

Simplifying the Complex: Making Algos More Accessible



Events elsewhere in the industry are conspiring to focus greater attention on the use of algorithmic strategies for execution. Colin Lambert talks to providers who are seeking to make the algo more accessible.

“I would like to use algos, but there are so many out there I wouldn’t know where to start.”

“Many of the algos available off-the-shelf from providers are too simplistic – they don’t allow me to leverage my team’s market knowledge and expertise because all we do is ‘give up’ the order the way we would a deal to our prime broker.”

These two statements, made by two different members of what is usually referred to as the buy side of the foreign exchange market, highlight the challenge facing providers of algorithmic execution solutions. On one hand, there seems a staggering breadth of product; on the other, much of this product is judged too simplistic for use by top end clients.

The last year has, according to banking sources, seen a strong uptake in the use of algo execution by customers, but most accept there is more work to be done and the starting point for that work is making the strategies more accessible. Competition is strong, especially given how independent, non-bank providers such as ITG and Pragma Securities are moving from their traditional stronghold of equities into foreign exchange. But with this competition has come confusion.

Generally speaking, the confusion is mainly down to the need to market a product, allied to a lack of communication in what remains the nascent time for algo execution. Most providers speak in terms of providing “simple” solutions, while stressing that more complex, bespoke work is also

part of their arsenal. The problem is that the “simple” solutions all have original names, meaning clients talking to just three or four banks have upwards of 15 different strategies to choose from – a choice that can become too onerous when justifying their adoption to those higher up the firm’s hierarchy.

Why Algos?

Typically algorithmic execution is promoted as a method to execute larger tickets into the market without the order being discovered. The definition of “larger” varies from market to market, but the core principal is that using algos can reduce signalling risk – whereby other algos and pricing engines “sniff out” the order by recognising patterns of execution.

“We use algos primarily to minimise market impact,” explains the head of trading at a US hedge fund. “Costs, primarily in the form of slippage, eat up alpha, so anything we can do to reduce information leakage and signalling risk has a positive impact on our bottom line.”

One way to reduce market presence is to adopt one of the hybrid algorithms offered by banks – a service many believe is their ultimate differentiator. “Hybrid liquidity makes sense because you want to offer clients the best market access you can,” explains James Taylor, head of fixed income e-commerce sales at JP Morgan. “We have a tremendous amount of flow through our FX business, so it makes sense to offer clients the



opportunity to access this as part of their algorithmic execution, as well as external liquidity.”

With internalisation rates at banks so high, especially in the G3 currency pairs, the hybrid approach would appear to make sense, and it is in this area that so much development has been done in recent years. Initially banks offered market access algos, that allowed clients to hit across an aggregated pool of liquidity – the bank’s window on the FX market – or those that allowed them to passively place bids and offers.

These initial algos remain the backbone of most offerings with the most popular being the Time Weighted Average Price (TWAP) and Volume Weighted Average Price (VWAP) strategies. Taylor points out that in equities markets something like 80% of participants use basic algo strategies to execute into a fragmented market.

TWAP is based upon the “egg-timer” methodology, whereby the algo buys or sells in the market at pre-determined intervals for a pre-determined period, thus allowing the client to execute at a market average over a period of time. To help avert signalling risk, most TWAP strategies come with a randomiser that adjusts the window between trades to throw off pricing engines and “sniffer” algos searching for patterns of activity.

VWAP strategies are aimed at shielding market activity as they ensure that the executing party only shows a certain amount of liquidity or aggresses a portion of the market. The VWAP strategy is an example of so-called “participation algos”, strategies that seek to limit an order’s impact by being, for

example, 20% of passive liquidity at any time or only hitting 50% of available liquidity if it is being aggressive.

Three other basic strategies have developed from those initial offerings. One is the Pegged strategy, whereby the algo posts a bid or offer at a certain level in relation to the current market and the algo automatically moves the order up and down with the wider market. This is a passive strategy and as such there are risks that the order does not get filled – in the majority of cases, however, these strategies also offer a function that allows the algo to aggress the market if it has not already been hit on the bid or offer within a certain timeframe.

