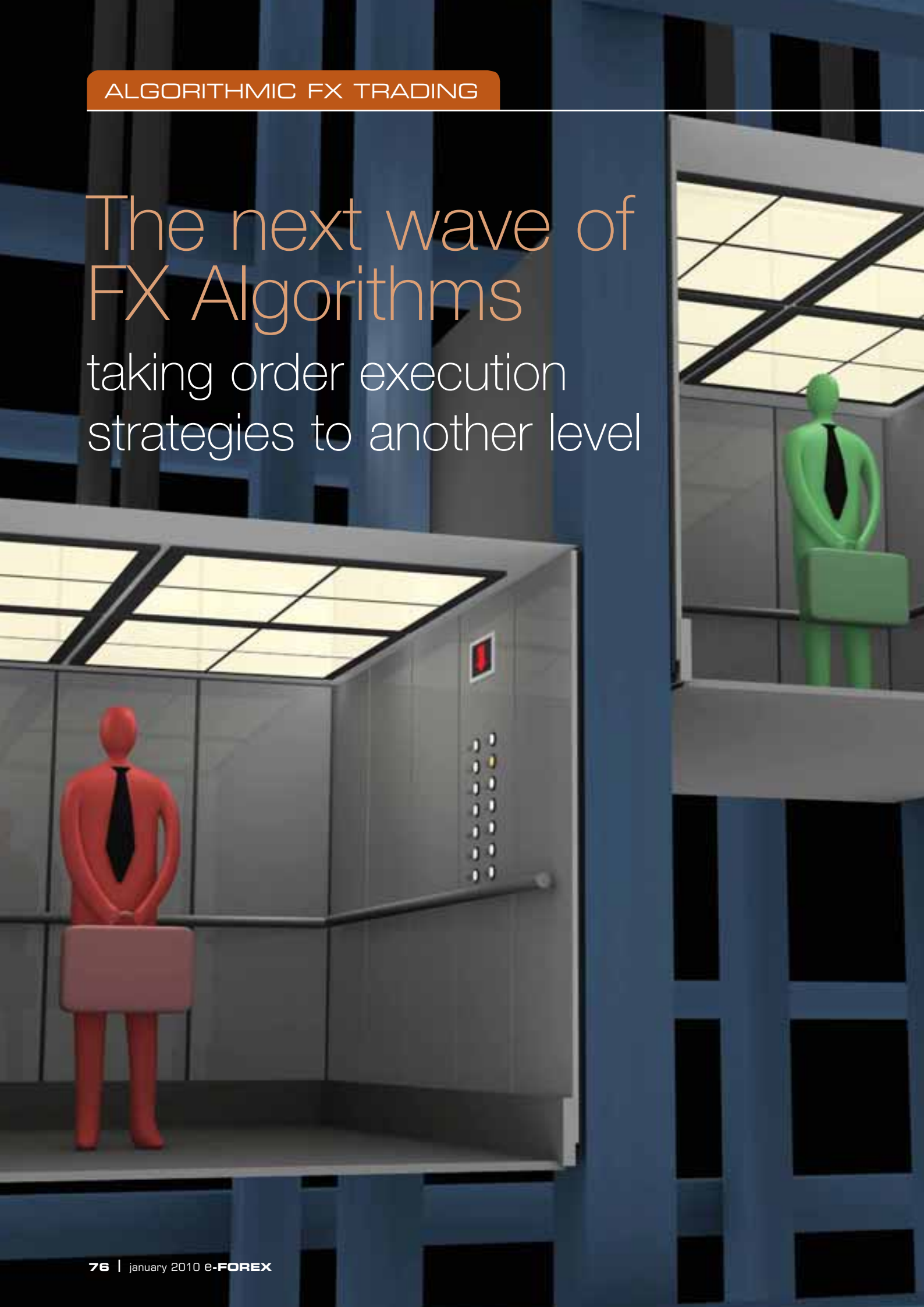
The next wave of FX Algorithms

taking order execution strategies to another level



Nicholas Pratt

What will be the next wave of FX algorithms? Nicholas Pratt charts the development efforts of the leading algo providers to examine how execution strategies in FX can be taken to another level.

