

ILLUSTRATION BY AJAY MOHANTY



# Who is afraid of algorithmic trading?

Instead of fearing technological change, it is necessary to develop capabilities for enforcement against market abuse

Computer technology is profoundly reshaping financial trading. The Securities and Exchange Board of India (Sebi) will have to work in new ways in this new environment. The changes make many people nervous. The empirical evidence, however, is benign. There are two useful ways to think about it. One element is the inevitable movement of technology that afflicts all industries from time to time. Another element is that data about algorithmic trading merely reveals the behaviour of certain kinds of traders, who were not separately observed earlier.

In the old days, humans traded by talking to each other. Then we graduated to humans typing on computer screens. Some trading is still done like that. Most trading, however, is done through “algorithmic trading”. Here, a human instructs a computerised clerk on how to look at prices and feed in trades. Each human typically watches over multiple such computerised clerks. Between 60 and 90 per cent of trading on most financial markets is now done through this man-machine partnership.

The induction of these computerised clerks has given gains in reliability, speed and cost. The computerised clerk is told to keenly watch until the price drops below ₹100, and fire off a buy order the moment the price drops below ₹100. This tedious work is done with greater reliability and greater speed by a computerised clerk as opposed to a human clerk.

The cost issue is particularly important in India. A human trader is expensive. To justify the salary

cost, it makes sense for this trader to focus on high turnover stocks. For smaller stocks, the number of trades per hour does not justify the salary cost. With algorithmic trading, one human can control multiple computerised clerks working on smaller firms, and thus infuse liquidity into them.

Order matching at exchanges has become the dominant design of financial markets trading all over the world. It is now prevalent not just in the equity market, but also with currencies, bonds, commodities, etc. There has been a joint evolution of all these asset classes towards electronic exchanges and algorithmic trading. Indeed, the rise of algorithmic trading is part of why electronic exchanges have become so important with currencies and bonds, where a lot of trading is driven by clerical implementation of formulas. As a consequence, the algorithmic trading revolution influences not just the equity market but all financial markets.

These developments have important implications for financial markets regulation. The major task of regulation is to block market abuse. There was a certain set of techniques for detecting and blocking market abuse in manual trading. These procedures have to be considerably modified for algorithmic trading, where the number of orders and trades is very large, and where an episode of market manipulation can last just a few seconds. Sebi will need to construct new knowledge in order to respond to these changes.

Like all new technological developments, the rise

of algorithmic trading creates winners and losers. Old-style manual trading oriented firms and persons have been displaced by those who have mastered the new world. This naturally creates resentment on the part of those who lost their income stream. Such technological turbulence happens in all industries. In regulated industries, however, technological turbulence tends to turn into demands that regulators should obstruct change.

An important criticism of the new world of algorithmic trading is the fear that the algorithms back away from the market when there is turbulence. There is some evidence that this does, indeed, happen. It is, then, claimed that more algorithmic trading makes the market vulnerable to sudden collapses of market liquidity, when an outburst of volatility scares off the algorithmic traders.

The key insight is that short-term speculative or market making strategies have always existed. All that has changed is that they have moved from a human trader doing things himself, to a human who controls a computerised clerk. In the new world, we identify the activities of the computerised clerks and call them algorithmic trading. In the old world, we did not identify those trades separately. Ultimately, all that is going on is the thinking of the human trader. Many short-term speculative or market making traders back off from the market when there is enhanced volatility. There is nothing new about such behaviour; what is new is our observation of these orders.

These questions have been of great interest to academic economists. There is a fair amount of evidence about the impact of algorithmic trading, and it is largely positive. Research about NSE, by Nidhi Aggarwal and Susan Thomas, shows that more algorithmic trading induces a beneficial causal impact: liquidity goes up, volatility goes down, and there are fewer sharp declines of either price or liquidity.

Sebi has released a discussion paper proposing an array of interventions that would interfere with algorithmic trades. Before an intervention is proposed, however, Sebi needs to show evidence that there is a problem. There is a small literature on algorithmic trading at NSE, and it does not show that there is a problem. There is no reason to analyse or debate interventions when there is no demonstration that there is a problem.

The work programme required at Sebi is not about interfering with algorithmic trading. Rather, it is about developing sophistication on market abuse, on carefully defining categories of violations, and on devising investigation strategies for the new world of algorithmic trading. This is hard work at the level of one exchange, and harder when there are four exchanges.

Algorithmic trading has dramatically reshaped the world of financial markets. It has helped the electronic exchange come to prominence in all asset classes. One by one, as additional asset classes come into electronic exchanges in India, each will gain from these capabilities. There is a Luddite impulse that fears technological change. It is far better, instead, to develop research-based insights into the new world, and develop capabilities for enforcement against market abuse in this new world.

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## SNAKES & LADDERS

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