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High frequency traders' claims refuted by studies

By Vince Heaney

Advocates of high frequency trading (HFT) like to point to the advantages it brings in terms of market efficiency.

The Futures Industry Association Principal Traders Group, a trade association, which includes high frequency traders, said in a September statement that "as markets have become more automated and competitive … trading costs are lower, markets are deeper and more liquid, and prices better reflect information about the value of stocks and commodities."

But recent testimony before the US Senate Banking Committee and a new study by the Federal Reserve Bank of Chicago both paint HFT in a rather different light.

The regional Fed's study found that many high frequency trading firms fail to implement all the industry's best practice recommendations or rely on other companies in the trade process to catch an out-of-control algorithm or erroneous trade. The Fed's researchers were told the reason for these shortcomings was that applying risk controls before the start of a trade can slow down an order – speed of order routing, the driving force behind HFT, comes before risk management.
The study also found a similar lack of rigour in the development, testing and deployment of new trading algorithms and a few firms admitted to getting new trading strategies into the market quickly by "tweaking old code and placing it in production in a matter of minutes".

Unsurprisingly, the Chicago Fed found there were more out-of-control algorithms than they had anticipated. The most high profile recent example was on August 1 this year, when Knight Capital lost $440m in 45 minutes because of a rogue HFT algorithm.

The Chicago Fed's study exposes a lack of controls, but other critics also call into question the claimed efficiency advantages. Giving testimony before the US Senate Banking Committee in September, David Lauer, a former trader and currently a consultant on HFT at Better Markets, cited several independent academic and industry studies showing an adverse effect from HFT on spreads, volatility and price impact.

Computerised direct market access has dramatically reduced spreads compared with the days of purely phone-based dealing, but there is evidence that now that high frequency trading is on the rise, spreads are no longer tightening. A 2012 academic study by Watson, Van Ness and Van Ness found the average bid-ask spread for US equities from 2001-05 was 2.2 cents, but from 2006-10, which coincides with the rapid rise of HFT, the average spread was 2.7 cents, an increase of 23 per cent. During the latter period, the study also found a 24 per cent increase in stock volatility. Similarly, a 2010 Yale School of Management paper found HFT was positively correlated with stock price volatility and stock prices tended to overreact to fundamental news when high frequency trading was at a high volume.

An April 2012 report from Morgan Stanley, meanwhile, concluded that institutional orders are having a much larger impact on asset prices now than prior to 2007. A common HFT strategy is to execute a trade at the volume-weighted average price of the day. Morgan Stanley found these strategies could now only handle 4-5 per cent of daily volume without causing an adverse price impact, compared with 10-15 per cent in the earlier period. The bank attributes this to the sharp decline in natural buyers and sellers in the market as HFT has come to dominate daily trading volume.

There are, of course, studies that show HFT lowers spreads and volatility, although, (as Mr Lauer told the Senate Banking Committee), some of these have been commissioned by high frequency trading companies and cannot claim to be independent. The essential point, however, remains that empirical evidence for the claimed efficiency advantages of HFT is far from clear cut.

Other industry practices create fleeting volume but add little to liquidity. These include layering, in which a false impression of a stock's liquidity is created, and quote stuffing, in which large orders are put into the market and then quickly withdrawn, flooding the market with quotes to slow down rivals with inferior computer systems.

The most worrying aspect of HFT liquidity, however, is that it can evaporate instantly such as during the flash crash of May 2010, when the US equity market lost $1tn in value in a matter of minutes and then just as quickly recovered. During the crash high frequency traders withdrew their orders from the market and liquidity disappeared, because there is no obligation for them to make a market.

In light of these shortcomings it is right that regulators are moving to tackle HFT. On September 26 European regulators took an important step on the long road to reform when the Economic and Monetary Affairs Committee of the European Parliament voted unanimously to tighten the rules on HFT as part of the Mifid II legislative overhaul. One of their proposals is that all HFT orders should be valid for at least 500 milliseconds. In addition, "all firms and trading venues would also have to ensure that trading systems are resilient and prepared to deal with sudden increases in order flows or market stresses. These could include 'circuit breakers' to suspend trading."

New legislation always carries the risk of unintended consequences and regulators do not always get it right first time. In the US, which introduced circuit breakers after the 2010 flash crash, the Securities and Exchange Committee introduced new rules in June, including a manual override that would allow exchanges to halt trading, because the initial breakers were being tripped too often, causing more uncertainty.

But even though the pace of reform is snail-like compared with the industry it is regulating and new rules will never be perfect, regulators are moving in the right direction.

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