whenever the quote rolls. Again, this approach allows the participant using this order to lean on the back of the order queue for protection.

But while speed and order types can help HFTs to stay at the top of the order queue, some significant advantages aren’t focused around speed.

Manoj Narang, CEO and founder of HFT firm Tradeworx, recently appeared on Bloomberg TV and said, “Speed matters less in today’s market than it has ever mattered.” After that comment, critics were quick to attack his statement, challenging his claim, but I completely agree with him. While speed helps to avoid getting picked off, the real advantages aren’t reliant on speed at all. The real advantages are built on relationships. And this is where the market starts to get “shady.”
DARK ADVANTAGES

OTC (over the counter) market-making HFT firms, known as internalizers, actually have built relationships with online brokers in which they buy order flow from retail brokerage to trade directly against incoming marketable orders. They pay the retail broker a fee for the privilege of getting “first dibs” on retail orders. The fee is known in the industry as payment for order flow.

Going back to our original example, assume stock XYZ is bid at $20.00 for 20,000 shares and offered at $20.01 for 20,000 shares. Any participant placing an order to buy the stock at $20.00 on that exchange would be behind the other 20,000 shares that were there first (price-time priority). But the HFT internalizer can trade directly against the retail market orders that they have purchased access to (first dibs), executing against these orders off exchange. The only regulatory requirement is that they match or beat the displayed national best bid or offer (NBBO). This arrangement gives them a significant advantage.

For example, if a retail trader sells 1,000 shares at the market in stock XYZ, the internalizer can buy from the retail trader at $20.00 directly, jumping ahead of the other 20,000 shares that are in the order queue on the public exchange. If another retail trader sends a market order to buy 1,000 shares of stock XYZ, the internalizer can trade directly against that order as well, selling the stock at $20.01 and jumping the public order queue once again. In effect, internalizers can get a “free ride” off the public quote, because they know that if the quote starts to get out of equilibrium, they can quickly sell the stock they just bought from the retail trader at $20.00 to the market participant that is bidding at $20.00 on the public exchange and scratch the trade.

This payment-for-order-flow relationship they have with the retail broker allows them to jump the order queue continuously and lean on the public order queue for protection. It’s a slick system, but who is being disadvantaged by this? The person that is actually bidding on the exchange at $20.00, because that person’s limit order is left unfilled.

The limit order would have been executed if the internalizer hadn’t intercepted the incoming market order. This situation discourages displayed liquidity providers, and they quickly learn that the only time their order is executed is when they are getting picked off by a high-frequency trader. As a result, non-HFT traders quote less.

DEPENDENCE ON HFT LIQUIDITY

The only traders that can avoid getting picked off by the HFTs are the other HFT players (again because of their speed). Therefore, these are the only participants that can properly balance the risk–return tradeoff to play a market-making role. Unlike traditional liquidity providers, however, HFT firms have no affirmative obligations to make a two-sided market. They do not have to be the buyers of last resort. When the going gets tough (as we saw in the flash crash of 2010), they can simply stop making markets and cancel all their orders. With very few other types of participants providing liquidity, we can be left with a vacuum in which very little liquidity is left in the book.

In other words, the liquidity that is on the exchange is becoming too homogeneous. Too many liquidity providers with similar short-term time frames and playing similar market-making strategies are providing the majority of our market’s liquidity.

Some industry experts estimate that although HFT accounts for 50%-60% of volume, as much as 95% of the visible liquidity on the exchange is being supplied by high-frequency traders. That is a scary number. Have we become too dependent on HFT liquidity being supplied by traders who can cancel their orders hundreds of times in the blink of an eye? Should we slap these HFT firms with affirmative obligations and make them quote? That is difficult to do. At this time, we don’t even have a firm definition of high-frequency trading. Which firms would be forced to quote? Would such a requirement throw out the risk–return incentive for them to continue providing liquidity?

I think a better solution would be to incentivize other types of participants to provide liquidity again—participants who won’t cancel their orders at the slightest sign of risk. A good start would be to regulate internalization and payment for order flow, because these practices deter market participants from providing liquidity. What is the point of providing liquidity on the public exchange when a privileged participant can step ahead of your limit order at the moment it is about to be executed? It is little wonder that off-exchange trading volumes continue to climb, approaching nearly 40% of US trading volumes last year. We are driving traders to the dark.

There are always going to be some traders that are faster than others. Speed is a hard thing to regulate. But the greater concern is an issue that Lewis barely touches on in his book Flash Boys—the handshakes behind the scenes, with HFT firms paying retail brokers to get a first look at their order flow. These deals effectively eliminate the need for speed because it eliminates the competition. This area is where our regulators need to look and where the market needs improvement, because this is the area of the market that appears to be rigged.

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