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Trading technology: the next challenges?

Outsourcing is the buzzword at the moment. Can you outsource everything?

As High Frequency Trading (H.F.T.) hits a natural limit, market players are going after pre-trade latency gains. Algorithms are there to stay.

Regulators reposition broker's DMA service and force the buy-side to rethink order execution, among some other MiFID II consequences.

Outsourcing is in everybody's mouth at the moment, but can you outsource everything?

Technology in the form of trading platforms is a crucial element when assessing the performance of financial institutions, be they predominantly proprietary trading units, sell-side, or buy-side firms. Platforms can be outsourced and this can make sense too, e.g. when a group of banks invests in a common infrastructure for sharing an important cost item. In many cases, however, **trading technology is simply too closely linked to certain business strategies that are highly proprietary and considered a core asset.** Rather

than calling it a trend or a new challenge, I think outsourcing has always been there and is a classic reflex during phases of restricted budgets or increased pressure on margins and unprofitable activities.

H.F.T. and low latency go together

The latency race has been pushed to the limit in recent years, the limit being the speed of light (not everybody knows that a good part of today's buy and sell orders are being sent at close to 300'000 km per second!). It is useless, albeit not completely void of any sense, to debate the merits of lightening 🇨🇭



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72

Evolution of Trading online & financial Informations

❑ fast-order execution, because the technology is there and already being profitably exploited by the tech savvy and cash rich players. So what's next?

First, the catch-up game by market participants who feel disadvantaged compared to the H.F.T. cracks is still in full swing. **The cost of ultra low latency is steadily declining, although from very high levels.** But in the not too distant future it will be almost "standard fare", and more or less level the playing field.

Second, judging by the prevailing logic, the traders will want to seek other ways and means to be ahead of the game. So, naturally you have to think outside the box and look at the whole chain of trading, from decision making to order execution. **The next target seems to be the area of pre-trade risk checks.** To beat the crowd, if you can no longer do it with the speed of order execution, people will shave fractions of a second off risk management procedures by investing heavily again. And so the game of "catch me if you can" goes on and on. Shall we celebrate or fear the prospect of later generations letting the computer make investment decisions on the micro level? Will software replace brain ware?

To make this happen, H.F.T. needs to crunch numbers, absorb enormous mountains of historical and hypothetical data, and run exhaustive scenarios on simulators in order to validate new and old theories as well as smart strategies. Call it a vast 'site under construction' – but this is the trend and it is certainly a definite challenge!

For once, regulators are not asleep

Let's turn back to the present and mention a specific item in trading technology, namely the regulatory vagaries concerning Direct Market Access (DMA). The financial watchdogs of this world are active these days, courtesy of the financial crisis unfolding since 2008. They want to improve, among other things, the competitiveness of markets. Competitiveness aims at lowering the cost of trading, one would hope. Brokers have contributed in some ways, e.g. by offering algorithms and DMA, to rationalize the process. **Now the regulators are reminding brokers that in case of trouble or errors, they are the legal counterparty of the exchange** and therefore are obliged to exercise a minimum of checking before releasing an order directly to the market. We are facing here at least one example where rules intended to increase competitiveness in the end lead to higher cost, not lower cost. After all, brokers cannot indefinitely absorb cost factors like the considerable technology investments involved in lower latency and sophisticated software for automation, so they inevitably pass it on.

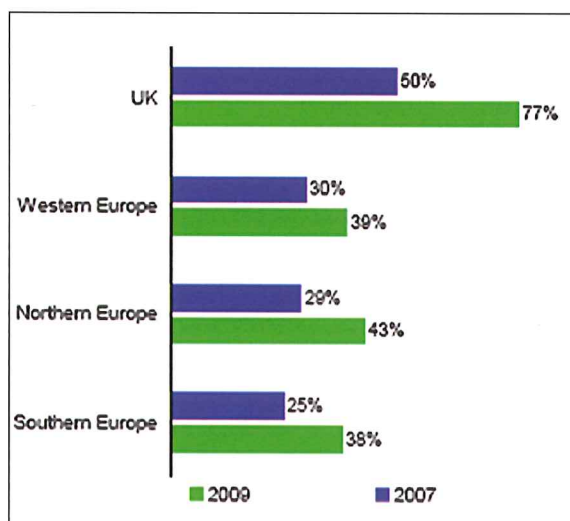
What will be the likely consequences? As with MiFID I, the buy-side, in particular, will once more have to judge whether to continue using brokers or pursue membership themselves in markets, where they are regularly active. It also follows that algorithmic trading and SOR (Smart Order Routing) will increasingly become a must, whether bought in a package of services from the broker or managed internally, including the possibility to choose between different brokers and not only between different markets (not a bad idea I would think).

