



High Frequency Trading and Market Stability

The news is filled with comments about automated trading and 'high frequency' trading, blaming either directly or implicitly, that it was these computer systems that caused or exaggerated the crash. In a Fortune/CNN article:

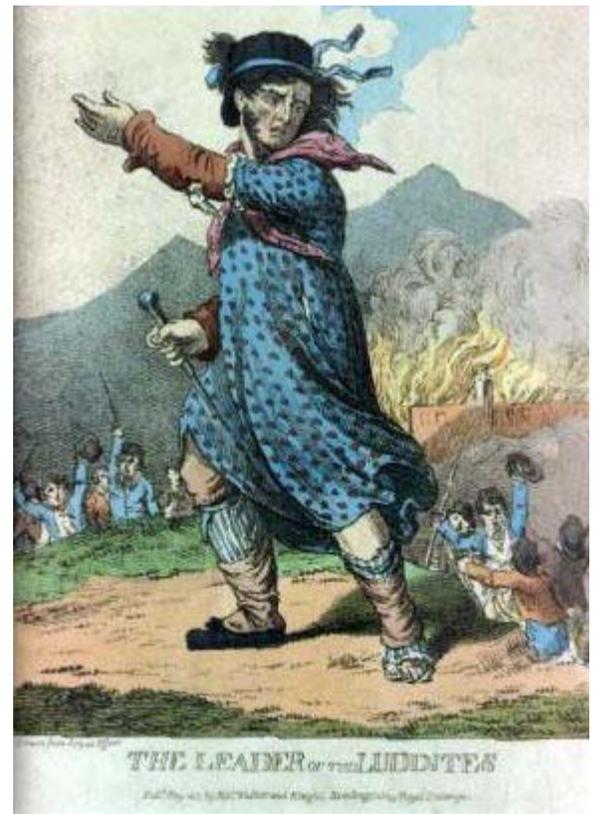
*"We want to see a big reaction in Washington," said Saluzzi. "We need to get all these fast-trading jokers out of here."*ⁱ

Is Saluzzi suggesting we stop using algorithmic trading systems, used by nearly every type of investment fund, including Mutual Funds, Hedge Funds, Banks; even TD Ameritrade offers retail 'strategy desk' application.ⁱⁱ

StrategyDesk lets you create, test and execute your stock trading strategy — all using one powerful, downloadable desktop application. In just a few clicks, you can define strategy entry and exit rules, test your rules against historical market data and then activate them for live trading. You also get advanced charting and real-time screening capabilities to help you find, analyze and act on potential trading opportunities.

Exchanges have moved to fully electronic trading, as have funds – not only for execution but for decision making. Saluzzi represents a dying class of angry workers similar to the Luddites, a social movement in pre-industrial Britain against the development of automated looms.

*The **Luddites** were a social movement of British textile artisans in the nineteenth century who protested—often by destroying mechanized looms—against the changes produced by the Industrial Revolution, which they felt were leaving them without work and changing their entire way of life. This English historical movement should be seen in the context of the era's harsh economic climate due to the Napoleonic Wars, and the degrading working conditions in the new textile factories. Since then Luddite has been used to describe those opposed to industrialization or new technologies^[1]. The Luddite movement, which began in 1811 and 1812 when mills and pieces of factory machinery were burned by handloom weavers, took its name from the fictive King Ludd. For a short time the movement was so strong that it clashed in battles with the British Army. Measures taken by the British government included a*





mass trial at York in 1812 that resulted in many executions and penal transportations. The principal objection of the Luddites was against the introduction of new wide-framed automated looms that could be operated by cheap, relatively unskilled labour, resulting in the loss of jobs for many skilled textile workers.

Electronic trading is not a trend; it is difficult to trade non-electronically. 55% of FX Volume is now executed electronicallyⁱⁱⁱ. The question of whether or not high-frequency trading contributes to market stability or to market volatility is the wrong question. In most cases, airplanes do not cause crashes, pilots do. Electronic systems are as good as their makers and executors. In the case of the DOW's severe drop and recovery, this would likely not have happened if the markets were not already concerned about Greece. What difference does it make if humans were trading or algorithms?

In a trading Turing test, how would a counterparty know, in an electronic market, if it was a human placing trades via an electronic manual platform, or if it was an algorithm? Banks have designed algorithms to detect fraud and arbitrage based on trading activity, and algo-traders have responded by creating more intelligent algorithms that act like humans (by placing and removing bids and offers as a human would, for example).

There is a similar trend in the internet; the CAPTCHA fight against spam-bots. And spammers have responded by creating CAPTCHA solvers, and companies have sprung up offering CAPTCHA solving services, such as <http://decaptcher.com/>

The use of algorithmic trading systems is inevitable and unavoidable. It is also impossible to create a fair comparison in the argument because we cannot 'stop' using electronic trading to test how the markets would have reacted without the use of algorithmic systems. The internet and computers are the electronic 'information superhighway' that the economy operates on, it would be highly inappropriate and inefficient to have a non-electronic trading system.

Volatility and IT systems

Something EES noticed that was unique about this market spike, prices were being updated faster in absolute terms (not because of the volatility). For example, imagine in 1 minute EUR/USD price goes down by 10 pips, and the price is updated 10 times. Compare this to the same move in 1 minute (10 pips) but the price is updated 100 times.

Most FX brokers do not display the volume of each trade, so we cannot say this is an increase in Volume (although it may be). It is an increase in the amount of times prices are updated in a certain period of time. We could call it 'tick volume' or 'price change volume' because it is an increase in the number of times the price changes, not necessarily the increase or decrease (it could change 1,000 times but only increase or decrease by 2 pips).

(Tick Volume / Volatility) Close [Today] > (Tick Volume / Volatility) Close [10 days ago]



This could have been caused by a large amount of orders coming out of European institutions, or due to fund trading, and a number of other crisis related factors. But the unique observation is that this surge in Volume caused many FX trading platforms to become overwhelmed with data. Most platforms update in real time, they couldn't afford to filter price data and NOT update in real time. Thus, the platforms began to eat up system memory at an exponential rate, until many servers crashed. This was experienced by brokers as well as client terminals.

High Frequency Trading as an Asset Class

As markets become more volatile and uncertain, traditional investments may produce unstable results. High frequency automated systems have the advantage of being able to profit in nearly any type of market. These systems should not be discarded as investments for only Elite hedge funds and I-Banks. In fact, it is better for the market if these systems are widely proliferated instead of being controlled by a few powerful funds. The future of trading may be a battle of computers.

ⁱ <http://wallstreet.blogs.fortune.cnn.com/2010/05/07/the-nyse-and-high-frequency-trading/>

ⁱⁱ <http://www.tdameritrade.com/tradingtools/strategydesk.html>

ⁱⁱⁱ <http://eliteeservices.blogspot.com/2010/05/electronic-trading-captures-55-of-total.html>