FX Aggregation:
leveraging frameworks for overcoming inefficient trade execution

By Nicholas Pratt

Pressures within the fragmented FX marketplace are leading increasing numbers of buy and sell-side firms to review, replace and augment their sources of liquidity. Given that so many firms rely on third party aggregation service platforms to provide this liquidity, how are the developers of these aggregation platforms adjusting to these pressures? How are FX aggregation services being customised and tailored to reflect the individual trading strategies and requirements of an increasingly demanding customer base? And how are these same service providers managing to solve the connectivity and compatibility issues that have hindered the provision of aggregation services in the FX market for so many years while at the same time insulating their clients from the cost involved?

There are three factors that are always a big deal in FX – cost, speed and spreads – and these are the same driving forces behind the development of FX aggregation services, says Ric Chappetto, director of business development, forex division at US-based broker PFG Best. "We became an aggregator and instantly got a return on our investment because we were no longer paying aggregators for what we could do in-house. Once the development is in place, you start saving significant amounts of money. Speed is so important because our clients live in a world of nanoseconds. They trade a lot, they trade very quickly in a fast moving market so you have to be able to move very quickly and have to be able to provide the fastest possible executions."

"The final reason in the decision to develop our own aggregation platform," says, Chappetto, "was the fact that it put us in control of our own environment and the flexibility that gives us. One thing that has helped us in the move to being an aggregator

is the development of FIX and the fact that so many banks are now FIX compatible and that much easier to connect to. This has definitely helped move us and other third party providers into the aggregation space. Without a FIX interface the job would have been humongous because each

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bank would have its own interface. In all it took almost a year to set the aggregation platform as we had a relatively small team but the returns started the very next week and now we have been able to sell the service on to various algorithmic traders."

Liquidity Sources

In the fragmented FX market, new liquidity sources are constantly emerging but are existing ones falling away just as regularly and does an aggregator have to constantly add and remove sources? "We have not taken any sources away. It is a big job to get a source connected and we have 11 so far so I see it as a growing process. We are at a significant level of liquidity right now but the ability to offer tighter spreads and more

liquidity is the name of the game," says Chappetto, who acknowledges that the FX market is very different to an exchange-led market such as equities in terms of liquidity and the banks' role in providing it.

"The market is made by the banks themselves and it can change constantly. The exchanges may have all their various rules and regulations but there is one price and everybody gets it. But there is no single Eurodollar price. So we look at all of the sources and their feeds and we also rely on the long-standing relationships that we have built up with the banks through our own trading desk. All of this means that we generally know who is providing the kind of liquidity that we are looking for."

There is an element of customisation involved in PFG Best's aggregation services, says Chappetto. "We have both standardised products and standard spreads and we also have an API for different spreads based on clients' account size. For example, with a feed from a big bank, the spread may not be as tight but you can be certain that your order will get filled and another bank won't intercept your order." And despite the growing use of automation and algorithms, relationships are still very important in FX stresses Chappetto. "You may have a data feed from a bank but you still have to get a good line of credit, so that is where the relationship goes form the technology department to the conference room and it is the quality of that relationship that allows the technology department to do its stuff."

Relationships

Market conditions and a general return to more relationship-based trading has emphasised the need for more bespoke aggregation services that reflect a firm's many relationships, according to Yaacov Heidingsfeld, chief executive of Trader Tools. "Prior to the financial crisis, large prime brokers were giving away their services in order to get market share. It was all about order flow and it did not matter whether or not they made money. But now credit costs money again and banks are going back to traditional counterparty relationships." Consequently there is more emphasis on relationship-based pricing and less use of anonymous trading. "This has driven business back to firms like ours, that provide bespoke aggregation services," saysHeidingsfeld. "We capture significant trading statistics so that traders can get the best price offers from liquidity providers. This intelligence ensures that they always get the most liquidity at the best prices available. The better the information exchange, the better the relationship."

