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e-FOREX

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AUTOMATION POST PANDEMIC

Helping asset managers upgrade their eFX operations

POST TRADE FX OPERATIONS

Streamlining workflows

FX LIQUIDITY AGGREGATION

Can it transform the industry again?

SUPERVISION TECHNOLOGY

Why FX needs to go beyond surveillance

NON-BANKS

Prime benefits become more apparent

PAYMENTS

Making the case for a new generation of toolsets

COVER INTERVIEW

ALBINA ZHDANOVA

COO of Tools For Brokers

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April 2021

Market volatility and new working conditions brought about by the COVID-19 pandemic are encouraging many buy-side firms to take stock of their current FX trading set-ups and best execution frameworks. Clients in the asset & wealth management industry in particular seem keen to identify and leverage additional potential for value creation and cost reduction by further digitization, automation and innovation in their day to day dealing activities. Christian Schoeppe, who has contributed our Market Commentary article this month, has picked up and talked about this trend in some detail. His conclusion is that any businesses planning to shift back to pre-COVID-19 ways of running their FX trading operations once lockdowns end, may find it challenging to remain competitive.

Straight-through processing and automation have been successfully applied to most areas of the FX trade lifecycle but post-trade processing has proved a tougher nut to crack. It's a complex problem to solve and our Trading Operations feature in this edition looks at how a new generation of platforms and automation toolsets are looking to do just that by streamlining and reinventing old post-trade workflows.

Aggregation has played a very important role in facilitating the development of the current electronic FX trading marketplace and in our Special Report this month we are exploring how the technology has been evolving over the past few years. Not only is it becoming more complex in order to integrate new functionality such as multi-stream handling but it is also now needs to be enhanced with analytics focused around liquidity providers' performance, whether technological, functional or financial. The use of data will therefore hold the key to how aggregation services develop in the future along with its use in the fast developing crypto assets markets which we will be talking about in much more detail later this year in our Institutional Cryptocurrency Handbook.

A final word about the e-Forex website which has recently been attacked by hackers. We would like to apologise for the service interruptions which have resulted from this but our new website which is being launched in the next few weeks should put an end to these issues.

As usual we hope you will enjoy reading this edition of the magazine.

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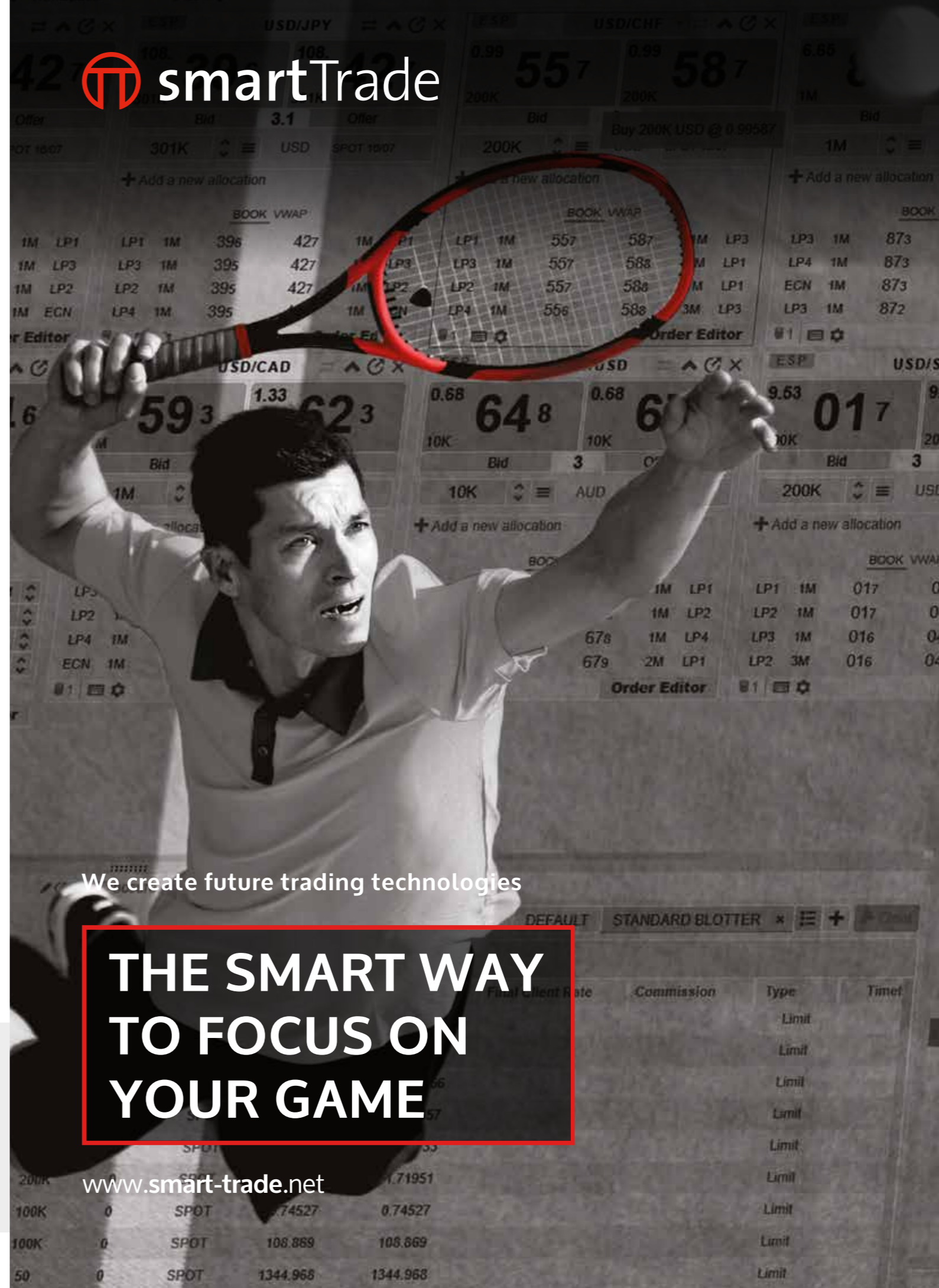
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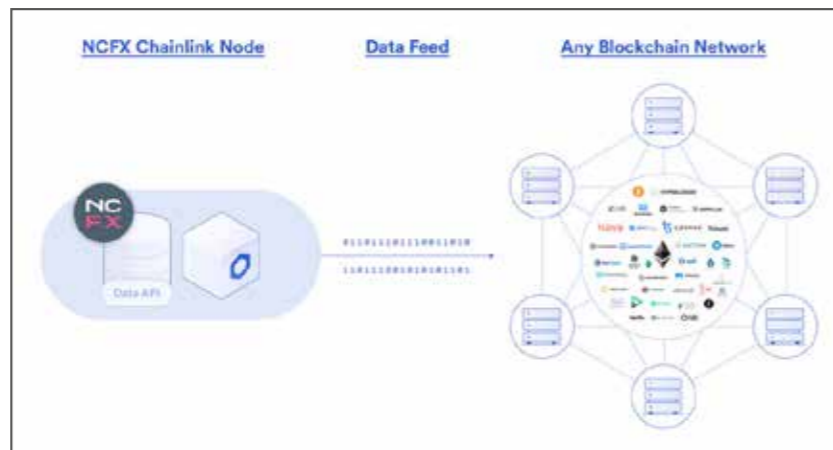
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New Change FX to provide data to DeFi through Chainlink

New Change FX (NCFX) has announced that it will be making its premium FX, precious metal, and crypto asset market data covering circa 2,300 currency pairs available on leading blockchains through the Chainlink Network. Using Chainlink's large collection of secure node operators, smart contract developers can access NCFX's live, regulated, independent benchmark and reference data and analytics directly on-chain when building applications and products in Decentralized Finance (DeFi)—a new parallel financial system running on top blockchains (on-chain) that provide transparent, openly accessible, and decentralized financial

instruments. NCFX expects its data to be used across decentralized finance (DeFi) applications to trigger actions within on-chain financial products

like derivatives contracts, lending pools, insurance products, algorithmic stablecoins, automated trading strategies, and much more.



Barclays enhances BARX with suite of new FX products

Barclays has launched a suite of new products for BARX FX. Corporate and institutional clients can now leverage BARX Book for FX, Barclays' principal liquidity solution that forms an important part of BARX Gator. In addition, clients can now access Gator Adapt, Barclays' new implementation shortfall algorithm available within the BARX Gator suite of algorithms. The bank has also launched BARX Direct, the platform's improved low latency solution which uses innovative pricing models, predictive analytics, and an optimized

co-location strategy. Naseer Al-Khudairi, Global Head of Markets Electronic Trading and Digital Strategy at Barclays said: "We continue to execute our ambitious expansion efforts in electronic trading to enhance our global offering and bring our clients world-class efficiencies. These new BARX FX developments are the latest in a stream of enhancements to our BARX platform and we look forward to harnessing the momentum in our business as we continue to invest across all of our e-trading solutions."



Naseer Al-Khudairi

Equiti signs three-way partnership

Equiti Group, a leading provider of online trading technology and multi-asset financial products has signed a three-way partnership with financial technology company Acuity Trading and leading news provider Dow Jones Newswires. This alignment will enable Equiti's clients across the

world to harness the combined power of market moving news from Dow Jones Newswires and Acuity's AI news analytics technology to help strengthen their trading strategies. With these new tools Equiti's traders now have access to a wealth of unique market insights and trading opportunities. Intuitive

visualisations will help cut through the noise, highlighting emerging market trends before market movement and AI data-driven signals to spot opportunities more easily. The combined offering will deliver global and local market coverage in an alternative, more engaging trading experience.

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Lombard Odier selects smartTrade

smartTrade Technologies has announced that Lombard Odier & Co Ltd has integrated LiquidityFX, smartTrade's in-house developed FX solution into its banking platform, to offer enhanced FX trading services to its clients. LiquidityFX is an end-to-end solution with connectivity to over 130 liquidity providers. Aggregation, pricing, risk management, distribution and post-trade are integral functions of the platform which supports a range of instruments including FX Spot, Forwards, Swaps, NDF, Options

and Precious Metals. By integrating a flexible trading services solution into its proprietary wealth management platform G2, Lombard Odier offers a comprehensive set of tailored FX trading functionalities to its private, institutional and third party clients. "LiquidityFX is the perfect fit for Lombard Odier," said David Vincent, smartTrade's Chief Executive Officer. "It's a mature solution enriching their existing offering, which made integration into their innovative technology platform easy and fast."