While the Pegged strategy has elements of the TWAP about it, in that sub-orders are executed to a timeframe if it has not passively dealt within that timeframe, the same can also be said about the fourth basic type of algo strategy, the Iceberg or hidden order. This allows participants to be on the bid or offer but only show part of the order to the market. While the strategy remains passive, it generally has the ability to access surplus liquidity if it enters the market, all the time remaining “dark”. A derivative of the Iceberg order is execution, or the placing of bids and offers, into dark pools (see related story).

The fifth order type is very simple – an aggressive algo that sweeps the market quickly for as much liquidity as is available.

As most providers will tell you, this is where the complexity of algorithmic strategies ends apart from one crucial element – the proprietary strategy that all providers must offer. This strategy typically is very intuitive and adaptive to market

Algo Execution



James Taylor



Asif Razaq



Pete Eggleston



Evangelos Maniatopoulos

conditions and effectively allows the algo to control the strategy. This strategy is the area of competition between most providers as all can use it to deliver what is colloquially known as the “special sauce”.

Decisions, Decisions, Decisions

All providers offer bespoke services where they liaise with clients to build tailored strategies, but – just as with the basic strategies – everything starts with the initial target. “Clients’ starting point has to be their trading objectives and what they want to benchmark their execution to,” says Pete Eggleston, head of Morgan Stanley’s QSI Group. “Once we have that, we can consult with them and help them deliver performance that allows them to achieve that benchmark – it’s a real partnership across the entirety of the execution process.”

The next decision needing to be made is the type of algo offered – specifically pure agency or a blend of agency and principal – and then the actual strategy.

There are two schools of thought surrounding the agency, versus blended, approach. Banks such as BNP Paribas (through its Cortex iX suite of products), Citi (Intelligent Orders), and Credit Suisse (through its AES, or Advanced Execution Services, franchise) have established business units to offer agency execution, while others prefer to offer execution strategies as part of the bank’s wider order offering – the aforementioned hybrid approach.

“There is a strict division between the agency and principal business at Credit Suisse,” explains Evangelos Maniatopoulos, global head of AES FX product and trading at the bank. “Information barriers are in place to ensure that the AES FX flows are locked down, no-one has access apart from the dedicated AES FX desk. Customers are offered the flexibility to have their AES FX orders access Credit Suisse liquidity, but even this is done in a way that does not compromise client anonymity or best execution. No client information goes outside AES FX.”

It is a similar picture at BNP Paribas. Asif Razaq, global head of FX algo execution at the bank, says, “Our algo execution business is totally hidden from BNP Paribas’ trading and sales teams. If clients are taking market risk – it is imperative that the order is kept confidential to minimise the risk of information leakage. We have a 24/5 dedicated support team for Cortex iX that clients can contact. This team has no trading capability and are merely there to assist clients with any queries related to their algo order.”

Just as pure agency strategies can interact with the bank provider’s liquidity, those using the blended approach – wherein the strategy is just another order type on the platform – can also elect not to engage with bank liquidity. “You have to

provide the client with flexibility,” argues an algo provider at a bank in London. “Clients should be able to use the data and analysis available to choose where they want to execute – do they want to prioritise the primary market venue for a currency pair? Or, more simply, do they want to leave the order to the smart order router [SOR], which uses real-time analysis of price action to assess the likely impact of the order on the market and liquidity levels before executing on different venues?”

Another approach prospective clients can adopt is to select an independent provider of execution services. Pragma Securities has recently added FX solutions to its suite of algorithmic execution services, having built its business in equity markets. David Mechner, co-founder and CEO of Pragma Trading, stresses the firm is a provider of execution services and does not indulge in proprietary trading. “We have a strong track record of providing solutions to both the buy and sell side, a service that is not just based upon providing technology infrastructure but a deep understanding of financial markets,” he says. “We have eight PhDs looking at the market microstructure. Our background is in North American and European futures and equities markets, but we have had a lot of demand from people in the FX industry to extend our service and bring our expertise to that market.”

Mechner sees Pragma’s independence as its differentiator. “We are totally broker neutral,” he observes. “It is important to be independent and our value proposition is vastly different to banks. We are aligned with the client; we are not looking to internalise flow, which means we are unconflicted when it comes to routing orders.