Although there is still some demand for aggregation-only services, the majority of the market is beginning to appreciate the benefits of a more joined-up approach to their trading activity and to implement more comprehensive service offerings from the likes of TraderTools, says Heidingsfeld. "We try and teach traders that if you do not look at the entire FX trading cycle and instead divide it up into separate, siloed processes, then you are giving up margin. A typical siloed aggregation service will capture all available liquidity and display it on a single screen. But to put liquidity back into the market, that same view of full depth liquidity is required. Generally the full depth view is never really exposed to the FX process beyond the traders' dealing screen. Instead we believe that this information needs to be available to a pricing engine, hedging algorithms and analysis tools. Using this kind of integrated solution is how you add margin."

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"We capture significant trading statistics so that traders can get the best price offers, keep in dialogue and be quoted appropriately. The better the information exchange, the better the relationship."

Clients' budgets have widened even if they have not quite returned to the pre-crisis levels, says Heidingsfeld but the prosperity is enough for TraderTools to offer a full service based on transaction fees. "We are confident, and often prove to customers, that we can add enough value in each transaction to justify the cost. It is a question of creating a business model that can be profitable for both us and our customers." Vendors' profits could be helped by progress in solving some of the problems that have dogged electronic trading in FX and the provision of aggregation services, such as poor connectivity and incompatible messaging protocols.

Technology

And Heidingsfeld believes that technology is advancing and playing an important role. "The growing acceptance of FIX has helped and managing connections to

all the different liquidity sources has been less of a problem over the last 12 to 18 months. And complex event processing (CEP) technology has become very important for data capture and analysis. The technology enables traders to run multiple processes and calculations in very short time frames and is now much more accessible to a wider range of participants. It is no longer just the high frequency traders (HFT) using CEP, there is a demand for standard CEP models right across the board in the FX workflow."

The emergence of high frequency traders in the FX market has brought with it a level of suspicion among sell-side firms and the fear of being 'gamed' but according to Richard Tibbetts, chief technology officer at CEP provider StreamBase, there are also signs of a change in attitude from the more sophisticated sell-side firms. "They are realising that the high frequency traders are not the enemy and are just part of the market. Generally speaking the sell-side is more open to the benefits of high frequency traders but in order to engage with these types of traders, sell-side firms need to invest in more responsive and better performing technology."

There has also been a shift on the buy-side among

those firms that have seen the example set by technology-centric high frequency trading firms and have come to appreciate the liberating effect of technology such as algorithms, smart order routing and aggregation, says Tibbetts. "The buy-side firms are realising that they have been taking it on the chin from sell-side dealers for years as a result of the relationship-banking model. They have been dealing with a single counterparty and been overcharged for the privilege. With technology like aggregation services they can spread their business around multiple venues and dealers and use technology to find better prices. Order routing used to be two screens and a swivel chair but now traders are able to maintain eight, twelve or sixteen relationships because of the technology available."

Complex Event Processing

Obviously there is a trade-off involved in this change. Traders are increasing their capability and are more in control of their own destiny but the investment in technology has to be made. Fortunately, the technology is becoming less expensive and more accessible all the time, says Tibbetts. "More of it is available off-the-shelf and technology like CEP allows for rapid deployment so buy-side firms can extend their relationships without too much investment and get the benefit of price improvement and sell-side firms can compete for new business by offering more competitive pricing.

Off the shelf technology creates clear cost savings but in a trading environment all participants want the opportunity to express their own intellectual property, something that most aggregation service providers are aware of. "More firms are turning to CEP and open systems to enable some customisation. For example, we have a vanilla framework for FX data aggregation that brings data together and enables firms to build an aggregated book but they will want to customise this so that they can appropriate their flow where needed. Some firms will also want to use their own quantitative analysts or integrate third party analysis and expertise.

On the dealing side the customisation is focused on the rates engine and how they are quoted and distributed to clients. Brokers typically have different grades of customers and as the market becomes more competitive, brokers will have to be more intelligent about how they discriminate when quoting orders. It is about focusing the customisation on those areas where innovation adds value and a competitive edge. No-one gets any competitive advantage from order

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management of an EBS adaptor.