David Vincent

Gold-i partners with EMEA Global Financial Consultancy

Trading technology specialist Gold-i is expanding in the Middle East and India through a partnership with EMEA Global Financial Consultancy based in United Arab Emirates (UAE). EMEA Global Financial Consultancy, which has a strong network in the region, will focus on sales and support of Gold-i's full product suite, including its MT4 Bridge and MT5 Gateway, Matrix multi-asset liquidity management platform, risk management and business intelligence tool Visual Edge, MT4 & MT5 MAM Pro and CryptoSwitch™ 2.0. Tom Higgins, CEO, Gold-i explains,

"Partnering with the very best resellers in key geographical regions in our industry is vital for our global growth strategy. It is very important to us to connect with resellers who understand the local culture, language and business etiquette and also have an in-depth understanding of client requirements and the high service levels that we expect for all Gold-i clients. EMEA Global Financial Consultancy ticks all the boxes for us. They have a great reputation in the region and a strong client base of brokers throughout the Middle East and India. We are delighted to

be partnering with them and look forward to building our business in this region together."



Tom Higgins

Siege FX now available on Bloomberg FXGO

FXGO users can now route their FX spot orders directly to the innovative Siege P2P liquidity pool and subsequently leverage FXGO prime broker communication and allocation management capabilities to achieve straight-through processing. Residual order amounts can be

traded via the full spectrum of FXGO trading methods. Alternatively, clients utilizing algorithmic orders offered by a number of banks and non-bank liquidity providers on FXGO may be able to designate Siege as a routing destination, to allow the orders to be executed against Siege liquidity only

or a combined liquidity pool which Siege is a part of. Please refer to Siege and your algorithmic order providers for the details. Bloomberg FXGO is available on the Bloomberg Terminal. Siege FX is available on a proprietary browser-based interface and via the FIX protocol.

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Swissquote partners with Taurus

Swissquote Bank has selected Taurus as a partner for its digital asset infrastructure. Swissquote will use Taurus-Protect™ as a secure storage solution to complement its existing set-up. In addition, Swissquote will use Taurus' latest solution, Taurus-Capital™ and will be able to tokenize and manage a wide range of digital assets as well as interact with any type of Ethereum smart contract. Both products leverage Taurus' blockchain node infrastructure Taurus-Explorer™ which provides a unified API and reliable broadcasting algorithms to interface securely with multiple blockchain networks.



Lamine Brahim

Lamine Brahim, co-founder at Taurus: "It's a privilege to support Swissquote, a leader in digital banking, in implementing their growth strategy in digital assets. What makes me extremely proud is that we bring to Swissquote our latest innovation in the area of tokenized assets on top of our secure custody infrastructure."

BNP Paribas expands skills of ALiX

BNP Paribas has announced that ALiX, its FX digital trading assistant has expanded across the full FX product suite on the bank's FX trading platform, Cortex FX. Originally only available on algo orders, ALiX can now assist clients across the full FX product suite, including spot, forwards, swaps, options, and orders, in addition to algos.

Joe Nash, digital FX COO at BNP Paribas, said: "In an ever evolving and complex market we continually strive to offer clients a bespoke personal trading experience, adapting to their ever more sophisticated needs. ALiX has been designed to fit a world where screen real estate is at a premium and an ever expanded number of users are working remotely. ALiX has a diminutive screen stature but is indisputably pixel for pixel the most powerful FX platform on the market."



Joe Nash

oneZero releases Algorithmic Pricing Module

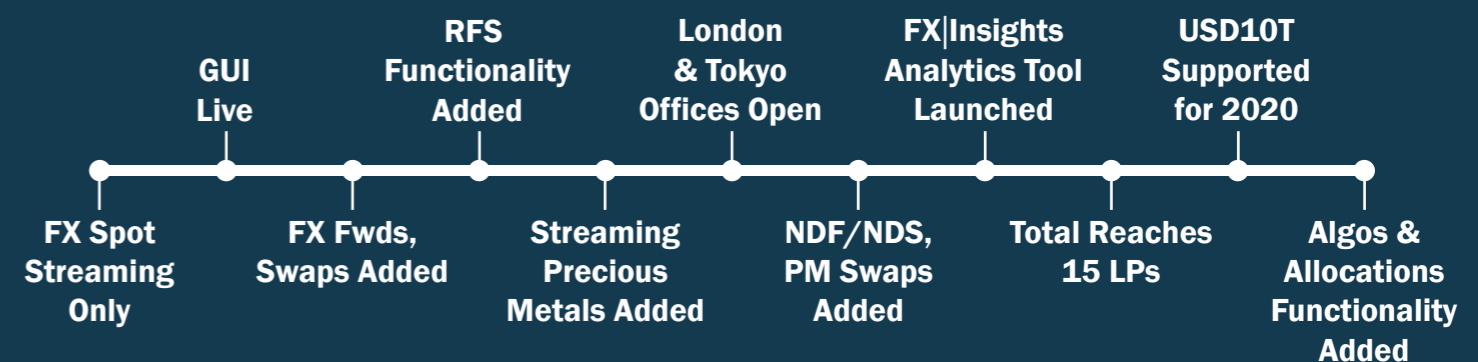
oneZero has released the Algorithmic Pricing Module, an advanced price creation tool which facilitates the formation of customised pricing for each recipient, utilising brokers' own data constructs and algorithms. The solution offers a coding interface that feeds directly into the heart of the company's recently unveiled Institutional Hub. oneZero CEO Andrew Ralich commented: "The initial response to this module has been staggering. Clients are already developing applications previously not thought possible, including the construction of new and innovative derivative product offerings whose prices can be perfectly calibrated for the intended end user. For institutional clients, enabling protection of their unique 'secret sauce' and providing the ability for the customer to make real time changes to their pricing strategy to be responsive to market dynamics was something oneZero was keen to offer."



Andrew Ralich

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Added Functionality to Support Algos & Allocations Announced in 2021



FXSpotStream is a bank owned consortium operating as a market utility, providing the infrastructure that facilitates a multibank API and GUI to route trades from clients to Liquidity Providers. FXSpotStream provides a multibank FX streaming and a matching Service supporting trading in FX Spot, Forwards, Swaps, NDF/NDS and Precious Metals Spot and Swaps. Clients can access a GUI or single API from co-location sites in New York, London and Tokyo and have the ability to communicate with all Liquidity Providing banks connected to the FXSpotStream Service. FXSpotStream does not charge brokerage fees to its clients or Liquidity Providing banks.

Harnessing the power of more automation

Helping asset managers to upgrade their FX Trading operations post Covid-19

By Christian Schoeppe, Founder of SchoeppeFX



Christian Schoeppe

When it comes to Foreign Exchange (FX) trading the Covid19 pandemic uncovered that for many institutional investors the crisis has presented a striking opportunity to improve their trading set-ups and best execution frameworks. At SchoeppeFX International Consulting we have seen an increased demand of clients in the asset & wealth management industry to identify and leverage additional potential for value creation and cost reduction. Market volatility and working conditions brought on by the pandemic created an environment necessary for further digitization, automation and innovation in FX trading across buy-side organizations.

More than one year after Covid emerged, those competitors amongst asset managers, hedge funds, pension funds and corporates who had harnessed technology to their advantage remained more resilient and were able to stay ahead of the curve in transformational times. As a result of this pandemic shift buy-side clients across the globe are increasingly looking for updated means to improve quality, results and robustness of their FX trading operations across four focus areas where automation plays a key role: their strategic framework, operational set-up, innovative collaboration, and risk control.

STRATEGY

Cost pressures weighing on buy-side trading operations stem from having to comply with an increasing global regulatory landscape, the ongoing shift to passive investing, and the compression of trading fees and spreads. A high percentage of the capital markets industry's costs traditionally derives from its organizational and technological complexity, which built up over many years before the first Covid waves emerged. More than one year later this trend within the industry to break free of such legacy silos remains intact.

Analyzing the individual FX setup of our clients from scratch is the first key primary health-check element in order to subsequently establish technology and processes at a cutting-edge level across the FX value chain, covering all areas of interaction with clients, liquidity providers, portfolio management, operations, and compliance. During and after Lockdowns strategic business reviews across our target client base indicated clearly what has worked and what has not across front, middle and back office functions. In general, buy-side clients tend to benefit from greater flexibility of their underlying trading business model if they treat FX as a dedicated asset class vs. only as a side-product of traditional asset classes like equities, fixed income or real estate.

The pandemic shift towards flexible working structures and working from home has forced institutional investment managers to rethink the way they assess trading platforms and FX service providers. Although most FX trading operations have been functioning well since the first lockdown, it is still frequently observed that a lot of digitization projects are carried out ineffectually without exploiting its full potential.

The decisive question for corporates and investment managers now is: do they just want to return to the status quo before the pandemic or are they able to significantly improve their trading set-up and best execution framework for FX? Winners of the future will sustainably invest in building a trading strategy and culture which ensures they can continuously enhance processes, technology and culture to sustainably optimize their cost model and return on investment.

COLLABORATION

Asset and wealth managers today want true flexibility in choosing the best partners for their FX trading and investment processes, which significantly contributes to long-term competitiveness. Taking the FX trading business to the next level requires new forms of cooperation with innovation leaders. As a result of the pandemic digital workflows and data transparency will partly or entirely replace the physical interaction between teams – including order and execution management, client service and idea generation. Proactively identifying this challenge will remain essential in the coming months and years. This also includes enhanced remote and mobile access to production and UAT trading, execution and settlement platforms. Innovative technology partners have the capabilities to integrate new tools and applications without trying to diminish existing set-ups.

Physical distance between various aspects of trading operations means increased complexity. Since the beginning of the pandemic buy-side clients are continuing to adapt to the new market realities and have been reskilling its staff to apply new communication tools and technologies. Many of them focus on automating processes and enhancing

Harnessing the power of more automation - Helping asset managers to upgrade their FX Trading operations post Covid-19

decision-making processes using virtual environments. To streamline operations, workflows are becoming increasingly digitized, automated and well-defined. E.g. due to higher scalability and lower implementation cost, not only financial institutions of all sizes are turning to use more cloud computing.

On the flipside, our conversations with buy-side traders indicate that remote working is reaching its limits. In such an environment many clients find it difficult to protect sensitive information, to maintain in-depth client relationships absent personal contact, and most significantly, they are missing the benefits of shared culture, spontaneous interaction and information sharing fostered by the trading floor environment. In an industry called "the people's business" these are essential features of fiduciary business attitude and success. That's why asset managers need hybrid plans for bringing people back to the office face-to-face with an enhanced footprint.

