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HIGH FREQUENCY TRADING: A NEW CHALLENGE FOR THE MARKET REGULATORS

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ABSTRACT

Trading in Financial markets has come a long way from floor based trading to screen based trading and now High frequency Trading. In High frequency Trading (HFT, hereafter) securities are turned over very quickly by leveraging on latest technology and with very low latency rate. On one hand High frequency Trading is getting popular because of high speed of order execution at reduced cost, on the other hand it is also being blamed for most of the financial market crashes in recent past. Forward Market Commission (FMC) has banned on HFT in mini and micro contract on commodity bourses with effect from January 1, 2013. There is further demand to ban it or to reduce the speed of HFT transactions. As the players know that market risk has increased many folds under HFT. One wrong command or fat finger can bring disaster in the market. At the same time we also understand the importance of technology. Use of latest technology in the market helps all stakeholders to cut delivery time and costs. Nobody can deny the fact that technology has brought more liquidity and accessibility in the market. Academicians, exchanges and regulators have all agreed that advance technology favours the market. Therefore, banning the use of latest technology may not be the solution. It is certainly a challenge for both regulators and exchanges to manage HFT efficiently. But if they are well equipped to handle the technological advancement with proper policy in place, it is not so difficult also.

KEYWORDS

Algorithmic trading, High frequency Trading, Flash Trading, Forward Market Commission.

INTRODUCTION

High Frequency Trading is online trading of financial products with very high speed and frequency. A transaction can be executed in less than ten millisecond of time. It requires highly sophisticated high-speed computer loaded with complex algorithms that speed up their decision making. High Frequency Traders try to identify and capture price discrepancies present in the market by using computerized quantitative models. It is programmed such that orders are executed automatically on the basis of information captured electronically from different sources. Decisions are made at very high speed before human traders are even aware of it. HFT Trading can be in cash segments, F&O segment, in different scrip and there is also facility of putting stop loss too. Algorithms programmed in software breaks large block of shares into smaller lots and help traders to make profit by buying and selling securities at a small price differential. Investments are held for very short periods of time may be for a few seconds and normally positions are not carried overnight. Arbitrage opportunity that comes from continuously changing stock prices is exploited by transacting thousands of shares a second. These opportunities are short lived and spread is also very small thus a large volume of trading makes traders to operate in profit.

A small mistake or error in HFT can cause severe damage to the market because of high trading speed. HFT was made responsible for all unusual movement and volatility in the market recent past. Few burning examples are Flash crash of DJIA in 2010. Dow lost lost almost 1000 points (Appx. 9%) in 20 minutes time and recovered over 600 points within few minutes. The other victim of HFT was a company called Knight Capital. The total loss to the company was $440 million in 45 minutes. Just after switching on the system, it has started losing almost $10 million a minute. It seemed that the company started buying high and selling low at high speed. In India, BSE had to cancel all the trades of Muhurrat trading during 2010 as BSE derivative turnover shooted to many times its daily average. The problem occurred when an algo based system of a trader started buying and selling repeatedly. The problem on the listing day of Facebook shares was also attributed to HFT. Initial trades of shares are delayed by half an hour and thereafter verification of trade by traders could not be done for about two hours. Despite all these evidence, research conducted by academician in US has shown that HFT does not affect volatility rather it reduces it. The study says that volatility is caused more by macroeconomic factors than by computer programme that permits fast trading at small bid ask spread.

ALGORITHMIC TRADING

Algorithmic trading is a programme based trading that allows automatic order execution. The computer programme is developed by an analyst or trader to execute order at lightening fast speed to take advantage of the price differential. Rules like buy low and sell high, timing and quantity of the order is built into the programme. These predefined rules into computer software reduce latency in placing, confirming, and cancelling orders. Algorithmic trading (algo trading in short) follows strict rules based on advanced mathematical models for trading. It may not always be operating at high frequency. On the other hand HFT executes large number of trade at very short span of time and is dependent on the development of algorithms.Thus it is clear that all algorithmic trading is not HFT but all HFT is algorithmic trading. In other words we can say that HFT is a subset of Algorithmic trading.

FLASH TRADING

It is a special class of algorithmic trading which allows traders to view orders from other market participants a fraction of second before other market players with the help of powerful computer. This gives advantage to the flash traders to see the demand and supply position and judge the market sentiments before others.