It may have not been the greatest year for growth in the capital markets but there have been pockets of positive progress, not least in the FX market and particularly so in terms of algorithmic trading. "FX algorithms have certainly come on in the last few years. Electronic trading in FX has increased, through both multi-bank portals and single bank offerings, and algorithmic trading has been widely adopted, as it has in other asset classes," says Giles Nelson, senior director of strategy and evangelism at Progress Software, a provider of application infrastructure software. There are, of course, a number of different ways that algorithmic trading is used. The classic execution strategy is where traders look to split their order into several smaller trades that are then carried out over a period of time rather than executing all at once – the idea being that any market impact is minimised. "But, of course, the FX market does not have the same market impact issues as in equities because of the excess liquidity and the OTC structure," says Nelson. "In FX it is more about achieving a weighted price than chopping an order into small parts."

Finding liquidity

Another reason for using algorithms is to find liquidity – something which has become far easier for FX traders thanks to the advancements in aggregation. Traders are now able to replace their multi-screen set-up with a single interface that shows all available prices and can also execute on an automated basis, thus freeing up traders and sales staff to focus on more quality tasks or more complex trades. Aggregation, however, is not universally popular among the banks, says Nelson. "They feel that it diminishes their relationship with the dealers. But if they want them to use their single bank offerings, they'll have to be far more innovative and up their game because traders just want the best price."

One way for banks to reclaim the relationship with their customers is to embrace multi-asset trading. Not only will such a move attract the increasing number of buy-side firms using the same platform for all asset classes, it will also reflect the evolution of algorithmic trading. In terms of the next generation of FX algorithms much of the current interest is around the continued growth of multi-asset trading, as Nelson explains. "If you want to buy or sell an equity in dollars but are based in London, you will want to pay in sterling. This means that the best time to trade will be somewhat dependant on the exchange rate. You do not want to think you have a good price for the asset and then find the FX rate has changed. Instead you want to wrap that trade all up in one so the exchange rate does

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not become an unhelpful variable in the execution. Multi-asset trading is still an emerging area," says Nelson. "Many brokers are still very siloed when it comes to different asset classes, however we are seeing some of the barriers coming down, particularly when it comes to equities and derivatives."

Second-mover advantage

In many ways, the FX market is just following what has already taken off in other asset classes but this slower pace of development does have its benefits when it comes to implementing algorithmic trading tools – a kind of second –mover advantage, says Nelson. "Electronic trading has only really become popular in the last few years so this means that there are not the legacy systems that exist in equities. FX firms trading electronically and looking at adding algorithmic trading capability can adopt the latest technology and implement it much quicker."

Nelson points to the example of aggregation where multiple liquidity pools are displayed on one screen. "Aggregation is possible because there are these different venues that are all easily accessed through electronic trading. But in equities there are all of these different alternative venues like Turquoise and Chi-X which are all different. You may not get the same range of choice in FX but in aggregation terms, it has a more modern infrastructure and is a less complex product." While FX is undoubtedly a less complex product, there are nonetheless drawbacks in applying algorithms to the emerging currencies which are far less liquid than their G7 counterparts. However, says Nelson, these obstacles can be overcome through the use of synthetic currency pairs. "For example, if you wanted to pair the Serbian dinar with the Brazilian real, you would be hard pressed to find a bank willing to arrange that currency pair. But if you were to trade both currencies against the dollar, you would then have two liquid trades rather than one illiquid trade and you simply tell the algorithm that it is a dinar/real trade. All of this can be done through new software and it makes it easier to get a good price for this currency pair."