“We believe our independence means we can provide superior algos to clients because we are able to work closely with them to take their execution quality to the next level,” he continues. “The market has become a little saturated with bank algos and there are few, if any, independent providers with our level of experience and sophistication – I think this places us in a very strong position.”

Although algo execution has been on offer for several years now, the basic nature of the underlying strategies means that the differentiator, and thus the area in which most work is done, is the SOR and the associated analysis that drives that engine. “It is all about giving the client the best possible view of the market if you are in the agency execution business,” explains Credit Suisse’s Maniatopoulos. “This picture feeds into your smart order router, which is something we have done a lot of work on over the past year as we believe you have to constantly study the market and how your algos are working if you are to remain cutting edge.”

Pragma’s Mechner has no doubt as to the importance of SOR, “Routing is certainly an important driver of execution

quality – not just taking at the best price, but knowing where to post at what price and when. We think our routing capabilities differentiate us because we approach routing from a research-driven perspective, without the conflict of wanting to internalise.”

Building Confidence

Although the last year has seen an increase in the numbers of clients using algo execution, it remains a work in hand to convince a large number on the sidelines of their value. This means building confidence in how the strategies work, explaining their benefits, as well as the safety measures in place. As one bank provider points out, “There is still the fear of the rogue algo out there – no one wants to be the headline.”

The confidence comes in the form of transparency, education and performance. “We spend a lot of time ensuring that clients understand the benefits and considerations surrounding both the use of algos and the individual strategies,” says JPM’s Taylor.

For Maniatopoulos the crucial element is transaction cost analysis (TCA). “The transparency TCA brings – the two are inseparable – are vital to building confidence, especially if they are using agency models. Customers expect transparent data in TCA, the more data that can be provided the more complete your analysis is, which of course leads to higher quality conclusions. Arrival price, exit price, time weighted average price, the market impact are just a few of the data points that the client execution teams can use to prove they fulfilled their best execution requirements. That is what the use of algos is really all about.”

Morgan Stanley’s Eggleston agrees and points out, “Algos are all about liquidity analysis and a rigorous and ongoing analysis of how they are performing. The TCA model helps the client understand their value.

“We are having more detailed conversations with clients over why people should use FX algos and about how they can help reduce signalling risk, market impact in the public market and information leakage,” he adds. “We have a real focus on consulting with the client and delivering content via Matrix, so we are able to cut out unnecessary actions and bring efficiency

to the client workflow – that really helps in building client confidence in using these products.”

The crucial element in building user numbers when it comes to algos remains keeping it simple; however, many customers are new to the use of these strategies and as such want to dip their toes in the water first before diving in. “We have deliberately kept our algos simple to use,” says Matt Clarke, e-FX sales at Barclays. “We offer anonymity, flexibility, transparency and the opportunity to minimise market footprint; there is no jargon, just a straight explanation of what the strategy does. Clients only need to select the timeframe they want to execute in. It is important that people can see what they are doing when using these products.”

As to why simplicity is important, Taylor notes, “For those clients using the basic strategies who are feeling their way into the use of algos it is important. If they are asked why they used a particular strategy, that they can explain what it does and why they chose it. If things get too complex it can be detrimental to some clients’ interests, which is not what you want as a provider.”

Growing Demand

The immediate challenge for algo providers remains growing client interest in the products; however, once that is achieved, experience seems to indicate that once they are on the first rung of the ladder, clients want to move up quickly. The general perception is that once the basic algos have had an opportunity to demonstrate their worth, users – assuming they are allowed to move beyond TWAP and VWAP – quickly demand more flexibility.

Typically, while liquidity seeking strategies are becoming more popular, the TWAP remains the most widely used; however, Maniatopoulos suggests that participative algos are attracting growing interest. “There is a big desire on the part of clients to use algos that trade aggressively, while at the same time control market impact,” he says. “As part of this, clients are increasingly asking for more flexibility that allows them to change strategies on the fly, during execution.”

Another trend is for clients to access algo strategies on public platforms. All providers offer their strategies on venues such as FXall, FX Connect, Bloomberg and TradingScreen, but even here there is demand for something extra. “Some clients

Algos – The Basics

TWAP – Time Weighted Average Price

A strategy designed to execute at regular intervals by slicing up a larger order into much smaller sub-orders, which are executed according to a pre-determined schedule. Most TWAPs aim to be passive, but if a sub-order is not filled within a time window it will aggrage the market.