HFT IN INDIA

Selected brokers of Mumbai, Chennai, Hyderabad, Delhi and Bangalore were offering this product to high net worth clients who are into high volume trading and could provide substantial margin. Mostly the clients are high net worth Individuals, Financial Institutions such as pension funds, mutual funds, buy side institutional traders and Sell side traders. Buy side traders use HFT to divide large trades into several small trades in order to reduce market impact and risk. On the other hand sell side traders, such as market makers and hedge funds, provide liquidity to the market by generating and executing orders automatically

WHY HFT IS CATCHING UP?

HFT is catching up all over the world. In USA HFT trading accounts for 75% of total trading. In India approximately 30% trading is done through HFT. Presently the numbers of brokers those provide this service is very less and number of investors those trading on HFT are also very less.

But as the market advances, we may see 100 % trading through HFT in the days to come. Four main reasons for growing popularity of HFT are first, decimalization of stock prices was one of the most important reasons for development of HFT. Second, High-performance computing systems and development of software for advanced trading technology has developed inbuilt programme for arbitration between exchanges and financial instruments. Third, Increase in market volatility has increased profit opportunity for HFT traders. Fourth, Small tick size has also helped in development of HFT as high frequency helps in generating profit even at small margin.

COMMON STRATEGIES FOLLOWED BY HFT TRADERS

The main aim of high frequency trader is to make profit more than market by taking lesser risk. To meet the objective they follow different strategies. Some of the strategies adopted by High Frequency Traders are as follows:

- Maintaining a smaller holding periods varying from milliseconds to a few minutes without carrying positions overnight.
- Splitting large orders into small orders to match the flow of opposite orders. This increases the volume of transaction and reduces the market impact cost.
- Trading on news i.e. using computerized modeling techniques for automatic text reading and analysis of data in real time. Automatic decision is taken to execute, cancel, or replace orders based on new information on prices or demand.
- Exploiting arbitrage opportunity between different markets or between different assets occurring due to price differentials. Traders could buy in one exchange and sell in another or buy one asset and sell other if they have different price but should have theoretically same price. Latency is kept very assuming that prices will realign immediately.
- Developing trading programme to forecast short term price, trading volume based on past experience. Software helps to select which type of financial instrument (for example, stocks, options, or futures) to buy or sell, quantity, price, timing, and location (Exchange) of the trades.
- Trades for very thin margin by aiming to make just a fraction of penny per share which accumulates significant amount because of large trading.
- Buying price averaging- The volume buying could be done at different price points giving the buyer the benefit of cost averaging and the buy/sell could be done in micro seconds.
- Selling price averaging- algorithmic trading was more suitable for trading in frontline stocks that had ample liquidity because when a sell order was generated, it should be executable. For HNIs, who have on hand a large volume of shares, they could set different price points for sale to average the selling price; and greater the market volatility, the greater is the opportunity in automated trading.

TABLE 1: AVERAGE TRADE DURATION

Category	Reaction Speed	Average Trade Duration
Very Low-Frequency	up to several hours	1 week or more
Low-Frequency	up to a few minutes	1 day to 1 week
Medium-Frequency	up to a few seconds	10 minutes to 1 day
High-Frequency	100 milliseconds or less	1 second to 10 minutes
Very High-Frequency	10 millisecond or less	1 second or less

(Source://www.stat.cmu.edu/~abrock/algotrading/page4.html)

BENEFITS OF HFT

- ✓ The trading is as per mathematical programme built into system, therefore, there is no room for human errors.
- ✓ HFT is helpful to day traders as human emotions and weaknesses do not play any role in trading. Day traders increase or decrease lot size on the expectation of profit or loss which may result in loss, this human weakness can be avoided in HFT
- ✓ The race for speed has also benefited technology suppliers. Demand for hardware, software, middleware, smart order systems, risk reporting system and security has gone up.
- ✓ HFT has reduced bid-ask spread substantially. Thereby, impact cost of the borrowers has decreased.
- ✓ HFT has increased market efficiency and liquidity to equity markets.