What is beyond doubt, says Nelson, is that black box algorithms should be a thing of the past. "A lot of firms may start with a black box but eventually they will want to do something different and change the way their orders are traded. Being able to alter the algorithms is such an important feature. As the industry matures and becomes more accustomed to using algorithms, it will be easier to make money if you don't have the same algorithms as everybody else. There are broker-supplied algorithms that traders may get for free and are easy to set up but they are the same as everyone else's. You really need an algorithmic trading set up that enables you to create your own algorithms."

Work in progress

Despite the great progress made in the development of FX algorithms, the majority that are used are still works in progress, says David Hastings, global head of FX sales at FlexTrade, a broker-neutral provider of algorithms for multiple asset classes. "There are still the two camps in terms of algo users – those who are using them to add alpha and those who are using them to trade more opportunistically. More recently we are seeing a greater interest in the latter, although overall we are not seeing any developments that are to dramatic."

The development of the algorithms is also dependant somewhat on how the various liquidity providers in the market have set themselves up, says Hastings, particularly if they have embraced aggregation rather than remaining opposed to the idea of consolidated displays of prices. "Some of the larger banks are more particular about how their flow is displayed. But ultimately the decision of whether to open the bank's flow to aggregation will be driven by clients rather than the banks themselves. Eventually I think most banks will have to embrace aggregation."

One of the banks' concerns with the rise of aggregated, electronic pricing is that customers will now be guided solely by price and will be unconcerned by the identity of the sell-side counterpart in a currency trade, thus threatening the 'relationship' aspect that has

underpinned the FX market for decades. But Hastings believes the claims that relationship banking will cease to exist is wide of the mark. "The prices in the FX market are heavily commoditised at the moment and I think those relationships still exist." If anything, the rise of electronic and algorithmic trading could well strengthen the relationship between sell-side banks and brokers and their buy-side customers. "All e-commerce has ever done is allow the sales staff to focus on doing what they are good at, which is about talking to their customers."

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Algorithmic trading has of course been around in the equities market for longer than it has been in FX and while many aspects of the algorithms are easily translated from one asset class to another, this is not the case for all of them. For example, stealth algorithms have become more popular in equities due to the need for traders to reduce their market impact and restrict any unhelpful price movements that may result from making their trading intentions known. Equally in demand in the equities space are algorithms for discovering hidden or dark liquidity as off-exchange liquidity and dark pools continue to thrive in the post-MiFID era.

However the OTC nature of the FX market and the relatively huge levels of liquidity means that market impact and hidden liquidity are minor issues for FX traders. Nevertheless, says Hastings, these are some developments in these areas. "There has always been a fear among all traders when it comes to executing their trades and they want to keep their cards close to their chest. But it will take longer for stealth algorithms to make an impact in the FX market." Right now it is the multi-asset trading firms that are using FX as an alpha-generating asset class that will have most interest in stealth algorithms. The algos they are currently using are more juvenile and immature and are based on simple VWAP or TWAP strategies but the more the multi-asset traders get involved in the FX market, the more sophisticated the algorithms will become.

"We do have a stealth algorithm that is available and we are seeing some interest from FX traders but it is more interest than active adoption. I think everyone wants to wait and see how it pans out. For all of these trading strategies that have come from the equities world, it takes some time for them to be adapted to the FX market. You cannot simply flick a switch and make equities algorithms work in the FX market. There is a lot more manipulation of the order that needs to be done. You are able to slice and dice an FX order far more than in the relative restricted equities world. The algorithms may be on the same baseline but I think there will be far more modifications and adaptations for FX algorithms."

More exotic strategies

Another growing area in FX trading involves emerging currencies and alternative FX order types, such as FX options. Will FX algorithms also be able to cater for these more exotic trading strategies as well as the vanilla side of the business? "I find it hard to believe that liquidity providers will completely embrace the practice of streaming a price in large quantity for some of the emerging currency pairs out there. If I was trading an emerging currency pair, I wouldn't want a price for a large amount accessable for a long period of time. The ability to manage or hedge that risk becomes more complex because of the lack of liquidity around these currencies," says Hastings.

