



G100 VIEWS

ON

HIGH FREQUENCY TRADING

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Over the last few years there has been a marked increase in media and regulatory scrutiny of high frequency trading ("**HFT**") in Australia. HFT, a subset of algorithmic trading, has come to dominate trading activity in the US and has grown rapidly in Europe. Australia has experienced a rapid rise in HFT which is now estimated to account for 25 per cent of the volume on the ASX and has been reported to account for 50 per cent of trades on Chi-X Australia.

While some view HFT as a contributor to market efficiency by increasing liquidity, narrowing the bid-offer spread and enabling effective price determination; others are concerned that HFT increases systemic risk while detracting from the primary purpose of financial markets which is the efficient allocation of capital and fair price determination. HFT is seen by some as exacerbating the speculative, short-term and volatile nature of financial markets and it is argued that HFT is damaging the confidence of investors in lit markets and driving an increase in trading in dark pools.

The G100 believes that the real issue with HFT is not around the method of trading but rather the underlying strategies that are being implemented through HFT technology.

The G100's position is that HFT and algorithmic trading should be closely monitored and, where necessary, steps should be taken to prevent high frequency traders ("**HF Traders**") from manipulating the market and increasing the systemic risk of a market crash. The cost of monitoring and regulating HFT should be, as best as possible, borne by the HF Traders.

What is HFT?

One of the complexities of HFT is understanding or defining what comprises HFT. For the purpose of this paper the G100 defines HFT as follows:

- HFT is the use of computer algorithms to trade securities at extraordinarily high speed, where the investment position is held for very short periods of time. HFT involves the automatic generation of large numbers of orders based on price movements and market information, many of which are cancelled rapidly. HF Traders typically start and end the day with no open position.
- HFT usually involves the application of proprietary trading strategies and all portfolio allocation decisions are made by computerised quantitative models. Most HF Traders use a variety of practices and strategies applied to multiple asset classes and exchanges.
- HF Traders commonly establish computer servers at or near exchanges in order to minimise latency. This proximity to exchanges enables HF Traders to receive information on orders and market movements faster than other market participants.

The G100 understands that large institutional investors are, in part at least in response to HFT, increasingly making use of automated trading tools to improve execution outcomes, particularly with regards to executing large block trades.

These high volumes, low value orders and trades which use algorithms to achieve execution benchmarks, such as a volume weighted average price, have in conjunction with HFT, contributed to a sharp decline in average trade sizes over recent years.

Detrimental forms of HFT

The term HFT covers a variety of strategies. In some cases, the role played by HF Traders can be beneficial for the market as a whole. In other cases, HFT strategies can undermine the integrity and efficiency of the market. While this paper considers the negative effects of HFT, the G100 acknowledges that not all HFT strategies are detrimental to the operation of the capital market and not all of the market abuse strategies are limited to HFT, although HFT technology facilitates certain types of market abuse. The following are some of the strategies and market abuse activities which the G100 believes can have a detrimental impact on markets.

- **Algo sniffers:** An Algo sniffer detects algorithmic trading being conducted by another trader, determines the likely strategy of the algorithm and then operates ahead and against the slower computer by buying or selling shares faster, effectively trading ahead of the other trader.
- **Predatory algorithmic trading:** Predatory algorithm traders operate by fooling another algorithmic trader into driving the price up (or down) and then sell the stock short knowing that the price of the stock is likely to fall. When it does, the predatory algorithm covers.
- **Spoofing:** Spoofing involves issuing waves of orders at different prices for a security held by an HF Trader. This can create the misleading impression to the wider market that demand is greater than it really is. Once orders for the security start to flow-in from other agents the lower prices initially fed into the market are withdrawn so that the security is eventually sold for a price higher than would have been the case before the spoofing was initiated.
- **Layering:** a form of spoofing, layering involves buying a block of shares and then issuing a large number of buy orders for the same shares at prices just below the current market price. The intention is to fool other algorithms and human traders into believing demand for the stock is high, enticing them to buy the shares in the hope the price of the shares will rise. If successful the share price will increase, and the HF Trader will cancel the buy orders and sell its own block for a profit.
- **Quote stuffing:** This involves placing a large number of quotes in the market in order to slow down the processing of orders by an exchange or the activity of other traders. The delays will benefit the fastest HF Trader who will be able to buy or sell at prices that reflect a lag in price-formation.

What is the impact of HFT?

HFT can negatively affect retail investors, institutional investors and listed companies through increasing costs, undermining market confidence and distorting information. The most serious issue is the potential destabilising effect on the market as a whole.

Impact on market efficiency

A financial market should be fair and efficient, with confident and informed investors. The primary role of a financial market is to bring together providers of capital (investors and lenders) with users of capital.

Financial markets which facilitate the efficient allocation and pricing of capital encourage savings and investment, which leads to economic growth. An active and liquid secondary market, where investors and lenders are on a level playing field in terms of access to information and access to the market itself, increases the efficiency of the market by reducing risk and thereby increasing the confidence of investors.

HFT can undermine the confidence of investors in several ways:

- HF Traders arguably profit from an imbalance of access to information. HF Traders receive and process information relating to orders and market movements faster than other traders, and can then act on that information before other investors.
- HFT can distort price determination.
- HFT can distort trade volume statistics to create the appearance of liquidity. While HFT creates high trading volumes, this does not create liquidity that institutional investors can interact with in any meaningful way. It has become difficult to determine the proportion of trades executed by HF traders and those executed by 'real' investors to develop a true understanding of the liquidity of a security. Some describe liquidity caused by HFT as 'phantom liquidity.'
- The speed at which HFT can push prices up or down can result in "gapping" during periods of market volatility. Prices appear to change in large jumps and with great speed, preventing retail traders from selling in incremental movements. As retail traders cannot act with the same speed as computer driven algorithms, they are in effect locked out of short term pricing changes.
- HFT creates frustration for normal traders when orders routinely disappear before investors can trade with them.
- HFT strategies are constantly evolving and HF Traders shroud their strategies and algorithms in secrecy in order to maintain a competitive advantage. The speed and complexity of the trades and the general secrecy surrounding HFT means it is difficult for regulators to keep up with developments and to monitor any predatory activities. This further undermines confidence of investors.
- The increased systemic risk created by HF Traders also reduces confidence in the market.