DATA & CONTROLS

The buy-side industry has demonstrated significant resilience during the pandemic in performing its fiduciary duties. Across the globe increased transaction reporting and operational compliance requirements are causing buy-side firms to reassess

systems and procedures they have in place. With the democratization of data and information, asset & wealth managers are increasingly leveraging additional datasets to drive their trading, portfolio management and settlement processes. For example, we have seen an ongoing increase in applying artificial intelligence (AI), machine learning (ML) and natural language processing (NLP) to create information advantages and enhance controls. Whilst AI has become widespread across the asset management industry as a whole, it is still underrepresented in its trading operations.

A firm's data foundation is mission critical as outdated or ineffective foreign exchange transaction and risk controls can have fatal consequences for buy- and sell-side trading organizations. All cases of abuse in the past and present have indicated the importance of ensuring that no matter if retail or institutional business all FX trading policies and procedures must meet national and international regulatory requirements covering benchmarking, monitoring and reporting.

In this context digital transaction cost analysis (TCA) improves evaluating the quality of execution across various trading channels and liquidity providers accessing order and trade history, trade patterns, third party

data, performance indicators and rankings. Since its inception as a quality-of-service tool, designed to enhance client relationships and prove best execution under MiFID, pre- and post-trade TCA functionality has increased both in its real-time interoperability and accuracy.

OPERATIONAL EXCELLENCE THROUGH AUTOMATION

Mostly affected by these gamechangers is the operational set-up of clients. Various analyses of operational structures and processes in buy-side FX trading have shown ongoing deficiencies in terms of automation and system integration. During the pandemic a lot of corporate and investment clients across the industry had to observe digitization gaps and areas of improvement in technology set-ups, cross-functional workflows and controls. Subsequently simplifying and automating FX trade flow allows for reducing execution cost by investing in scalable technology to eliminate inefficient operational processes. Additionally, Asset Managers will need to leverage technology further in order to manage the myriad of changing trading protocols, new products and internal processes.

The key element for any fiduciary FX trading operation in this context is the selection, establishment and connection of an appropriate Order and Execution Management System (OMS/EMS) set-up as its technological foundation and basis for Automation:

An OMS is designed to support the investment lifecycle, which includes portfolio modeling, trade generation, cash management, and compliance modeling across asset classes. An FX order can be created for each cash flow event, which is then transmitted to a connected EMS. Depending on the asset manager's IT strategy and

budget, as well as on the system interfaces used (FIX protocol/web service/file-based) and the fields and message types supported, an OMS can be connected to either multiple EMS's for various specific asset classes and trading strategies, or to one multi-asset EMS. Alternatively, a combined OEMS software providing investment and trading functionalities can be used. The FX EMS is the FX trading desk's main tool and gate to the market for executing orders at best efforts.

In a first step orders submitted from portfolio management can be divided into either active manual or automated FX tickets - depending on internal and external order determinants such as specific client instructions, ticket sizes, currency or broker restrictions, settlement or operational requirements. This differentiation determines whether the order needs to receive a manual touch on the buy-side FX trading desk or not, the latter being classified as low-touch execution which has become the major flow type in FX.

In a second step based on pre-defined liquidity profiles and basket trading criteria within these two pillars, tickets can be either routed individually or in bulk as a request-for-quote (RFQ) to a sell-side trading desk for manual pricing, as a request-for-stream (RFS) priced electronically by its price engine, or as an algorithmic ticket priced

electronically by a bank's separate algorithmic engine. Algorithmic FX suites offer a variety of fully automated liquidity seeking and time-slicing strategies including point-in-time or benchmark (fixing) executions which can significantly reduce price impact and execution cost.

In a third step after pricing the executed trades with the resulting account allocations are routed back to the trading desk and passed on to the back office for transaction processing, which is more and more supported by newer OMS/EMS solutions as well.

A final step presents the icing on the FX trading cake: Achieving a fully automated order routing (AOR) across the described order lifecycle through straight-through-processing (STP) applied at each stage, also referred to as 'Smart Order Routing' (SOR). The industry's share of FX SORs and bulk orders continues to rise as they significantly contribute to defragmentation, transparency and efficiency of FX platforms and markets. Additionally, since last year we observed a significant buy-side increase in the number and volume of trades using algorithmic execution strategies across G10 and Emerging Markets FX pairs.

FX NEXT LEVEL

In summary, automated trading platforms help modernizing the FX

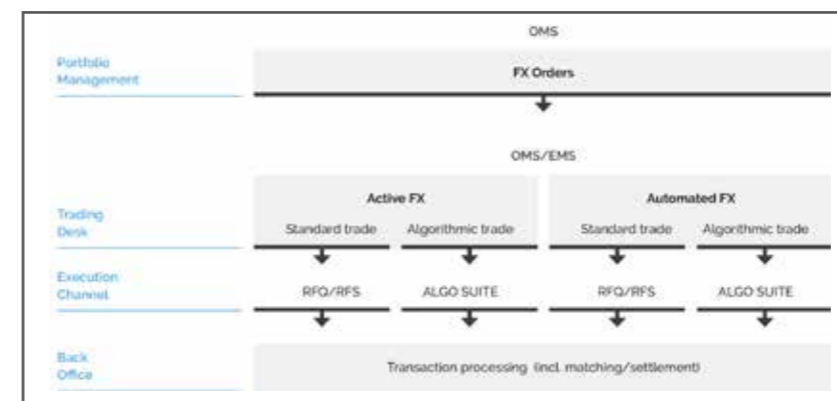
trading process to achieve a more consistent, rule-based and reliable workflow that draws on advanced execution, accounting and reporting/TCA tools, which support identifying and managing a competitive liquidity provision and price competition to ensure best performance in multiple trading environments and situations for the buy-side. A digital route creates a quick solution for executing low-touch orders and allows FX teams to spend time on larger or more complicated trades. Smart OMS/EMS combinations additionally reduce the negative effect of FX market fragmentation on liquidity and best execution, and offer an effective solution for handling and evaluating the complexity of market protocols.

With the use of a data-driven routing technology, FX dealers can effectively implement modern trading strategies and make sure they are not harmed by inferior execution quality as a result of limited choices and connectivity. In addition to the described multiple platform layers of potential efficiency gains and cost savings across the various stages of the order and execution lifecycle, the increasing sophistication of OMS/EMS suites facilitates the progress of embedded and automated TCA control functionality for FX as well.

As a consequence, any business planning to shift back to their pre-COVID-19 way of operating FX trading business once lockdowns end will find it challenging to remain competitive for corporates and investment managers. Identifying and exploiting new potential for introducing cost and operationally efficient technology enforcing automation have become crucial for asset & wealth managers in a cloud- and remote-driven next-level industry environment to avoid disruption and secure sustainable competitiveness in Foreign Exchange trading.



Service areas we focus on



Fiduciary FX Execution - Sample set-up

Streamlining workflows:

How a new generation of platforms is creating a paradigm shift in post trade FX operations

The importance of achieving greater post-trade efficiency is increasingly being recognised by the FX industry. Yet unlike other asset classes, overcoming the myriad of complex challenges that exist in FX post-trade has often prevented firms from seriously dedicating time and resources to improving these workflows. But as the industry increasingly embraces automation and emerging technologies, can streamlining post-trade operations finally become an achievable outcome? Nicola Tavendale investigates.



Nicola Tavendale

One of the unique characteristics of the FX ecosystem is the vast array of ways in which its participants can interact with the market and in many respects, the same applies to the post-trade space, says Kate Lowe, Global Head of TradeNeXus, State Street's award-winning suite of post-trade solutions. However, according to Lowe this is also why unpicking and re-architecting components can be so challenging. "There is definitely a fear factor in upsetting this complex balance. While there is a huge level of straight-through processing, it is the many layers of repetitive matching and messaging that create potential opportunity for risk," she explains. Lowe warns that there is a delicate symbiosis that exists between all the mechanisms and so breaking one link can cause unintended consequences to the others. Lowe adds: "The risks primarily lie in the complexity of matching and messaging many different versions of the same trade to ultimately guide it down the path to settlement. There is risk of breakdown or failure with each step, as well as an overall cost increase in relation to numerous reconciliations and remediation processes."

Lowe explains that for buy-side clients in particular, diverse FX trading strategies, a changing regulatory landscape, as well as underlying fund nuances have also driven bespoke post-trade workflows to meet those demands. In addition, the market is still lacking standardisation in some areas, such as the agreement to send and match certain fields like the fixing source and uniform approach to standard settlement instructions, particularly for the Russian ruble (RUB) and the Thai baht (THB), she adds. "These need to be agreed in order to achieve better levels of automation," Lowe says. "Covid-19 has also had a major impact to the market, with re-prioritisation of

"It's critical to choose a partner who can grow with your business, work with you to find solutions and provide thought-leadership to reimagine the status quo."



Kate Lowe

many projects to be able to support business as usual remotely and through peaks of volatility."

INCREASING AUTOMATION

Paul Williams, Product Manager for Post Trade FX in Data & Analytics, London Stock Exchange Group, agrees, adding that during the pandemic, FX operations in middle and back office have continued to face plenty of post-trade challenges that cannot be overlooked. "Firms have therefore bolstered their systems resiliency in these uncertain times of fluctuating market volatility, including procuring cloud-based platforms, improved automation in back office workflows and reduced reliance on manual processes," Williams says. In addition, he warns that there are also significant back-office challenges involved when connecting a variety of post-trade flows from multiple vendors to a growing number of clearing venues, settlement services, trade repositories etc. This is due to hidden single points of failure with little built-in redundancy when connecting existing integrations with trade execution venues, Williams explains, adding that this also makes it difficult to achieve appropriate cost benefits from upgrading and

automating those out-of-date applications.

To address some of these challenges, several initiatives have included new models such as using distributed ledger technology and doing away with the need for reconciliations, dual-sided confirmations and settlement, Williams says. "We are seeing participants willing to explore such models, but primarily focusing on processing the nuts and bolts of their business," he adds. "Firms are also continuing to consolidate their IT resources and are increasingly looking at what cost benefits can be achieved through automation and innovation."