VWAP – Volume Weighted Average Price

Much like the TWAP this strategy attempts to be passive but will also cross the spread if necessary; however, unlike TWAP, this is a participative algo that executes according to market liquidity conditions and as such is measured against market volume and price, rather than the price across a set time horizon.

Float/Pegged

The Float or Pegged order is typically passive and allows users to place bids or offers at certain levels relative to the market, which can be a certain number of pips below the bid (or above the offer), at the bid or offer or within the spread depending upon the level of aggressiveness desired by the user.

Liquidity Seekers

These strategies come in many different guises (see table of providers), but generally are aggressive algos aimed at executing

orders quickly and across multiple liquidity sources. The two main flavours of this strategy are: the hidden, opportunistic order that does not show in the market, but takes liquidity as and when it becomes available; and the overt, market sweeping algo that takes bids or offers across all liquidity sources simultaneously.

Iceberg

This has become something of a sub-strategy over the past couple of years as the strategy underpins so many other algos. An Iceberg is a participative algo that posts an order to the market in full size, but only shows a certain percentage of that order publicly. It is generally passive, but can take advantage of excess liquidity that may enter the market at the right level by raising the participation rate or aggressing the bid/offer.

The “Special Sauce”

Most providers will also offer a proprietary, dynamic algo order type. Typically this will involve elements of the basic strategies, allied to the ability to post into a provider’s internalisation process. These algos are typically adaptive, meaning they automatically adjust to market and liquidity conditions and as such they have many elements that suggest they are a pure agency model where the client gives up control.

[We need] to bring clients up the curve...demonstrate the value of algos [and] be an informed, innovative partner when more sophisticated clients demand it

cannot trade on our single dealer platform due to their strict execution policies,” explains BNP Paribas’ Razaq. “This means they have to use a multi-dealer platform and cannot access iX’s unique interactive features. To solve this, we built a read-only version of Cortex that satisfies these strict policies, which has proved very popular.

“They select and submit the strategy from their chosen multi-dealer platform and then switch to Cortex that enables them to manage the order in real time,” he continues. “It also now provides access to all the interactive functionality of iX. The user interface and features are much richer on Cortex and cannot be offered on multi-dealer platforms. Once the order is complete, the settlement and STP will still flow back to the multi-dealer platform as normal.”

Certainly workflow efficiency is a major aspect of service providers’ value proposition. “By integrating our QSI analytics into the clients’ workflow we provide flexibility,” explains Morgan Stanley’s Eggleston. “Clients can take the pieces they want and embed them which means they get the benefits of those services they require and nothing else. It means we have to be flexible in how we deliver product, but the efficiencies that can be gained for the client are worth the effort.”

Another aspect of growing demand among clients will be increased competition with banks still striving to launch proprietary products and third party providers also hard at work building market share. Competition between banks is likely to come down to who can best offer customisation services and be quick to market, although providers at the top four banks claim an existing advantage in their market footprint.

The competition between banks and third party providers is a little less obvious. “We are positioned as a neutral provider, and although some banks do provide algorithms, we have largely had a positive response from dealers,” says Pragma’s Mechner. “We are ultimately a conduit – we facilitate banks receiving flow from their clients. We are not inter-positioning ourselves in the transaction between bank and client, and not using our position to internalise order flow. We are just acting as a fair agent and helping our clients navigate the fragmented market structure.

“It’s also worth noting that we will be providing algorithms to some banks themselves, who want to use better tools

internally or offer their clients more advanced trading tools but don’t necessarily have the expertise or specialised resources in-house to do so,” he adds.

There are those, however, who believe competition is unnecessary. “We may see a time when algos are standardised and offered on one venue for clients to access via API,” suggests a senior e-FX trader. “If we can combine this with better market data, then the TCA becomes the proving ground for differentiation. Customers will be able to judge, on a level playing field, who actually does provide best execution.”