SHORTCOMINGS OF HFT

It is feared that the use of high-speed computerized programs for high-speed trading might create high-speed hard hitting risks. Machine executes order much faster than human can intervene, one wrong command can bring big financial crisis globally in seconds. Few shortcoming of HFT are as follows:

- ➢ Statistical arbitrage of HFT across markets, assets and instruments leads to greater correlations. This reduces the benefits of diversification to the investors and leading to increased risk. Sometimes algorithmic trading can push prices too high or too low from intrinsic values of shares that may increase volatility.
- ➢ Most of the retail investors do not use HFT, therefore won't be able to make money from Short term arbitrage opportunity. In the other words we can say that High Frequency Traders make profits at the expense of bona fide but less sophisticated small investors.
- ➢ High Frequency Traders prefer large cap liquid scrip, therefore, trading is concentrated on a small number of stocks.
- ➢ Speed of transaction may increase number of errors.
- ➢ Cost of trading may go up as high frequency traders buy the asset from seller and sell it to the end user and earn some margin.
- ➢ Liquidity provided by High Frequency Traders is for a very short time as the nature of most of the orders is immediate or cancel.
- ➢ The higher the frequency the more investment in IT and infrastructure is required. Significant investment is required for Co-located servers, trading software, and good programmers.
- ➢ In the past it may not have committed any big loss or damage but the same may not be true for the future. It may cause large market movement in future putting investors in big loss.

BOX 1: SEBI GUIDELINES ON ALGO TRADING

Following are the few guidelines by SEBI

The market regulator Securities and Exchange Board of India (SEBI) has set new guidelines on Algorithmic trading as many traders are adopting technology for the purpose of trading in financial instruments. SEBI's new guideline aims to protect the interests of investors in securities and to promote the development of, and to regulate the securities market.

- The stock exchange shall have arrangements, procedures and system capability to manage the load on their systems in such a manner so as to achieve consistent response time to all stock brokers.
- In order to ensure maintenance of orderly trading in the market, stock exchange shall put in place effective economic disincentives with regard to high daily order-to-trade ratio of algo orders of the stock broker.
- The stock exchange shall ensure that all algorithmic orders are necessarily routed through broker servers located in India and the stock exchange has appropriate risk controls mechanism to address the risk emanating from algorithmic orders and trades.
- The stock exchange may seek details of trading strategies used by the algo for such purposes viz. inquiry, surveillance, investigation, etc.
- The stock exchange shall include a report on algorithmic trading on the stock exchange in the Monthly Development Report (MDR) submitted to SEBI
- Stock exchange shall ensure that the stock broker shall provide the facility of algorithmic trading only upon the prior permission of the stock exchange.
- For stock brokers already providing algo trading, the stock exchange shall ensure that the risk controls specified in this circular are implemented by the stock broker.
- The stock broker, desirous of placing orders generated using algos, shall submit to the respective stock exchange that it has real-time monitoring systems, and shall maintain logs of all trading activities and shall inform the stock exchange on any modification or change to the approved algos or systems used for algos.

Source: www.edelweiss.in

CONCLUSION

There is an argument that why should we have HFT when market is working quite fine without it. Here question arises that should we stop use of new technology in market operations? Can we go alone with the old system when all other developing and developed economy is resorting to the use of latest technology? The answer is obvious "No". Rather than banning technology it is wise that exchanges should upgrade themselves with more powerful servers and next generation of computers with high speed. They need to develop strong warning system. Maintaining sufficient amount of investor protection fund will help in meeting with any contingencies in future. Presently Stock Exchanges do not go deep into algo trading programmes of brokers. But as per the new circular of SEBI, Stock Exchanges can seek details of trading strategy. Though, some of the brokers oppose this saying that this will be an infringement of intellectual property as software developed by them is proprietary property. They feel that secrecy of the software is must in this kind of business to make profit. Retail investors should not worry much so far as they understand the market and invest for long period. They should not sell in panic when market is falling unreasonably. And their position should always be accompanied with limit order. They should understand that despite big hue and cry there is no confirmation of loss to investors because of HFT. At last, like any other technology, HFT too have advantages and disadvantages. It depends upon stakeholder how effectively they convert advantages in their favour by managing the disadvantages. Use of advanced technology should be encouraged in all the fields to increase efficiency. Investor awareness programmes will certainly help regulatory in removing the phobia of HFT among small market players.

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