Straight-through processing and automation have already proved successful when applied to other areas of the FX trade lifecycle, but the post-trade infrastructure for FX is typically much more complex with a wide range of upstream and downstream integration challenges, says Mike Thrower, VP International Account Management at Broadridge Financial Solutions. "Post-trade processing for the FX class is distinct from other asset classes such as equities, fixed income or OTC derivatives," he explains. "Given the often complex, highly integrated and fragmented nature of post-trade processing technical architectures for FX, moving to a more optimised simplified FX post-trade architecture is not straight forward." As such, Thrower believes the key is to

develop a realistic migration to a future state by breaking up the processing life-cycle and technical architecture into minimum viable products that can be deployed incrementally to move to a more optimal model.

MANAGING COMPLEX WORKFLOWS

In addition, the fragmented architecture that is often found supporting post-trade FX increases operational risk by fragmenting transactional, static and positional data, warns Thrower. He adds: "A complex fragmented data architecture creates risk for internal reporting, external regulatory reporting as well as making decision support more problematic." Thrower notes that external regulatory and market infrastructure changes have also driven the evolution of post-trade processing in other asset classes, such as equities and fixed income, but in FX there have to date been fewer major external factors. Instead, the technology and operational processes deployed in FX are often a result of multi-year incremental evolution, which according to Thrower has resulted in



Paul Williams

"Firms are also continuing to consolidate their IT resources and are increasingly looking at what cost benefits can be achieved through automation and innovation."

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Streamlining workflows: How a new generation of platforms is creating a paradigm shift in post trade FX operations

the fragmentation we see today. However, the more complex and dated these systems become and the more reconciliation points they require, the more expensive this infrastructure is to maintain, says Mark Briant-Evans, Head of FX Business Development, IHS Markit. He warns that, in turn, this can lead to a greater risk of trade breaks and operational failures which can have serious financial consequences. "A more recent development is the growing importance of clearing in FX," Briant-Evans adds. "To date, most clearing activity has been in the interbank market, but the new phases of UMR coming in over the next couple of years will bring the clearing of NDFs and FX options into sharp focus for the buy-side." As a result, he warns that this is going to put a lot of pressure on operations teams and systems set up for traditional bilateral settlement flows, as they will increasingly have to manage a parallel stream of cleared trades or the exchange of margin that will be required on uncleared flows.

"Fortunately, there's a lot of innovation going on right now to help FX market participants manage all this complexity," Briant-Evans adds. "MarkitSERV's TradeServ platform is a great example of new shared infrastructure, built in partnership with the industry to simplify processes and mutualise costs. Offering a central platform on which firms can match and confirm trades and manage submission to multiple CCPs for clearing, we've seen a significant uptick in FX volumes in the last 12 months." According to Briant-Evans, this is a key trend which is expected to continue as UMR phases 5 and 6 kick in and the cost and capital efficiency benefits of clearing in FX become even more evident, particularly for buy-side firms.

"A complex fragmented data architecture creates risk for internal reporting, external regulatory reporting as well as making decision support more problematic."



Mike Thrower

driven the need for historical competitors to form alliances and find ways to advance the market for mutual benefit. Without a network of engaged, active users, even the newest and most innovative technology will have little utility."

Low explains that at TradeNexus they are continuously analysing what additional services can be provided which will add value to their clients. "The goal is to seamlessly incorporate revolutionary tools into current workflows to avoid the need for clients to change their whole infrastructure," she says. "At TradeNexus, we try to maximise the client integrations that are in place and add more workflows that stem off those integrations. This allows our clients, where possible, to integrate once and branch-off. It's critical to choose a partner who can grow with your business, work with you to find solutions and provide thought-leadership to reimagine the status quo."

A MORE CONSOLIDATED VIEW

The combination of regulation and the rise of crypto-currencies and digital ledgers has also inspired a new flock of automation tools looking to reinvent the old post-trade workflow, says Lowe. However, she warns that the challenge remains of how to seamlessly merge the old with the new. "The key ingredient to success is gaining a critical mass of adoption, because it severely dilutes the efficacy of any new application if participation is limited," Lowe adds. "This has



Efficient post-trade FX operations ultimately require investment from buy-side firms

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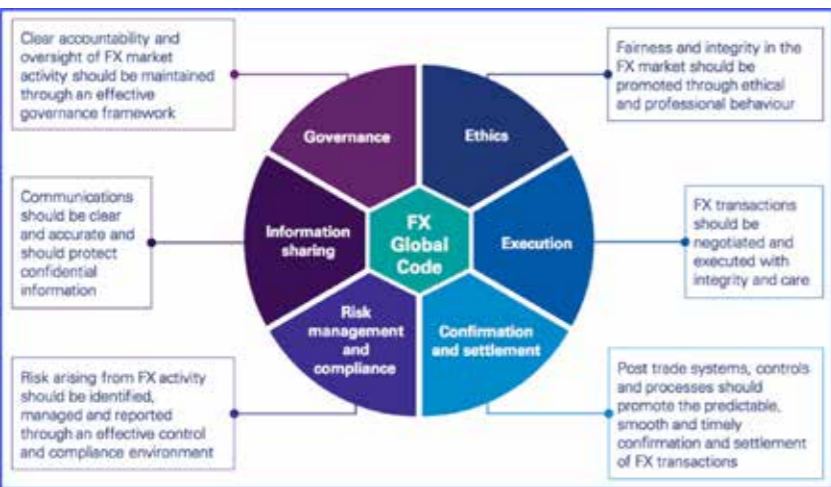
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Streamlining workflows: How a new generation of platforms is creating a paradigm shift in post trade FX operations



There are post-trade elements covered under the FX Global Code, MiFID II and other important regulations including record keeping, data encryption, trade reconstruction, audit trails, technology and STP workflows

Efficient post-trade FX operations ultimately require investment from buy-side firms, with outsourcing presenting an effective risk mitigating and cost-effective solution, Williams argues. In addition, not all firms are at the same level, adds Williams, as post-trade services form a complex interlocking network. "Incompatibility between approaches can be costly or risky due to outdated systems," Williams says. "For example, immediate investment in upgrades vs securing future investment in simplification and automation for greater operational efficiency is on the mind of every IT professional. This is particularly relevant as we exit from the pandemic with the need for a risk-based approach to IT spend on innovative technologies."

PICKING THE RIGHT PARTNER

According to Thrower, FX leaders are also starting to look to more mutualised cloud-based offerings that can deliver a robust, sustainable operating model. He explains that at Broadridge, they approach this challenge in FX by utilising standardisation and innovation to deliver a more efficient operating

model for clients. "We are leveraging AI and machine learning to automate functions throughout the processing lifecycle," Thrower says. "Cloud also enables us to be more responsive and more agile in our client engagements. These new technology innovations can deliver a lower cost operating model and greater agility, as well as reduced operational risk." It is also critical to partner with the right firm, he warns. "The right partner needs to be able to invest in innovation to stay current and infrastructure to stay secure and robust," he adds. "Also, leveraging insights from other asset classes and bringing them to the FX



Mark Briant-Evans

"..the new phases of UMR coming in over the next couple of years will bring the clearing of NDFs and FX options into sharp focus for the buy-side."

space can create transformational ideas and solutions."

There is also help at hand for firms looking to manage the connectivity and data management challenges created by the increasingly complex landscape of execution venues and counterparties, says Briant-Evans. He explains that MarkitServ has also recently expanded its long-standing STP services to offer cloud-based connectivity and data normalisation 'as a service'. "This completely removes the burden of managing both physical and logical post-trade connectivity from our customers, including complex data normalisation, morphing and enrichment tasks that can be very costly to set up and maintain in-house," Briant-Evans adds.

Overall, the key advice he would give to firms is to look for an agile partner who is committed to evolving alongside the market, with a service model that embraces change on a sustainable cost basis. By doing so, he believes that firms should then be able to successfully avoid the pitfalls and high costs associated with one-off point solutions. "Yet on the flip-side 'one-size-fits-all' services are often incompatible with established internal processes and systems that have a high cost of change. Try to find a partner with a flexible approach to integration and customisation that allows you to build the right workflows for your business, while leveraging common networks and infrastructure where it makes sense. Finally, we'd recommend a partner who can bring real expertise to the table across all of your post-trade operations – not just in FX. A unified approach to post-trade infrastructure across asset classes will really help drive down costs, complexity and risk," he concludes.



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COSTS

What is "To-Clear" Liquidity and how can it reduce your trading costs?

FX CLEARING

David Holcombe, Head of Product, FX Futures & FX Clearing at 360T explains that, far from being just an expensive post-trade add-on, central clearing actually represents a quantifiable economic opportunity for market participants.



David Holcombe

What is "To-Clear" Liquidity and how can it reduce your trading costs?

With no mandate to clear FX, the majority of FX clearing activity right now is banks clearing their interdealer flows. While this is focused on products where bilateral Initial Margin (IM) needs to be posted – namely NDFs and FX options – the fact that we are seeing an increase in voluntary clearing indicates that the banks are realising benefits from this.

To be specific, the interdealer community is leveraging the margining and operational efficiencies such as clearing house (CCP) multilateral netting, plus regulatory benefits including lower margin amounts and lower capital costs for cleared rather than bilateral positions.

While the adoption of SA-CCR calculations provide further economic incentives for banks to centrally clear, it is clearing's exemption from CVA Risk RWA that makes it a lifeline for interdealer markets, by removing the risk of key liquidity being removed from the pool because that bank has reached their monthly RWA limit, and it became economically impossible for them to continue to trade freely in bilateral markets until their next calculation period began.

While all of this will drive more pockets of FX activity into central clearing, including deliverable products such as forwards and swaps, the reality is that the

industry's current approach to clearing severely limits the benefits that can be derived from it. This is particularly true for clients who are not bank clearing members themselves.

LOOKING AT PORTFOLIO LEVEL COSTS

Frankly, it is no surprise that clients have not fully embraced FX Clearing yet. If they are forced to execute bilaterally against OTC liquidity, with the normal costs associated with that, and then as part of a post-trade process select trades based on product and counterparty give them up to clear, then it feels very much as if they are simply adding post-trade costs and processes on top of their normal trading operations.

However, when firms step back from analysing this on a trade-by-trade basis and instead start to consider it at the portfolio level a very different picture can emerge. That is because the additional cost to any one specific trade incurred by clearing can be heavily outweighed by the economic benefits to the overall portfolio. Indeed, we are increasingly seeing buy-side firms moving away from defining best execution as simply the best price available in competition, to instead considering the trade's overall impact at the portfolio level. And as a result of this some interesting new dynamics are emerging.