Others are less sure. “We want competition because that breeds innovation and good ideas,” notes the US hedge fund trader. “I understand the benefit in getting more people using algos, but there are plenty of users out there that want something much more complicated. Standardisation doesn’t help – it drives top end clients into the arms of independents or into developing algos themselves.”

Either way, as the senior e-FX trader points out, “Algos are meant to offer better execution, otherwise they are worthless, that is what it is all about.”

Mechner agrees, “The ultimate objective is execution quality. But the table stakes are robust technology infrastructure, high level of service, and reliable algorithmic behaviour that makes clients comfortable using the tool. In addition there is a range of peripheral functionality – flexible front end, risk checks and TCA – that from a workflow perspective are also critical. Execution quality is the objective, but you need the whole package to make it practical.”

Execution quality is very much the idea behind the provision of algo products, but, to return to the top of the story, in some cases it has led to a degree of confusion. Looking ahead the winners in this space will no doubt be able to offer technology and a range of strategies to meet the needs of the masses and those requiring bespoke work.

This is recognised by JPM’s Taylor, who concludes, “Our responsibility is to bring clients up the curve where necessary and demonstrate the value of algos, as well as to be an informed, innovative partner when more sophisticated clients demand it.”

Algos – Nothing New?

Although the technology behind most algorithmic execution strategies is complex, the basic premise of the strategies is not. Although faster, the techniques used are very similar to those that have been used by voice traders for decades.

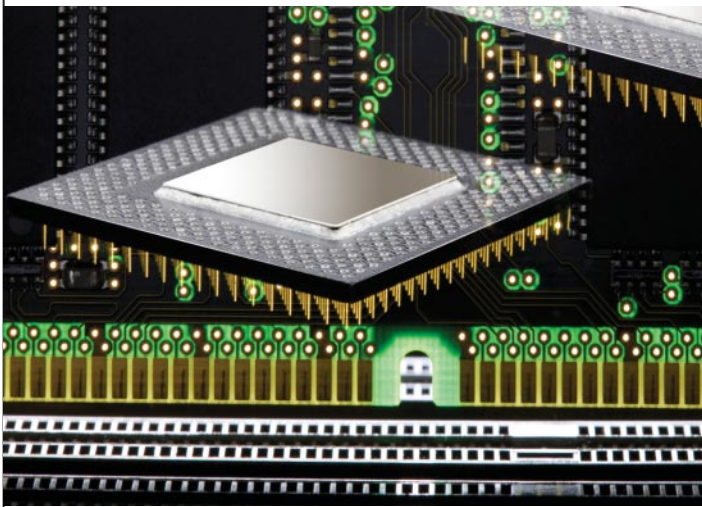
For example, a voice trader at a major bank with a large order would rarely, if ever, call another bank for a price in the full amount. They would drip feed the order into the market over a period of time, using different channels. These channels were passive – bidding or offering in the broker or on an ECN; or aggressive – calling other liquidity providers direct or aggressing the brokers or ECN.

In addition, the voice trader would often “iceberg” their interest by showing a bid/offer in a small amount to the inter-dealer broker, but telling them confidentially that they “would do more” if they are hit. This allowed them to take excess liquidity without being seen to be aggressive. All other market participants heard was “given at xx” or “taken at xx” with no amount mentioned.

Voice traders could also internalise flow by skewing their price when asked direct (but not on a public venue) to get hit by other aggressors on the bid/offer. The smart order router role was played by the voice dealer but also, occasionally, by the voice broker, who would split a larger price request into smaller packets to get tighter spreads for their customer and then hit the appropriate prices.

These techniques have now been translated into the modern automated market and the algo strategies are now, in the predominantly electronic spot markets at least, becoming better at understanding liquidity conditions and the likely impact of an order – again a skill the voice trader had to have to survive in the manual, voice-driven days.

There is, without doubt, a lot of product on the street when it comes to algo strategies, so those that may be confused by the different names of products could do worse (if they are old enough!) than translate the strategies back to the voice era. All will become clear!



Adding Complexity

While much of the attention is currently on increasing user numbers of algo execution strategies, there is a smaller, more sophisticated group that is ready to move onto more complex strategies. Beyond that, yet another, even smaller, group is seeking to create bespoke strategies that effectively deploy agency style models on a provider's platform, thus retaining the all important anonymity of execution.