As for FX options, these have been a holy grail for any multi-bank offering, says Hastings. "There is a lot of dialogue and negotiation between counterparties needed for an option and streaming volatility does not answer all the idiosyncrasies associated with these instruments. I think they will be incorporated into the FX algorithms world but we are not there yet."

Many of the latest generation of algorithms have more of an emphasis on highly technical trading rather than just the fundamentals, says Joey Horowitz, chief technology officer at Aegisoft a provider of global trading solutions, software and professional services Similarly the algos have also become much more market aware. "As more venues have come onto the market, it is important that the algos reflect the

differences between each venue. The key is to keep the reject rate low and not be fooled by misleading market data that can cause you to leak out your trading intentions to the market. Algorithms have become better and smarter at recognizing this."

When traders complain that they are not getting a high enough fill rate, it is up to the technologists to solve that problem, says Horowitz. So they have to look into why the fill rates are often low and then change the logic of the algorithms to make them more effective. "Sometimes it is down to the speed of the technology but other times it is down to the fact that the market data is not consistent with the dealable liquidity, this is especially true when execution venues are not sending the market data quick enough. This was not always evident in the equities and fixed income markets but it soon became clear in FX. The fastest algo is not always the best in FX because it's frequently more important to handle the different characteristics of the various trading venues."

Again, this point demonstrates that an algorithm that works in one asset class cannot simply be dumped into the FX market and be expected to perform to the same level. "FX algos have to be smart and much more intelligent than other performance-based algorithms," says Horowitz. Similarly the popularity of dark and hidden liquidity algos in equities has not crossed over to the FX market yet but, says Horowitz, there is an increasing interest from FX traders on including and aggregating more direct bank venues in order to draw on more liquidity. Consequently Aegisoft has developed new technology to aggregate the full liquidity from all single-bank venue platforms, regardless of how they stream them, and to enable banks to stream a second set of prices that, if dealt, will prevent the trader from trading at another venue for an agreed amount of time. "This feature frees the banks to offer large quantities at better prices and with less risk to the bank; the bank receives the whole deal and the bank's client can't move the market at the same time," says Horowitz.

Synthetics

When it comes to the issue of using FX algos in the pursuit of less commoditised currency products, such as FX options or emerging market pairs, Horowitz is far more bullish than others. "Algos are being used heavily for these types of products. The ability to run synthetic currency crosses is a big deal for our clients and this is why they have driven us to provide this capability on an out-of-box basis." Aegisoft also provides for cross-asset trading where the algos run on both the outright and the synthetic - taking an FX future and converting it into a spot equivalent. For example, "if I'm trading a Euro/Yen currency cross, I could trade that outright, synthetically or through a series of FX futures. Bringing in all these possibilities, analysing them and presenting them on a graphical front end for traders to use and via an API for algos to use is what we are all about."

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In terms of how algorithms can help FX trading firms meet their different execution timeframe and visibility preferences, Horowitz says he is seeing much more use of 'synthetic' algorithms that can only be executed over an FX aggregating platform, such as synthetic icebergs. "We also see that traders prefer not to watch orders as much as algorithms. They want to make a decision, fire off an algorithm and be alerted when it trades or other changes happen. It's much easier to deal with algorithms than orders. Algorithms remove a lot of the manual drudgery, so traders can focus on the goal, and less so the mechanics." Horowitz adds to really understand the phenomenon of advanced FX algorithms being deployed by major sell-side banks and broker dealers one should speak with several of Aegisoft's premier customers such as Citi, which has its Silent Partner and Ripple Algorithms.

One recent phenomenon in the world of FX algorithms has been the development work taking place at the major sell-side banks and broker dealers. According to Mark Sykes, director, Foreign Exchange at Citi, we are now seeing second and third generation algorithms that are able to operate opportunistically so as to more efficiently match implementation strategies with the investment objectives of the users.