CLEARING REMOVES THE HIDDEN COST OF CREDIT

When trading in OTC bilateral markets, the prices that buy-side firms see is not simply the core price of that liquidity provider (LP). It is actually the core price, plus an additional spread which is based on the perceived levels of credit and settlement risk associated with that buy-side firm. Thus, the cost of credit is already baked into the pricing.

Central clearing though can mitigate this credit and settlement risk through the novation of trades to the CCP, which means that both the marker and taker subsequently each face the CCP for the remaining life of the trade. Clearly, this means that the additional spread included in the LPs pricing to account for credit costs can be significantly reduced, with the result that OTC pricing should often be tighter for cleared trades than for bilaterally executed ones.

And we are seeing the natural consequence of this now in the current shift towards "To-Clear" liquidity pools. This is where makers and takers transact knowing ahead of time that the trade will be cleared, resulting in tighter pricing, as opposed to traditional liquidity pools where buy-side firms have to bolt-on clearing as a post-trade add-on.

Incidentally, this cost of credit should be reduced to zero in the case of exchange traded derivatives (ETDs) such as FX Futures, because these products can only execute at the exchange, regardless of whether they are transacted directly in the exchange CLOB or when agreed OTC and given-up to the exchange to print and clear (off-exchange Block / EFP/EFRP transaction).

This trend towards "To-Clear" liquidity also removes another big cost from FX trading activity – the recurring



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What is "To-Clear" Liquidity and how can it reduce your trading costs?

costs of having to establish and then maintain a credit relationship, such as ISDAs, with every one of their trading counterparts.

EXECUTION MODELS REMAIN UNCHANGED

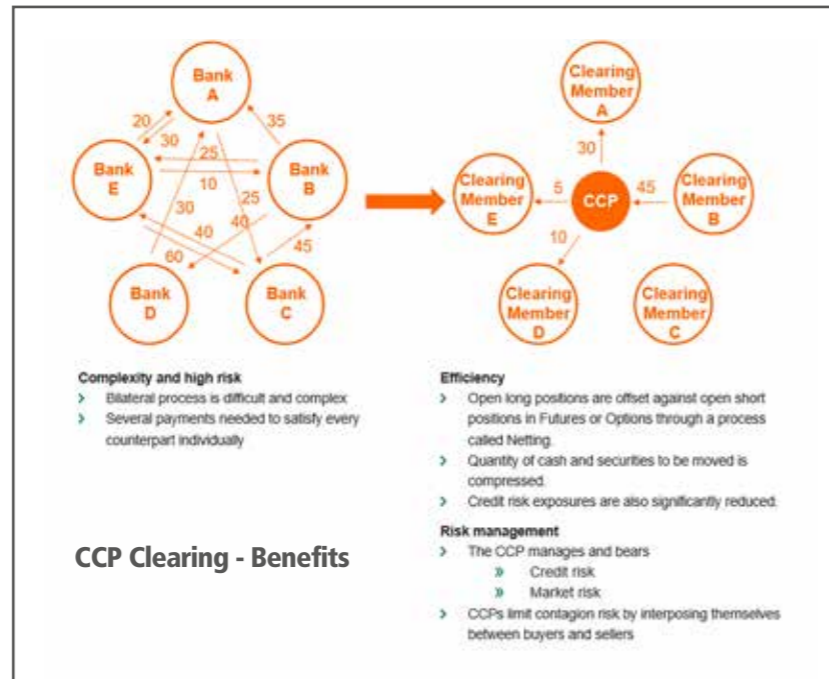
It is important to emphasise that To-Clear liquidity is compatible with any execution model, it makes no difference whether a trade is being done via RFQ, streaming, ECN, central limit order book (CLOB), etc. Equally, there is no change in terms of the value of relationship trading. All that happens is that "how much and who's asking?" just becomes "how much and who's asking and will it be cleared?".

The differentiation of To-Clear liquidity is simply that the maker and taker both have access to clearing and interact in the knowledge that their resulting trade will be cleared.

While there is price discovery value in seeing To-Clear and bilateral liquidity in the same stack, for example to produce an aggregated view of the market to inform and pinpoint opportunity areas pre-trade, we will see To-Clear liquidity work its way into single and multi-dealer platforms, using existing OTC execution models, as makers and takers pursue distinct trading opportunities that are not available bilaterally OTC, or where a cleared trade delivers a specific portfolio benefit that they seek.

WHAT COMES NEXT?

We have already seen that the impact of SA-CCR on the interdealer market will be for banks to use clearing as a tool to optimize their capital allocation and to avoid bilateral limit and liquidity issues. Beyond this initial use of To-Clear liquidity, where each trade is done in the knowledge it will be cleared, the larger benefit to banks and their clients will be seen once the concept of To-Clear reaches all on the client side too ... something likely to



be labelled the 'cFX' revolution. To-Clear does not need to replace existing bilateral relationships, but rather offers a complementary liquidity pool for a regulatory-favoured product set.

Price makers and takers alike can reach clients without the need to establish and maintain bilateral credit and settlement relationships, and they can trade in the knowledge that they can operate the right number of netting sets in terms of clearing members to optimise their benefits and mitigate their costs of this cleared activity.

For the wave of Clients considering when to include clearing in their

operating model, To-Clear liquidity is the remaining piece of the puzzle that can help them move from the perception that clearing is a post-trade add-on, to understanding the opportunity it offers in terms of stripping out the credit costs currently embedded in their FX pricing.

It also enables them to seize further price improvement from LPs sharing their cleared portfolio benefits, gives favourable regulatory treatment of their cleared positions, plus opens the door to further relationship-based agreement on fee capture for the use of their bank's holistic clearing services.

BENEFIT TODAY

To-Clear liquidity is not a forward-looking projection of where the market will go. At 360T, in addition to already supporting OTC FX Clearing for spot, forwards and swaps, we also offer 'OTC' bilateral futures trading built into our disclosed LP-to-Client execution models. This means firms don't have to trade FX Futures in an anonymous CLOB, they can instead continue to use OTC FX trading models, such as price enquiry and streaming, to agree futures trades bilaterally with To-Clear trading counterparts, and then have the trade automatically given up to the exchange to clear. We also have a range of tools for our clients wanting to bridge the OTC/Listed markets, ready for them to start exploiting their cleared eFX opportunities.



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Tools For Brokers

Talking with an expert to explore the role of software and automation in helping brokers through these challenging times

Tools for Brokers (TFB) is a leading technology provider for retail brokers with 11 years of experience in the industry. We asked Albina Zhdanova, COO of the firm to tell us more about its products and share the company's perspective on what role technology plays in brokers' resilience in these unpredictable times.

Albina Zhdanova

Tools For Brokers - Exploring the role of software and automation in helping brokers through these challenging times



Alexey Kutsenko is CEO and founder of Tools for Brokers

Albina, how has the year 2021 started for Tools for Brokers and your clients?

Thankfully, it started quite well for us. We always kickstart the year by running a strategy meeting with all our offices and departments, checking where we are on our roadmap, outlining our goals, and defining the intermediate KPIs. Last year was a success for us, and that drive enabled us to start 2021 strong. We just refreshed our website in February, had several product updates throughout Q1, and we continue to work on our ecosystem of solutions. We work hard, so we are luckily in a position where

we could keep every member of our team. On top of that, we grew our staff by about 20%, strengthening our regional presence and technical teams. With the vaccination protecting more and more people globally, we hope that the worst is already behind us. We have adapted and learned how to work under strict lockdown conditions, but we are very much looking forward to going 'back to normal'.

What do you think helped your company successfully go through the last year?

It was a combination of factors. First, we have a clear goal in mind. Every

member of the company knows it. So even though the road to this goal had to change last year to fit into the new circumstances, we still knew where we needed to get.

The most significant contribution to the success is our fantastic employees, who have worked together as a tight-knit team during the pandemic. We pay special attention to the hiring process, so our teams consist of goal-oriented individuals who adapt to changes quickly and help and support each other.

Another reason is that trading boomed in 2020. With savings rates going up, no opportunities to spend earned income, and time on their hands, thousands of people started looking into trading. As a result, brokers had more clients, higher volumes, and high volatility. I don't think many people could have expected that to happen. As a result, last year, we grew in terms of the number of leads, clients, and volumes. Another thing that helped us is that we are a mature company with a developed portfolio of solutions and over a decade of experience. We choose to focus on the strengths that we have and reach the results that we want no matter what.

What are you focusing on currently?

The company's focus is to develop the bridge to perfection - even though there's no limit to perfection. We have a very solid base of developments for brokers to ease their daily life. The bridge that covers the essential part of a brokerage company is functional and scalable, but we are aiming beyond that. We want to elevate the level of the whole experience of using such complex software. We are working to make the user experience smooth and pleasant and functionality smart and thought through, saving

time and money for companies, and outperforming all expectations.

We continue to expand our teams and regional presence. Our customer base has grown significantly over the past years, and we are making sure that we have enough employees to cover all sales and technical requests that we receive. We are proud of our service levels and are working on maintaining them as the company grows.

From what you have seen in 2020 and 2021, what are the most critical issues that brokers face?

Every brokerage is unique in its success and the difficulties it faces. Yet, it's safe to say that every broker has been affected by the extreme volatility that we all saw throughout 2020. And while some of the brokers were prepared to face it, others were not so lucky and experienced financial loss. It seems like the constant market volatility will stay with us this year, so we expect that more brokers will be thinking through a plan on how to mitigate possible future risks.

We see a gap in perception between the core issue and the broker's understanding of what can actually help them. They believe they need an easy solution and an automated system to handle the risks. In reality, though, life is more complicated than that, and there are different multi-step scenarios and several actions that brokers must take to reach their end goal.

What do you think will help them to overcome those issues?

The first step is the acknowledgement that the risk monitoring and risk management systems are needed, and the best of them are more complex than pointing in the direction of the action. We know the possible risks, we know potential outcomes, and we



We are working to make the user experience smooth and pleasant, functionality smart and thought through

know the actions that we can take to react accordingly to the risk level. Some of the risks might and should be prevented, such as no update of the quotes for longer than 20 seconds. Or huge spikes - it is easier to set the preventative and proactive measures than dealing with the outcome. Of course, we have all that automated thanks to our 11 years of experience.

How can automation help brokers with volatility and their other pressing problems?