What about the headache of connecting to all the different liquidity sources? "We have three different adaptors to deal with three different protocols and handle authentication, network connections, resiliency, redundancy and so on," says Tibbetts. "They bring the raw data from the venues to the application layer. We then have a collection of venue handlers that are responsible for normalising this data – enrichment, symbology mapping and semantic validation. Effectively all the venues will look the same and this makes it much simpler to aggregate. We are committed to providing this normalisation and are always looking for ways to do it more efficiently. To be honest, fragmentation is not the issue. The newcomers are the easiest to integrate with because they put a lot of effort into being easy to add. It is really the legacy systems of the long-established venues that are the least standardised and they are unlikely to change."

Need for customisation

The growing need for customisation in aggregation services does create extra challenges, particularly in the FX market where there are so many different types of participants and so many individual traders with idiosyncrasies they are keen to see protected even as they embrace more automation and electronic processes. "Traders are notoriously conservative when it comes to their set-up so there is a lot of customisation that goes on at an individual trader level," says Giles Nelson, Deputy Chief Technology Officer at Progress Software. "Customisation also has to account for a firm's trading strategy and the logic and trading rules built into an aggregation platform have to prioritise how orders are routed in order to reflect these trading objectives. Trading is not always simply based on prices, some firms may want to even out the number of firms they place their orders with, even if this might result in slightly higher prices on occasions.

"Aggregation is all about simplification so adding venues should not necessarily result in more complexity. Any new way of displaying liquidity has to be sold to the traders and changes are generally driven by our customers' requirements," says Nelson. Given that traders are notoriously conservative when it comes to their own workstations and the way they use their screens, is there any tension between traders and software engineers who may feel there are more efficient ways of displaying liquidity or setting up an aggregation platform. "There is some tension there but if a software developer thinks they have discovered a great new way of doing things, it still has to be sold to the traders."

"We offer an FX Accelerator service that supplies 80% of the platform in a standard way but we recognise that there is always that 20% involving business logic and visualisation that clients want to customise because they do not want the same out-of-the box, shrink-wrapped system that everybody else has. They want to be able to insert their own intellectual property into any aggregation system they use but they need to be given the tools in order to do this."

Normalising the different protocols and data standards employed by the various liquidity providers has historically been one of the more laborious tasks that aggregation service providers have had to grapple with. But, as the industry matures and as aggregation services become a more common feature of the market, is this task becoming any easier? "It is never easy in an industry where there are so many electronic data feeds," says Nelson. "There will always be issues with connectivity but for any aggregation service provider, it is something you have to grind away at. FIX has helped bring more standardisation but there are still a number of variations in the way FIX is used and the different FIX engines."

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Flash Crash failures

The whole complexity of automated trading, algorithms and aggregation was brought into sharp focus by the so-called 'flash crash' that took place in the US on May 6th. The resultant chaos trickled over into other markets including FX and, according to Harpal Sandhu, chief executive of Integral, the flash crash became a litmus test of the quality, reliability and scalability of the various aggregation services now being used in the FX market. "We are connected to many of them and saw them fail both in terms of pre-trade aggregation and post-trade STP. These failures applied to both sell-side and buy-side firms that had either developed their own systems in-house or based on third party frameworks." For all of these in-house developers even those that had purchased third party frameworks, Sandhu believes the flash-crash underlined their inexperience. "These institutions came to the conclusion that they are not in the business of developing software and in order to focus on managing its risk, such a firm would be better served by engaging the services of a dedicated software provider."

Integral has also altered its approach, says Sandhu, and is now offering clients a greater chance to customise their trading and aggregation set-ups through a service called FX Inside Alpha that has won multiple industry awards since its launch earlier this year. It comes with an Integrated Development Environment (IDE) to give users the tools to easily take charge of their visualization. Users can alter FX Inside Professional and write their own algorithms in standard Microsoft development environments.

"With ever changing market requirements, it's all about offering a liquidity aggregation platform that affords the necessary business flexibility," says Sandhu. Any broker on Integral's system is able to tailor liquidity to the specific needs of its target audience, whether that's retail, institutional or algorithmic trading firms. In the same way, the broker is able to fine-tune the risk profiles and business processes for each customer segment.