If investors' confidence in a market is marred, the participation in the market will decline, ultimately increasing the cost of raising capital.

Increased systemic risk

The rising prevalence of HFT increases the risk of market failure which can have implications for all market participants:

- Imbalances occur when traders seek to buy or sell quantities larger than intermediaries are willing to temporarily hold, which makes the market fragile. This was one of the contributing factors of the 2010 Flash Crash. HF Traders were found to have contributed to the fall in prices when they withdrew from the market as prices started to fall, causing liquidity to dry up.
- HF Traders who implement poorly programmed algorithms may cause artificial spikes or dips in the prices of multiple stocks.

While the increased influence of HFT has a capacity to affect the stability and integrity of equity markets, HF Traders are arguably less incentivised than other market participants to protect that stability by promoting reasonable price continuity during difficult times, or to refrain from exacerbating price volatility.

Implication for Institutional Investors

The deterioration of confidence has been identified as one of the factors driving an increase in trade in dark pools. An increase in dark pool trading has implications of its own. Too much liquidity diverted away from lit markets will result in wider spreads, over time increasing the cost of capital.

Institutional investors, in order to avoid unwanted attention from HF Traders, are being forced to continuously increase the complexity of their own algorithmic trading resulting in increased costs, resulting in, all else being equal, lower returns for investors of capital.

HF Traders are also required to constantly develop new strategies in order to stay ahead of other HF Traders. Not only does this further increase market costs, but the complexity and speed of development of new algorithms potentially exposes HF Traders to the risk of applying a faulty algorithm which could result in significant losses for the HF Trader, as in the case of Knight Capital in early 2012, and in a worst case scenario, wider market disruption.

Implications for listed companies

The increased use of HFT has implications for listed companies. If the price of a listed company's securities is distorted by price manipulation, this can undermine the reputation and perceptions about a listed company, eroding investor confidence in participating in further capital raisings thus increasing costs for listed companies.

Suggested steps to limit the negative effects of HFT

The G100 believes there are a number of steps that should be taken in order to limit the negative effects of HFT.

HFT strategies and technology are evolving quickly, meaning any regulatory and monitoring systems established today may quickly become ineffective. It is important therefore that regular reviews of the impact of HFT are undertaken to address the evolving effect of HFT. These reviews should take into account developments in other jurisdictions.

The technology and human capital used by HF Traders is sophisticated and expensive. Market regulators as a result must be equipped with comparable technology and skills in order to sufficiently monitor HFT.

ASIC has recently introduced changes which are largely directed at the stability and resilience of the markets rather than the effects of predatory HFT on investors. ASIC requires that market participants have 'kill switches' and market operators have volatility controls in place to deal with extreme volatility caused by rogue algorithms. In addition, market participants are required to annually test and certify trading systems. While the G100 believes this is a step in the right direction, given the life of a trading algorithm is often measured in short time periods, annual testing is too infrequent for adequate protection of the market and more regular testing and certification is appropriate.

ASIC has introduced requirements of market participants to have direct control over pre-trade filters. The G100 supports this approach but is mindful that sophisticated traders may seek to deceive these filters and controls.

In order to address the confidence of long term investors and to ensure fairness and efficiency in public markets, the G100 also supports the following steps being undertaken:

- Flash orders, where HF Traders are given a preview of market orders by the market operator before it is made public for a fee, should be banned. While the ASX and Chi-X have confirmed that they do not issue flash orders an outright ban would provide confidence to investors in all markets.
- Fees should be structured so as to, where possible, ensure that HF Traders bear the cost of additional regulatory costs associated with this type of market activity. Options include the introduction of variable fee structures where an order/trade ratio is exceeded; requiring Traders to pay for every order they put to the market; or, alternatively, requiring Traders to pay for cancelled orders. Some argue that this would be detrimental to market makers, who also generate large volumes of cancelled orders but whose role is beneficial for the market. Exceptions could be made for those who register as market makers and who would be required to provide liquidity, whatever the state of the market. This would require traders to post two-sided firm quotes, with an obligation to buy when there is an excess of sell orders and to sell when there is an excess of buy orders. There would also be restrictions on when they can take liquidity from the market in order to rebalance their inventory.

- The European Commission is considering the introduction of minimum resting times, where an order could not be cancelled or modified until a minimum time had elapsed, for example, one second.

Many argue that minimum resting times would give an advantage to aggressive orders as traders would not be able to 'get out of the way.' If introduced in European markets the effect of minimum resting times should be monitored for future consideration for Australia.

Group 100 Summary Position

The G100 believes it is important to not lose sight of the primary purpose of financial markets which is capital formation, including the allocation of equity and debt capital to enterprises in the most efficient manner.

As HFT can negatively affect financial markets and their participants the G100 believes that increased monitoring and regulation of this activity is required and the additional costs of this should, as far as practicable, be borne by HF Traders.

The G100 believes that in view of the size of the equity market in Australia and the number of different ways in which transactions can be undertaken it is important that any regulation of high frequency trading does not introduce impediments to achieving greater transparency and efficiency. As such we should not assume that regulatory models in the US and Europe are the most appropriate for a smaller market such as that in Australia where we must be mindful of the need for adequate controls and balance in regulation to ensure the protection of retail shareholders.