There are countless ways automation or any other software product can make brokers' lives

easier and better. With pretty much every risk, there is a way a particular software can reduce it. From automated reporting that makes sure the broker remains compliant to the real-time notifications that enable brokers to react to any events quickly. Before the US election day, for example, we created a whole document with guidelines on configuring the bridge and other solutions to limit the risks. We recommend that every brokerage periodically review its infrastructure and policies to ensure they are safe and protected from the most common scenarios. Today, if a broker is doing something

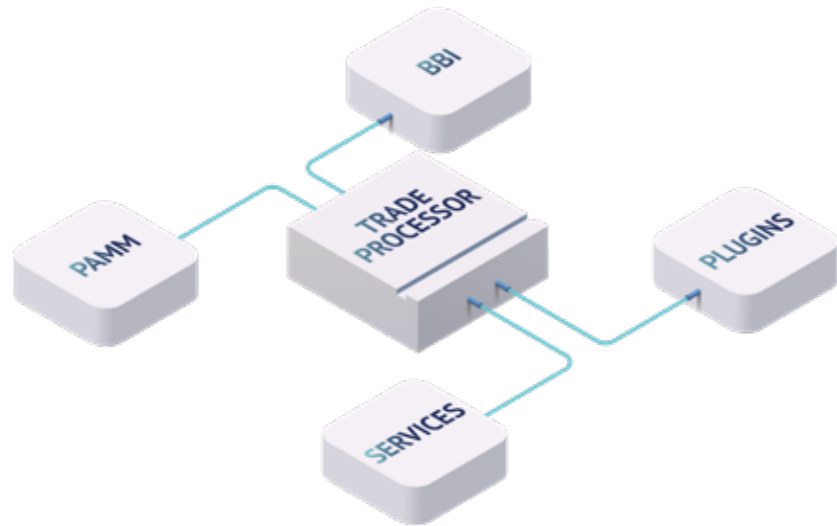


We are proud of our service levels



Our teams consist of goal-oriented individuals who adapt to changes quickly and help and support each other

Tools For Brokers - Exploring the role of software and automation in helping brokers through these challenging times



Tools for Brokers Ecosystem

manually, there is an almost 100% guarantee that it can be automated.

Automation can help avoid some of the risks, but not all of them. Do your products offer other solutions for risk management?

Risk management is an ongoing process that every broker thinks about daily. It is definitely one of the most common requests we receive when talking to clients. Every product in the TFB portfolio helps with risk management, but it does it in different ways. We have both proactive and reactive solutions to brokers' risks. First, help avoid the risk at all or at least mitigate it, whereas the second approach helps minimise the consequences of the risks.

If we look at our Trade Processor solution, most of its functionality directly or indirectly targets broker risks. For example, back up liquidity connection, data savings, monitoring systems to guarantee round-the-clock stable and fast connection, and therefore not having the risk of losing their reputation and, as a result, their clients.

Our BBI product monitors the environment 24/7 and has many alerts with flexible thresholds that brokers

can pre-configure and be notified of should something abnormal happen. By the way, this goes both for good and bad abnormalities. We think it is also a risk if a rare event occurs, and the broker misses out on using it to their and their client's advantage.

Our ecosystem consists of key products, but it also includes many smaller tools that target specific scenarios. We have a Quotes Watcher plugin where a broker can specify the time period in which quotes for each symbol must be updated. And if they are outdated, then trading with these prices is disabled. A lot of the plugins and applications help a broker automate the traders' monitoring. They do things like protecting traders

from a negative balance, help them avoid significant losses during volatility, and track that traders have enough equity.

These are just some examples of how TFB solutions help brokers manage their risks and stay profitable and competitive. We have been operating on the market for a very long time, so by now, we have a solution for the majority of issues that brokerages might run into.

What advice would you give to brokers or entrepreneurs who are just starting their journey this year? What should they be prepared for?

I would give the same advice that I would usually give them. Make sure your solution helps with the real problem of users, not something you think the market might want and need. Always create a top-quality product. Do not underestimate the importance of your team. One might assume that now is a bad time for startups, but in reality, there is never a perfect time to launch something new. We are either in a crisis, in an oversaturated market, or in a pandemic. The truth is, running a company is never easy, but it is always exciting, challenging, and unpredictable.



I cannot recommend strategy sessions enough

Also, I would recommend launching sooner rather than later. There are many cases when someone had a great idea and an MVP, but they postponed the launch, trying to improve some things, wait for a better time, or any other reason. And during that time, somebody else was not waiting and launched a similar product. And just like that, they had the first-mover advantage. Getting things done is often better than perfection. Once you are out there, you get your first clients, make your first mistakes, and have the real-life experience. From then on, if you listen to your clients and react quickly, your chances of success will increase.

Ok so what advice would you give to brokers who has been in the market for some time now?

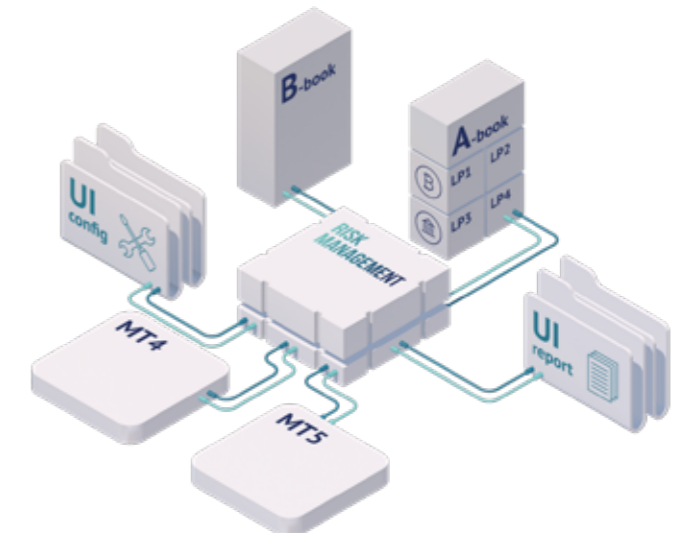
Start with an overview of your current situation. It is crucial to know your strengths and weaknesses. What products or services generate the most volume? Are there any threats, like features that are performing poorly?

Does your company have enough staff in all departments? Are they all trained and up-to-date with your strategy and vision?

I cannot recommend strategy sessions enough. Gather your entire



Every member of the company is aware of our clear goals



Trade Processor scheme

management team, book them for a couple of days, and run brainstorming sessions, Q&A, and general meetings to figure out an action plan. At TFB, we like to come together and discuss how we can reach our goals and what steps we need to take now. Having people from all departments means having different perspectives on the issue. This makes strategy sessions a very creative process, but it needs to be carefully planned and curated to avoid loss of time.

Your company offices are spread across several countries. Do you see any difference in how brokers and traders operate in different locations?

There are cultural differences, of course, which affect how

communication is done. In terms of the business processes, I think that no matter where the broker and their clients are based, they still want top-level service, fully functioning technical solutions, quick response and support. Due to differences in laws and regulations, some countries require brokers to run specific reports. So, as an example, for the Japanese market, we have a separate solution for FFAJ (Financial Futures Association of Japan) reports. Similarly, there is a Sharia Account plugin for brokers who work in regions with a Swap-Free Account policy.

If we talk about the bridge specifically, the difference is in the trading assets they want to see and exchanges they are willing to connect to. To reach the best and fastest execution, as well as the best pricing, they want to be connected to the exchanges in their area. Asia is active with crypto trading, Europe looks more into adding equities, and the Middle East is interested in exotic and rare currency pairs. The traders drive the products, but the time pressure is the same everywhere. Everyone is hunting to save milliseconds on the execution.

You have recently launched Weekend FX trading. Do you think that's a new trend?



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The most significant contribution to our success is our fantastic employees

Yes, we are very proud to support the Weekend FX by LMAX. Essentially, it enables traders to buy and sell selected currency pairs over the weekend. It is great to see the market shifting towards a truly 24/7 trading schedule. The ability to trade on Saturdays and Sundays has been a long-awaited feature by both brokers and their clients, so we are excited to be a part of this important change. The majority of traders do trading as their side project, and the weekend is the time when they can focus on it, and although there are certain currencies and much lower volumes over the weekend - I think it's a good first step in this new trend that will be picked up later by many traders.

In your opinion, what will 2021 look like for brokers?

It will be a year of opportunities. We are expecting to see big movers and shakers within the industry. I think that the pace of technology adoption will increase, and the market will become even more transparent and clear for all its participants. The quality will also be on a different level than we used to see. In such an environment, it is better to be up on your feet, looking around and shaping your business in line with trends, market moves, traders' demands and expectations.

Many new clients have already joined the market, but there is still huge potential with more and more people now seeing their friends and colleagues trading, and they are less hesitant to start. Also, as I said earlier, high volatility will be a regular part of the brokers' day which means that

they need to be even more focused and quick in their reactions to outside events. In general, I believe that more brokers and traders will be joining the market, making it more competitive but also more mature.

There is also an ongoing trend of expanding regulation. If we look at the US and what the retail traders were doing over the last several months, there are signs that the US government will implement new rules and laws to regulate situations that were simply not happening before. Financial authorities in many countries are working on new standards to protect all parties and make markets safer and more transparent. We see it as a good thing because, with more regulations, there is more clarity, which inevitably helps the industry grow.

I believe that more brokers and traders will be joining the market, making it more competitive but also more mature



FX Liquidity Aggregation It transformed the industry once. Will it do so again?

Aggregation played a pivotal role in the creation of the modern e-FX marketplace. Nicholas Pratt investigates in what ways it will continue to influence and shape its future evolution.



Nicholas Pratt

Aggregation had a marked impact on the FX market in the early days of electronic trading. As with other classes, the electrification of execution meant that liquidity became much more dispersed. Not only were there new liquidity providers, there were also new ways for the old providers to distribute liquidity..

Consequently, liquidity aggregation tools emerged to help banks track liquidity and enable their own clients to access liquidity. But as the market has developed so has aggregation. The tools are no longer based solely on price and take on a far more considered view of liquidity and best execution based on broader criteria and more data.

The use of data may also hold the key to how aggregation services develop in the future, allowing firms to analyse their executions and their liquidity. And aggregation may also find it can have an equally profound effect on the rapidly developing world of crypto and digital assets where liquidity is similarly fragmented and market participants are struggling to manage their liquidity.

LIQUIDITY MANAGEMENT

Aggregation has changed significantly in the last five years, says Noor Mohammed, business development manager at Tradepoint. "Previously, aggregation consisted of bring multiple feeds together with aim of finding the best price. Aggregation would be treated as a sweeping tool, going down the book looking for the best price. That has changed a lot. It is not just about the price anymore. Instead, aggregation has become a fundamental part of liquidity and risk management," he says.

