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Opalesque Exclusive: The edge in high frequency trading is people

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Participants at the **Mankoff Company** roundtable - on automated, high frequency and algorithmic trading - last month in London addressed issues of developments, latency and dark pools among other things. Here are some of the points that transpired from the evening.

What is HFT?

High-frequency trading (HFT) refers to the buying and selling of stocks at extremely fast speeds with the help of powerful computers, using complex algorithms. **Algorithmic trading** is used by pension funds, mutual funds, and other buy-side institutional traders. Sell-side traders, such as market makers and some hedge funds, provide liquidity to the market, generating and executing orders automatically.

HFT is an intra-day technique of capturing an edge, said Anthony Tassone, VP at Algorithmic Trading Solutions (RTS Realtime Systems). "Your edge determines how frequent you are. Trades can be done in fractions of seconds."

The gap time between efficiency and randomness is protected by the strength of financial theory, said Alain Ruttiens, principal at Sofis Capital.

But one thing that should be taken into account is the trading costs to frequent trades, added David Beddington, MP at Dacharan Capital LLP.

HFT is a natural outgrowth of computing (on automated exchanges) and does from 100 to 10,000 trades a day. "Trading has been practised for centuries," noted Eugene Pinsky, VP at Trading Cross Connects. "Nothing has changed but the speed."

So does it mean trades could eventually become even faster? HFT is a natural progression of technology and players, said Karim Taleb of Robust Methods LLC. "But we'd rather focus on the quality of trades. We have not

found compelling reasons to move to a higher frequency shop."

### Developments

On the equities side, there have been dramatic changes in the landscape since Mifid, said Hans Christian Reinhardt, executive director at Morgan Stanley. Add to that more competition, lower trading costs, better technology, and HFT is now more attractive. Dark pools will also develop in the coming years: the quality of execution is different there and it is very interesting to study. The market will respond to that with more providers of dark pool or consumers.

There are several different approaches or three different legal shapes, representing "different degrees of darkness" to dark pools, he said:

- broker's dark pools: brokers can control the rules of the game, the sizes and lengths of orders, etc.
- systematic internalisers
- MTFs (Multilateral Trading Facility): with these, there are sets of rules, one is not fully in control of what is happening. But everybody can participate.

There are no major exchanges in the FX space, making the markets fragmented with a large share being dominated by banks, panellists said. Platforms and liquidity providers are all in competition with each other. So there are constant changes. One must be switched on in this area and constantly monitor one's relationships. It is different from equities because one is facing counterparty directly in FX.

There are proposals to trade in fractional cents, which would increase trading volumes.

As for HFT in futures, this is still expensive for the moment, but it could be the next opportunity in the new markets.

### Edge in HFT

The edge in HFT is people according to some of the panellists. They should have a business, quant and finance background and realise that data is the business's life blood. Indeed, asset prices is just data to analysts (now, Matlab is more often used than spread-sheets for data).

There is a different breed of people in HFT; they usually have technical, engineering and scientific background. It was also noted that managers must also be able to control the egos that come in this industry.

An interesting fact is that some scientists can struggle with simple things like market data, and so they often need to work together with a trader.

### Back-testing

The back-testing parameters must be adapted to changes of regime at the moment. And the execution algorithm model needs to be adaptive. This is hard to do as it is difficult to feed analytics into execution algorithms. An

analogy was used: "if execution was a Ferrari, you would not want it to hold bricks."

### Latency

Latency here refers to the 'delay' between the transmission of information from a source and the reception of the information at a destination. Latency has as a lower bound the speed of light; this corresponds to a few microseconds per kilometre of optical fibre. Any signal regenerating or routing equipment will introduce greater latency than this speed-of-light baseline. As mentioned in the above article, some HF traders place their computers close to exchange servers, a practice known as co-location, in order to minimise latency.

It is very expensive to be in that space and do trades in macro-seconds, and to be competitive, some firms do some hardware tweaking, leading to a latency arbitrage box, which is a very small box where the hardware comes in. Firms who produce their own hardware do not want anybody to know the specifications as it is a very competitive community. So they shred their boxes regularly. Apparently, Citadel is one of the firms that do just that.

From a broker's point of view, Morgan Stanley is aiming at 50 to 60 micro seconds said Reinhardt; "but you must add connectivity latency."

"We can realistically talk about latency and execution with a turnaround time of about .4 milliseconds," said Allen Zaydlin, CEO of InfoReach.

A light-speed business with staying power, HFT may whiz its way around the upcoming regulations.