"Our solution is unique in that one can take this existing service and platform – delivered on demand – and use it to build one's own trading platform on top of it," says Sandhu.

But above all Sandhu still places great value on Integral's cloud computing approach. "The relevance of providing FX aggregation in the cloud is that we only have to build everything once. We invest massively in solutions so our customers don't have

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to. We are seeing other vendors using the cloud but many are just doing it to solve a network problem or to establish a data centre. But the cloud should cover much more than that – trading, risk management, aggregation and 24 hours continual support covering every time zone."

Cloud-based model

Sandhu believes that the cloud-based model suits the preference of many trading firms to use a shared infrastructure, not only for technology but also for trading services and execution, leaving them able to focus solely on trading decisions and strategy. "All the issues around normalisation, connectivity and operating standards then disappear for trading firms because they are no longer involved with them," says Sandhu. These operational issues do not simply go away though, they just become the responsibility of the system providers. Consequently, Integral manages the trading business services for all sides of the transactions, reports on exceptions, and allows some intermediaries to customize what they want to offer to their different customer segments with maximum business agility. All this happens behind the scenes, invisible to an institution's customers.

So how may these providers (both vendors and banks) manage to carry the burden of the market's inefficiencies and inconsistencies without being bankrupted by the cost or, alternatively, passing this cost on to their customers? According to Sandhu, the cloud computing model enables economies of scale and prevents Integral's costs going beyond what is manageable.

According to Harry Gozlan, chief executive of SmartTrade, a liquidity management system (LMS) provider, the most effective way of addressing the normalisation, analysis and trading venue connectivity issues is through an intermediary layer, or layers, located between the connection to the liquidity venue and a client's gateway. The layer will comprise the connectivity, aggregation and distribution elements, ensuring various levels of normalisation at the market data level but also in the order type definition.

"It is important to be able to offer to its clients order types, or trading algos, that are not necessarily a replication of what exists at the level of the venues. Sometimes, order types have to be emulated in order to offer a normalized SOR capability. For example, some venues can support iceberg orders, some cannot. At the client's gateway level, it may be important

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to offer smart order routing (SOR) rules that can process iceberg orders and send them internally and/or externally on different venues at the same. In such a case, the iceberg order has to be emulated in the LMS platform to be proposed in the SOR as native order type. A lot of technical factors have to be also embedded in the LMS platform when we talk of normalisation, to ensure price consistency, normalise the latencies from the various venues connected to, normalise the throttling (incoming and outgoing), normalise the message types and normalize the storage.

Integration issues

In addition to the technical issues involved with normalization, there is also the integration of different strategy development environments in order to facilitate trading and alpha generating opportunities, says Gozlan. "Most of the time, the effort has been invested in offering development environments that will benefit to the client be that the HFT user, the hedge fund or the final single end-user. This can be brought in through the way of proprietary programming languages and framework that can be customized by the client. In the case of Smart Trade, we decided to stick to a native programming language, Java, and to offer a very cleanly designed framework that can accept a vast series of trading instructions that eventually control the routing, internal matching and fanning-out of the clients orders. The ultimate level of flexibility is to open private "algo boxes" where the client places its own (pre-certified) algos that automatically run over the banks LMS framework."

Role of LMS providers

However, there is another dimension of the alpha generation, which is the side taken from the liquidity provider's point of view, such as a bank's trading platform, says Gozlan. This area and the management of liquidity has traditionally been the responsibility of the sell-side trader but, because of the complexity involved and the need to create as much value as possible from their own internal flow, it is now becoming a role for the liquidity management system providers. And this requires much more intelligence from the technology involved. "In this side, the strategy environment must be able to control in real time and in parallel price sourcing, custom price distribution, risk, and auto-hedge. This requires a thorough web of interacting components which can be each piloted by a particular logic (rule, algo), affecting the aggregation/sourcing, the distribution, the smart routing, and the internal crossing of all these flows.

This is where I feel the differentiating factor will lie in the next two to three years coming ahead of us."