The fundamental driver for this development has been the liquidity providers and their negative reaction to the crude techniques of the early aggregation techniques. The method of sweeping in search of the best price would mean, for example, that faced with an order for \$10 million, firms would divide the order and give ten firms \$1 million each, rather than giving the full order to one liquidity provider.

The problem was that liquidity providers found they were making little money from this approach, says Mohammed. "Any liquidity provider that is giving you prices is also profiling you and your profitability as a client. Whenever the client trades, the liquidity provider wants to know if they will make money on that client. It comes down to how the client trades and how the liquidity providers perceive their flow."

In the last three to four years, more clients have understood that aggregation is now about more than just ranking orders by price. There are other factors to consider – such as fill ratio, market impact, hold-time and spreads.

"Some liquidity providers will fill at 50% but some will fill at 100%, so you have to consider the likelihood of a liquidity provider filling your order," says Mohammed. "They are interconnected. A happy liquidity provider will give you a better spread."

Aggregation services also now focus more on profiling the liquidity providers, says Mohammed. "Not all liquidity providers are equal. Some have big order books and are able to internalise orders and create zero market impact for clients. The smaller ones can't absorb that, so traders have to consider which liquidity provider is likely to absorb the order and which ones will hedge that order. Aggregation is now about two order



Noor Mohammed

"It is not just about the price anymore. Instead, aggregation has become a fundamental part of liquidity and risk management."

books working together rather than the adversarial approach of before," says Mohammed.

The use of algorithmic execution has also increased and become a much greater part of aggregation. "The overarching theme is managing liquidity algorithmically," says Mohammed. "FX margins have been really compressed over the last 5 years – staffing has been squeezed and the desks have shrunk and more decision making is done algorithmically and that has driven the use and development of aggregation."

Aggregation has also become more important because of the reduced use of primary markets, says Mohammed. "In the last seven to eight years this trend has exploded. Hedging used to be done on primary markets but as they lost market share, there was more liquidity fragmentation and the need for aggregation increased. And of course, technology providers have to keep up with that. There are 80-90 connection points now."

When it comes to selecting an aggregation tool, Mohammed says that ease of use, flexibility and granularity are the most important elements. "When you are developing new

functionality, you have to be able to roll it out quickly and efficiently. It is a process of constant development rather than new implementations. It is the ecosystem approach so when we add new asset classes they automatically inherit the existing sophisticated logic of the system."

The future development of aggregation services may centre on greater use of data. "Aggregation analytics has evolved significantly," says Mohammed. As aggregation becomes more integrated with liquidity management, the data can be used for more than just smart order routing – for example, clients can simulate how their trades may be perceived by liquidity providers or to analyse long-term market trends and give direction on how and where to react.

GEOGRAPHIC DEVELOPMENT

Spark Systems is a low-latency eFX aggregator based in Singapore and serving a client base largely made up of regional banks in Asia. The platform has seen its volume rise markedly in the last year and has won financial backing from the likes of Goldman Sachs, Citi and HSBC.

Although it has expanded to New York and London in the last year,

Spark is primarily looking to grow the FX market in Singapore for institutional traders and regional banks.

According to chief operating officer Jason Wang, the geographic development of the market has been one of the prominent trends of recent years and one that has further fragmented FX liquidity.

"A growing number of FX brokers are now setting up in multiple global data centres rather than just a single location," he says. "For example, in Asia, many brokers are now located in Japan, Hong Kong and Singapore rather than just in Tokyo. They have set up regional hubs in Hong and Singapore and used Tokyo to execute any yen-based business."

As a consequence, aggregators have set up their IT infrastructures in more international data centres to provide a hub in every timezone and to reduce latency. "If market-makers are looking at three different locations to serve the buy-side, you have to aggregate three times," says Wang.

The geographic expansion has been driven by globalisation, fragmentation and the reduced cost of technology, he says. "It is easier to set up in more data centres. We can set up an exact replica in any international data centre. It is the same business logic. Even though the client segment and geography may differ, the technology is essentially the same," says Wang. Another factor in aggregation has been banks' decision to focus less on the multi-bank venues and more on their own franchise. Liquidity has moved from the likes of Currenex, HotSpot and FXall to the single dealer platforms. This is where the combination of aggregation and smart order routing become so important, says Wang.

"It used to be a direct relationship between the liquidity provider and the liquidity taker. It is now a three-way relationship between the liquidity provider, liquidity taker and the aggregator,"



"We take multiple streams from ECNs, directly from liquidity providers and form other sources. We have clear rules that respect the different sources and the traders' objectives and route to the most appropriate liquidity," says Wang

Aggregation services now also have to cater for new asset classes such as NDFs, swaps and options as well as added functionality like multi-stream handling, slicing and dicing orders for algo execution and applying relevant speed-bumps.

Ensuring that aggregation services follow both explicit and implicit rules has become much more important in order to preserve the relationship between liquidity providers and takers, says Wang. "It used to be a direct relationship between the liquidity provider and the liquidity taker," he states. "It is now a three-way relationship between the liquidity provider, liquidity taker and the aggregator. We sit in the middle and we want to listen to both sides. We want to be part of the solution. Some aggregators have a cookie-cutter approach which is based on scale and high volume. Others are

more focused on client experience." When it comes to picking an aggregation service, firms will have to examine their options in more depth, says Wang. "People talk about the FX aggregation space as being highly commoditised. You can sit through a demo and they will all look the same in the first 15 minutes so you have to drill down deeper. You have to look at the relationships with liquidity providers, the support structure and the technology stack. You have to look at the quality and quantity of feeds, the frequency of pricing updates and how that all stacks up in technology terms."

Wang also agrees that aggregation could have a role to play in the future development of the crypto currency and crypto assets world. "Crypto is less mature than FX but I see a lot of similarities. The FX market has learned a lot and we can use that experience. Fragmentation provides the opportunity for aggregation so it is definitely a possibility."

ANALYTICS ENHANCEMENT

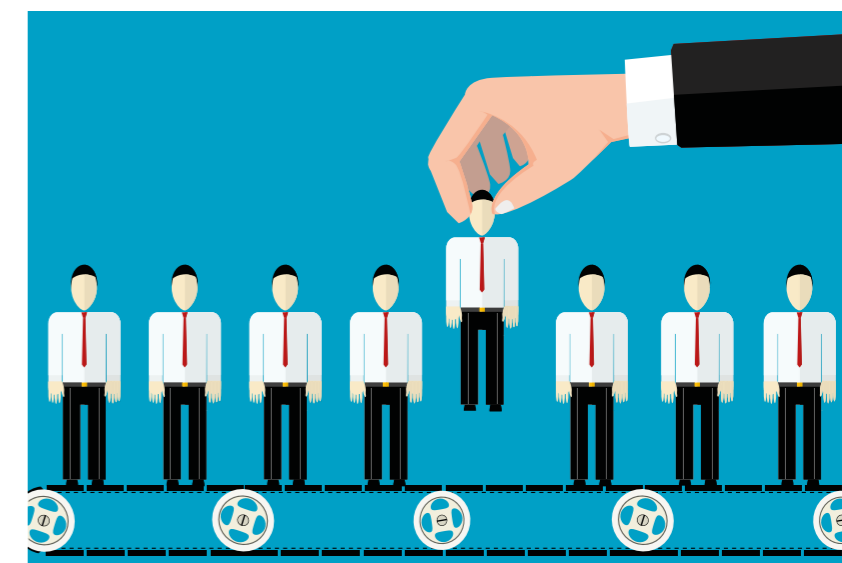
For some, it is not aggregation alone that will transform the industry but the provision of liquidity and access to credit. According to David Vincent, co-founder and chief executive of smartTrade Technologies, "We believe that aggregation is already a mature solution that needs to be enhanced with core analytics around liquidity providers' performance, whether technological, functional or financial," says Vincent. "This will allow for dynamic liquidity providers' selection. However, aggregation is only useful in so far it is helping banks to build their core price so that they can distribute the best price to their corporate banking franchise."

Demands for aggregation are evolving differently among both retail and institutional clients, says Vincent. "Within their credit limit the clients of our customers (the banks) are looking for greater level of guarantee of fulfillment which puts some pressure on their banks and therefore the liquidity providers to better understand the characteristics of the flow they send or receive."

Consequently, says Vincent, the aggregator and its derived data are becoming central to the engagement



The use of data may also hold the key to how aggregation services develop in the future



Trading firms should consider the reduced TCO that comes from selecting a vendor that offers an end-to-end solution

between the liquidity providers and the banks. "The better the data, the better the relationship. The better the price you get from the liquidity providers, the more you can generate revenue from your client franchise," says Vincent.

It is also about more than price, says Vincent. "FX aggregation is only part of the bigger value chain which delivers a tradable price to the client whether it be an institutional or retail one. The ability for the trading solution to derive a distributable price from the core price is essential. It is also important to ensure that an aggregation service is tightly integrated to the distribution which allows for greater alignment between the various stakeholders in the bank," he states.

Liquidity aggregation is also becoming more complex in order to integrate new functionality such as multi-stream handling. "Creating a comprehensive picture of the market is getting ever more complicated because of the various stream sizes, order types and venue nature. This is nothing unmanageable but it something that require greater understanding of market structure," says Vincent.

"The more data you gather and harvest, the more granular you can become at getting the right quote from your liquidity providers so that you can put the right price in front of your client,"



David Vincent

Data is key to managing the changing nature of liquidity relationships in FX, he says. "The aggregator has always been a data consumer. Now it is now becoming a data source of its own, alongside smart order routers, risk management systems and execution algos. The more data you gather and harvest, the more granular you can become at getting the right quote from your liquidity providers so that you can put the right price in front of your client.

Aggregation data is also essential to ensuring firms are able to run their

own execution algos, says Vincent. "If you are relying on algos from your liquidity providers, you have capitulated and outsourced your trading to large firms. In that context the aggregation becomes secondary as you send your aggregated flow to your preferred liquidity provider." The true added value of liquidity aggregation lies when combined with other advanced applications such as a smart order routing system, he says. "The aggregator is a piece of a larger engine that needs to interact at scale with a vast amount of data and parameters.

When it comes to the functionality from the latest generation of liquidity aggregation systems, greater analytics, automated recommendation and selection of the best LPs' for the flow you get from your client franchise are such features.