"The primary objective of the execution strategy is always to ensure that the balance of the speed of execution versus the risks of showing the flow to the external market is perfectly balanced," says Sykes. "Attempts to get an execution done faster inevitably lead to adverse price movements as your intentions become exposed; this is particularly true of more illiquid currency pairs in the emerging market space which demonstrate a very high signal to noise ratio in their price action. Second and third generation execution algorithms have had immense amounts of intellectual capital embedded within them, massive investments in quantitative analysis, all with the aim of ensuring that this balance is perfectly achieved. Looking forward, I would expect more sophistication in this area, particularly in the way that short term price and flow patterns are recognised by the execution algos, and subsequently acted upon."

As with any market innovation, says Sykes, some speculators will attempt to use it to their advantage in order to generate alpha and FX algorithms are no different. "For every execution methodology, be it by a manual spot trader or a black box, there are many, many systemic trading houses monitoring market data, attempting to detect patterns, and subsequently act upon them. The easiest flow to detect and monetise is of course that of the manual trader. Throughout history, mankind has demonstrated a wonderful disregard for history and simply repeated the same mistakes time after time. This trait is the mainstay of algorithmic houses," says Sykes.

James Dalton

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Consequently, says Sykes, there is a legitimate demand for the 'stealth' algorithms that have been so prevalent in the equities market as a means of defence against the above mentioned traits. "Automated execution brings its own set of patterns and behaviours, which again, other algorithms are attempting to model and trade off. The prevalence and important of the stealth algorithm within this context cannot be overstated. Citi has already released Ripple and Silent Partner, specifically to provide an effective defence against these market characteristics, and a further two are due to be launched in the near future."

There is no 'one-size-fits-all-strategies' principle that can be applied to FX algorithms, says James Dalton, director, FX algorithmic Execution at Citi. For example, those looking to take 10-20 pips profit on a position over a number of minutes will find limited use in a simple liquidity seeking algo, however there are those on the market that are designed to be more opportunistic in nature and more relevant for an active trader working during the peak liquidity hours,

Kim Bang

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says Dalton. "As a general rule the more aggressive strategies will suit the active intra-day traders and the passive strategies are more about providing 'best execution' to those who look to enter positions that are held for a day or longer. For passive execution where you may be adjusting a hedge position or shifting funds to settle fixed income or equity trades, it is all about minimising your transaction costs over a portfolio of trades."

Future developments

As for future developments, Dalton believes that current efforts to extend the applications of algorithms to less commoditised currency products, such as FX options and emerging market pairs, will eventually bear fruit. "This will happen over time but the reality is that right now many of the products have insufficient liquidity available in electronic venues to be able to match the service that voice brokers can offer." And despite the obvious differences between the FX market and other asset classes, Dalton still feels there are lessons that can be learned and applied to FX from the continuing development of algos in other markets. "There is plenty to be taken from the other markets in terms of connectivity to multiple venues and smart order routing, order placement strategy and cloaking techniques. However, with FX the range of different market participants and the presence of large global players who are almost exchanges unto themselves, brings a unique set of challenges to the table."

Another provider of algorithms for multiple asset classes is Bloomberg Tradebook which operates on an agency brokerage basis. According to president and chief executive Kim Bang, Tradebook is increasingly offering execution strategies based on the ability to handle large institutional block orders that source from multiple liquidity venues – lit, dark and neutral – and opportunistically chase available blocks or otherwise work smaller orders for spread capture. "More than ever institutional investors are searching for ways to minimise execution costs and to overlay alpha generating FX programs. By employing an anonymous electronic agency broker with direct market access (DMA) and algorithmic strategies it is possible to reduce implementation costs significantly when compared to traditional execution providers."

Today's algorithms are also better able to help FX trading firms to meet their different execution timeframe and visibility preferences, says Bang. "The key with the algos developed today is the level of control, flexibility and customisation they provide traders. Depending on the currency pair, there are known periods of the day that they are most active and an FX trader is likely to find the deepest liquidity. These times may not be ideal based on that specific trader's region or time zone. So the ability to set time-queued orders and specific start and end conditions for specific algorithms has enhanced the ability of the FX community to seek better executions and execute orders throughout the day."