At the end SOR should be programmed and integrated at every trading desk, because it has become more than a simple routing instruction.

MiFID II keeps you busy

New regulation also wants to limit dark pools for reasons of transparency and level playing fields. But the buy-side likes to

Adoption rates of Algorithms (by Region)



Source: TABB group

use dark pools in order to avoid interaction with H.F.T. Brussels would like to shorten delays (close to real time) for reporting large positions but this could play into the hands of H.F.T. who are quick to exploit more transparency. **If the buy-side must report large open positions it fears higher market impact and therefore uses dark pools.** It seems difficult to arbitrate such opposing concepts.

Another MiFID II target is less controversial. OTC markets for derivatives and other less liquid instruments will be more concentrated on officially regulated markets or MTF-like venues. This should lead to higher transparency and concentrate more liquidity for these widespread types of instruments. The buy-side certainly welcomes this trend but faces the prospect of being forced to put in place expensive multiple electronic access to all relevant systems.

Why use algorithms and Smart Order Routing?

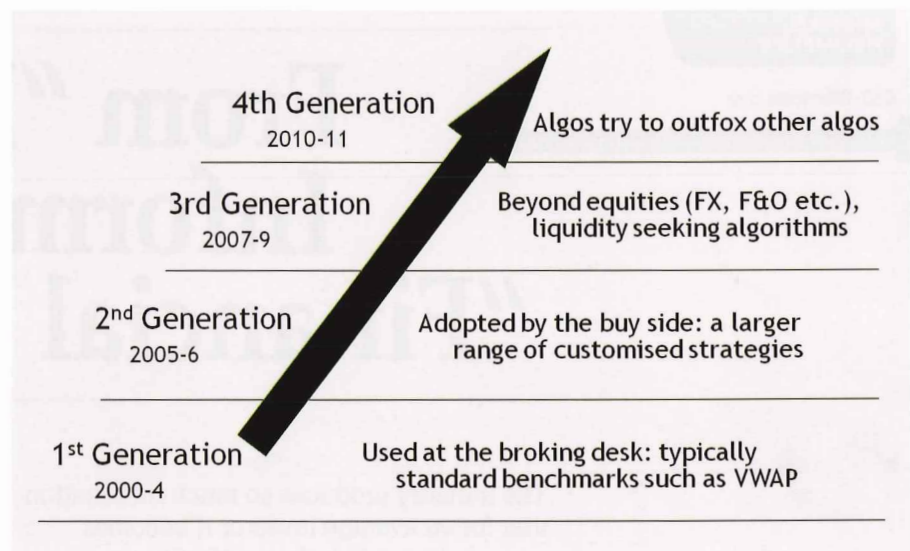
In today's fragmented public markets, lit and dark liquidity pools and internal matching engines by the sell-side, the decision of where to execute your orders becomes crucial. After all, there is a 'Best Execution' requirement increasingly claimed by the investors. Unlike in the old days with centralized public order books on national exchanges, now there are several parameters to take into account for routing an order to the right place at the right time and in the right fashion.

What to do if several market venues advertise the same price for a specific security? How to know which exchange offers the possibility of lower impact for a certain quantity and where are you likely to get the faster execution or even certainty of a complete fill? Taking all the relevant parameters into account, **price alone is no longer the only criteria.**

Algorithms can do the job on condition that all the 'ifs' and 'whens' are carefully integrated into mathematical formulas, which ultimately trigger the various order types. Only the computer is able to do this fast enough in today's low latency environment.

There is no limit to designing algorithms according to specific scenarios and trading strategies. Standard algos are more and more replaced or complemented by myriad specific instruction sets reflecting predictive signals intended to outsmart the other players. **Traders use algos as their weapon, like soldiers in a high tech war.**

Rapid evolution of Algorithms



Modern state of the art trading platforms integrate different ways to take advantage of algorithms. There is the possibility of using preset, standard algos like VWAP, TWAP, etc. Next, firms can send orders to brokers together with an instruction as to which type of the broker's algo must be applied. Finally, such platforms are able to offer an option to conceive individual algos, with the help of very powerful calculation modules, allowing the design of complex formulas.

Newer generation algorithms are, as an example, combining portfolio constraints with price correlations to achieve the most efficient scheduling of the orders. Computers are now also being used to generate trades from news stories about company earnings results or economic statistics fed directly into other computers which trade on the news.

The race goes on, no time to relax in the trading room! ■