

Man versus machine

Chris Thorpe gives an insight into how heavyweight institutional investors and hedge funds are increasingly using sophisticated computer algorithms to execute their trading strategies

edge funds and 'hot money' are the wild cards of financial markets. Trying to guess which way they are going from day to day is a fool's game. Yet they are significant influences on modern economics that impact every business with exposure to commodities, interest rates and financing. As investment funds of all kinds adopt modern technology to execute their strategies, the average market participant is left sadly disadvantaged. Can the average human compete with a modern computer?

There was a time when 'hot money' was known only as capital, chasing higher interest rates from country to country. Today it is more about large amounts of capital with very short investment horizons using every available liquid asset to trade in high frequency. Historically, larger investment funds such as pensions, mutual funds and sovereign wealth groups made up the lion's share of capital flows and typically invested for longer-term horizons. Today, funds of all kinds have adapted to take advantage of more diverse asset classes and investment strategies. Perhaps the most difficult to comprehend in terms of market impact is the use of computer algorithms to execute

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short-term trading strategies. The speed and capacity of modern computing power makes humans traders practically obsolete.

Modern traders and funds have adopted impressive alternative investment strategies using both long and short term trading techniques to achieve their returns. Hedge funds, for example, typically seek to maximise 'risk adjusted' return, which is another way of saying they seek to maximise returns with lower volatility than comparable peers. If a fund were to return 10% in a given year with very low volatility it would be superior to a comparable fund with the same return and higher volatility. To do this, some funds will use alternative financial instruments to hedge their investment risk. For example, a fund manager with large investments in oil companies may take it upon himself to sell oil futures to hedge risk and reduce the variability of the fund's annual profit and loss report.

On Wall Street, the term 'hedge fund' was initially applied to investment funds that were willing to take opposite bets on companies versus traditional funds that would invest in companies that were a good buy with the expectation of higher value at a later time. Short selling, or taking a negative bet expecting a lower price in the future, was only common for smaller short-term traders. Since short sellers only make money when prices fall it was never considered a mainstream institutional strategy used by multi billion dollar firms, pension funds or the like. Over time, many investment funds adopted strategies to go long or short on any given position.

In the case of commodities, broad institutional and hedge fund use of futures and exchange traded funds (ETFs) is relatively modern, with larger players taking significant positions in futures markets only since the 1990s. Until then, market liquidity was too thin and depth too shallow for any significant trader to enter and exit the market without extensive costs or trading friction.

As an illustration, trading friction is at its peak in the real estate market because no immediate market is present and fees to transact are very high. In oil futures markets, buyers and sellers trade within pennies of a bid or offer at any given point for hundreds of millions of dollars. Contrast that with a real estate market where there may be

millions of dollars between the bid and offer.

Although commodity funds of all kinds have grown in size since legendary investor Jim Rogers (known for his Rogers Commodity Index) started pitching commodity investment as a bet on Chinese growth, not all investors have done well. Funds such as Pimco's \$11 billion Commodity RealReturn Strategy Fund lost 27% over the last 12 months. Clearly, investing in commodities is not a sure bet based on expected commodity demand in China.

Though arguably we are at the end of an emerging market-driven commodity 'supercycle', investors do not appear to be abandoning commodities any time soon. In fact, investors and traders using equity like ETFs now account for over one third of near month commodity futures. These investors typically shy away from trading futures in favour of equity shares, due to their investment mandate or limited trading infrastructure to manage futures. However, this is arguably naïve since ETFs are only a convenient and more costly way to trade futures in the current month where trading is dominated by savvy funds with cutting edge technology.

The most advanced hedge funds are adopting computer program driven trading, sometimes referred to as algorithms or 'algos'. These kinds of funds rely on computers' speed to execute strategies and decrease costs, in some cases eliminating human execution traders in place of trading 'technologists' who assist the computer program and ensure that errors are fixed. A hedge fund may trade 10,000 times or more per day using multiple strategies executed by computer algorithms.

On the other hand, savvy computer programs have rules that can create market chaos. In certain circumstances, computer programs will look for liquidity to dump positions and, if reacting to a similar input, can create a cascade affect across financial markets. A 'flash crash' event becomes more possible when computers seek to limit losses. If larger funds using similar program strategies grow as a proportion of the total market, contagion, or the converging of markets in one direction, may result.

It is now common to see significant futures positions held by speculators entering and exiting the market. Although this data is publicly reported to the Commodity Futures 'Whether they
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Trade Commission (CFTC), outsiders looking in can only interpret results after the market has reacted. Interesting to know but not helpful in retrospect. Whether they be hedge funds or not, speculators are often blamed when oil prices are higher than the long-term average. Seldom are they blamed when prices are below average. Those that held simple short positions through 2014 had windfall results.

As the oil markets enter a trading range around \$50 per barrel, larger investment and hedge funds enter and exit with more frequency using high powered computers, making it very difficult for physical oil traders to manage price risk. If you must pick a side to bet on, don't be a victim of overconfidence. Trading has become highly dependent on technology. Computers can execute thousands of trades in a matter of seconds. Trying to outsmart the algorithm is likely a task for a computer programmer, not the seasoned oil trader.

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