Providers are keen to stress that algo execution tools are not a "one-size-fits-all" solution and that within the product boundaries many different flavours have to exist to meet the needs of users with varying sophistication levels. Whilst the main effort is about simplifying algos for general use, this work has gone alongside other efforts to build in optionality.

However, David Mechner, co-founder and CEO of Pragma Securities, points out that algos should perform very well, be straightforward to use and not simplified for general use. "Customisation is not always an indicator of sophistication – sometimes clients want customised behaviour because they have specific beliefs about how the markets or their tools work," he says. "Often the most sophisticated, systematic clients want the simplest, most stripped-down algorithms.

"We start with a set of core strategies, but the flexibility of infrastructure means we can configure and customise strategies for those clients that require it," he continues. "Some clients have specific views on trading, or how they want their algorithms to behave, and we have the ability to tailor our strategies to meet those needs."

The head of sales at a bank algo provider in London adds, "Having the basic strategies in place is an important starting point, but you need to be able to give the client more control when they want it. There are a lot of things you can do with a basic algo strategy."

Credit Suisse retains an element of first mover advantage according to users of algos, thanks to its early adoption of the bank's Advanced Execution Services (AES) which started in the equities world. "We have always offered a wide range of strategies to help clients understand the different levels of flexibility available around an order," explains Evangelos Maniatopoulos, head of AES FX product and trading at Credit Suisse. "Recently we have added more sophisticated filters to

our strategies, by way of enhancing our "I Would" offering and introducing "Stop Hunting" features"

The "I Would" function allows users to set levels at which they can act if the market hits a certain level, either in their favour or against them. This can be a "fill and kill" option, wherein the order is executed aggressively and quickly – effectively a stop loss on an algo order function – or more simply just changing the nature of the execution from passive to aggressive or from one strategy to another.

The "Stop Hunting" protection is more complex. "Stop protection allows us to leverage our knowledge and view of the market to avoid having clients' orders triggered at certain levels," explains Maniatopoulos. "Markets behave in a certain fashion around stop levels, so we allow clients to set a certain level of discretion within which the order is not triggered.

"This is a very valuable nuance for clients because so often markets hit stop levels and rebound," he adds.

A fairly recent trend in algo execution services has been to offer adaptive algos. "Our first products were third generation adaptive algos that learn from their environment," says Asif Razaq, global head of FX algo execution at BNP Paribas. "They are easy for clients to use in that they are a bundled offering of several other strategies, which means they are accessible because they are easy to understand yet allow the client to benefit from the algo's sophisticated view of the market.

"Over the past year, our clients were telling us that they liked using these algos but that they wanted to be able to establish a timeframe they could operate in," he continues. "We provided this – it is effectively just an overlay on the basic strategies – but we also provided a speedometer so clients can interact with the algo while it is operating by dialling the speed up or down. Of course, to do this, it is important that clients get real time information from the algo as to how it is operating so they are informed if and when they make a decision to change the speed of execution."

While sophisticated users are the target of the more complex algorithmic strategies, most providers agree that as clients currently using basic strategies become more comfortable they will gyrate naturally towards using more of the filters and triggers available.

Beyond there lies another, even more sophisticated group that like to do the work themselves, but are happy to work with select providers. "I have yet to find an off-the-shelf algo, with all the bells and whistles that are on offer, that can provide the performance of our in-house developed models," observes the head of trading at a US hedge fund. "We like to engage the developers at the banks as well as independent firms while we are developing strategies and analysing existing algos, but we prefer to have the work done where we have absolute control. That said, there is value in being able to have a strategy hosted by a third party to provide anonymity."

Professional execution desks at asset managers are also eager to engage at the sophisticated end of the spectrum, although many are restricted to second and third generation models by internal rules. *Profit & Loss* has repeatedly been told by professionals in this segment that the advent of agency algos is a risk to their future, but that algos they can engage with are not. "If I just hand over orders to a machine, very soon I will get a tap on the shoulder and be shown the door," says one execution expert.

This is endorsed by the head of e-FX sales at a bank in London who points out, "These clients have to be in control. It is our job to ensure we do all we can to make our clients on execution desks look good – it is important for them to be able to show their value to their employer."