For those considering an upgrade of their existing aggregation solution, Vincent says they should consider



The relationship between liquidity providers and aggregators has become less adversarial

the reduced TCO that comes from selecting a vendor that offers an end-to-end solution. "Save yourself the pain of integrating and managing multiple vendors. New solutions are unproven and with decreasing margins costs controls are more important than the latest technology. You should also speak to references and consider how long the vendor has been around. For example, did it fare well in 2020 when volatility and volumes were extremely high?"

LESS ADVERSARIAL

Multiple FX venues have exacerbated the fragmentation problem, says Scott Wilson, vice president of sales at market data provider Exegy. Although there are signs that their use is starting to wane in favour of single dealer platforms. Furthermore, says Wilson, the relationship between liquidity providers and aggregators has become less adversarial. "That method of sweeping the market would leave the last man standing is less prominent. Smart order routing has become more thoughtful. It is not just executing at the best price but also helping liquidity providers to offset their risk," he says.

Aggregation in the FX market has started to take on some of the properties of the equities market, despite the obvious differences in regulation and market structure. As a market data provider, Exegy caters for low latency but this has yet to become a critical factor in FX aggregation. "We come from the HFT and equity world where latency is important. Right now, with last look in the market, the latency issue is not really there."

"Smart order routing has become more thoughtful. It is not just executing at the best price but also helping liquidity providers to offset their risk,"



Aggregation could have a key role to play in the future development of the cryptocurrency world

Like others, Wilson also believes that aggregation could have a key role to play in the development of the crypto assets market. "A noticeable difference with crypto assets and other asset classes is the fact that a lot of the biggest liquidity providers are non-banks and that could mean there is a role for aggregators."

A more near-term development is likely to be addition of settlement and credit/netting to aggregation solutions, says Wilson. "This makes FX trading a more straight-through process." Another step is adding more analytical tools to allow for transaction cost analysis and standardised reporting," says Wilson. "Providers in the market are trying to do that but it is a real struggle with FX. It is difficult to compare prices in the same way that you would with equities where there is a centralised exchange or a consolidated tape."

Wilson says it has become easier to judge what a good price is these days, however there are still restraints that require firms to do more work on assessing pricing data. "There is not a tape on that third market, so instead of getting an hourly rate on prices, you have to do a lot of your own homework. In terms of aggregation services though, this means there is plenty of room for development."



Scott Wilson

DIGITEC

Talking with an e-FX specialist

DIGITEC is an award-winning IT company with a focus on FX & MM trading technologies and market data. The firm currently supports more than forty banks around the globe with its proven and reliable technology. DIGITEC has been providing technology solutions for financial and capital markets for nearly 40 years and its D3 product family is considered one of the world's leading core pricing engines. Peer Joost has held senior roles at DIGITEC over the past ten years and was recently appointed COO of the company. He is also the co-founder of the 'Swaps Data Feed', a market data feed offering streaming FX swaps market data in 1,800 crosses in G10, LM and NDF currencies, and that is offered in partnership with 360T. E-Forex spoke to Peer Joost to learn more about the next stage of the firm's growth and how it plans to develop more best-in-class products and services for financial market participants.



Peer Joost

Peer, what responsibilities do you have in your new role as COO of DIGITEC?

First of all, thank you for having me. This is a particularly exciting time both in the evolution of financial markets, but also for DIGITEC itself. For the past 4 years, I ran our sales team. As a business, during that time, we built strong momentum, and I am now very excited about my new role as we look to build on this success. As COO of DIGITEC I am now responsible for all business operations.

The electronic FX market has evolved immensely in the last 5 years. What opportunities does this present for DIGITEC?

We are seeing growing demand for our products and services. FX swaps, forwards and NDFs, all FX products that we focus on, have seen their market share grow rapidly over the last few years. Coupled with the continued electrification of FX, this has led to an increased need for better, more automated and seamlessly integrated core pricing capabilities as well as for more and better-quality market data. In addition to that, through our managed service, or in other words SaaS, offering and the private cloud 'hosted by DIGITEC' solution our products have become more accessible to a much broader set of FX market participants. While we are already in a very strong position, we will be looking to build on this success.

DIGITEC has been a technology provider to the FX market for a very long time. Why has the firm been successful when so many others in this industry have not survived?

Absolutely, we have been a technology provider to the FX market for a very long time. In fact, we are actually close to celebrating our 40th anniversary. During this time, we have managed to become the market-leading experts on core pricing technology, providing highly specialized software solutions that support our clients. We have put our focus on growing sustainably in line with our clients' evolving but increasing requirements. Our client focus and deep domain knowledge has led to us being seen as a trusted partner by our clients.

This has played a significant role in terms of shaping our product's evolution and its future path. The combined and deep knowledge of our product and development teams as well as a sense of future trends and requirements based on input from our more than 40 clients is a great differentiator.

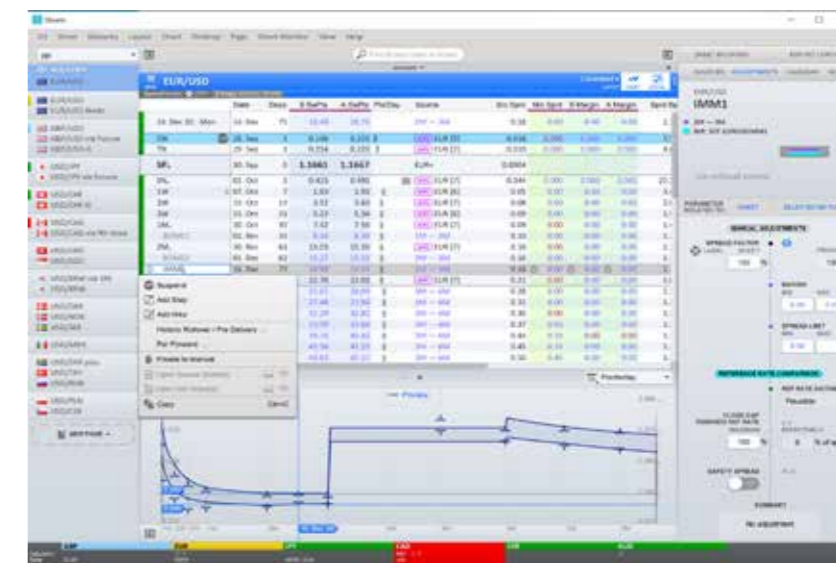
Increasingly, our clients are seeking a much higher level of automation and a seamless integration with their existing technology and systems. Therefore, we have also been open to partnering

with other best-in-class IT providers in the FX market.

Please remind us about the key products and services currently offered by DIGITEC and the type of clients you work with?

DIGITEC offers three key solutions for global FX markets:

Firstly, 'D3' is our core pricing engine specifically tailored to the needs of FX swaps, forwards, NDFs, and MM. It is mainly used by banks, but we are increasingly seeing interest by other financial market participants that are seeking a more active role like asset managers and hedge funds. In a nutshell, D3 deals with all aspects of the pricing workflow: from market data aggregation to setting interpolation methods and daily pricing tasks like spread management and reference checks as well as alerting and monitoring, e.g. suspending off-market prices. D3 is also used to distribute prices to downstream FX e-Commerce systems and digital client channels.

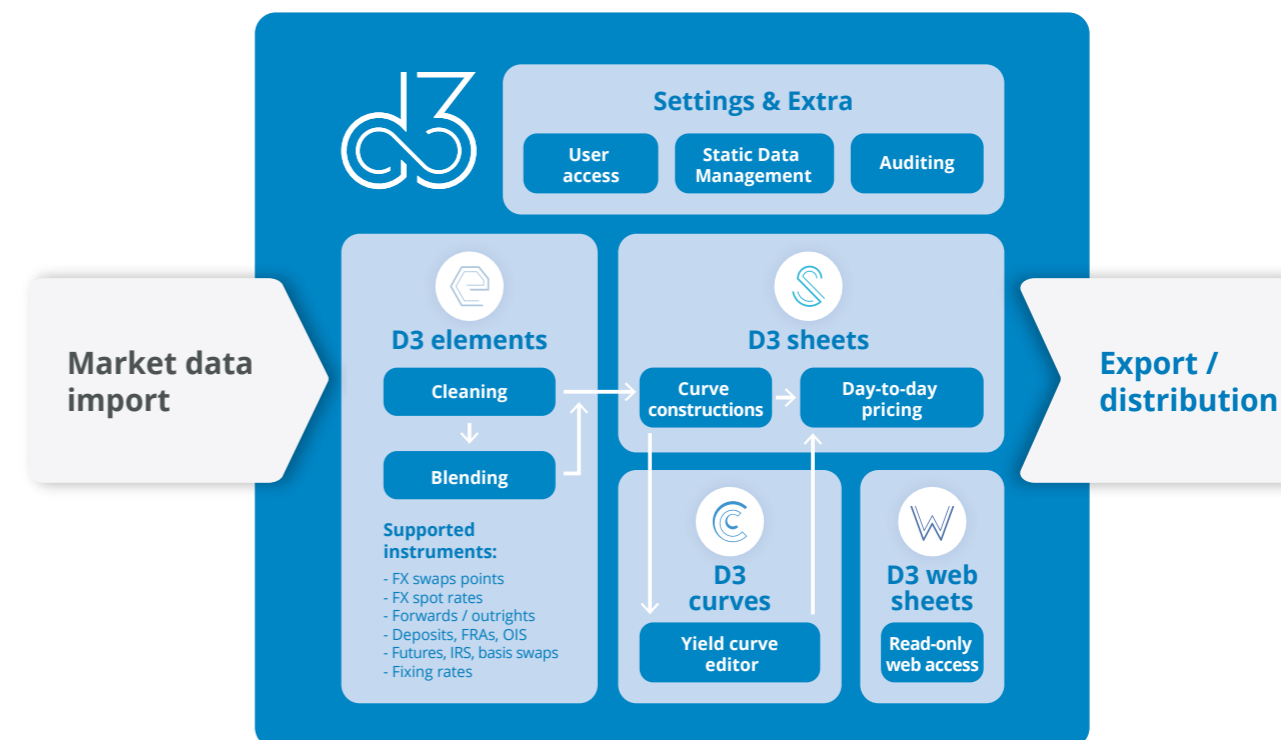


D3 sheets

Secondly, based on D3 and in close partnership with 360T, we have developed the 'Swaps Data Feed' (SDF). This market data feed for FX swaps offers a sophisticated blend of raw FX swaps prices from a panel of more than 20 contributors and allows us to stream FX prices in more than 1,800 crosses of G10, LM and NDF currencies including broken dates and turns. As the calculations are run on our D3 core pricing technology this was a very natural – and now extremely

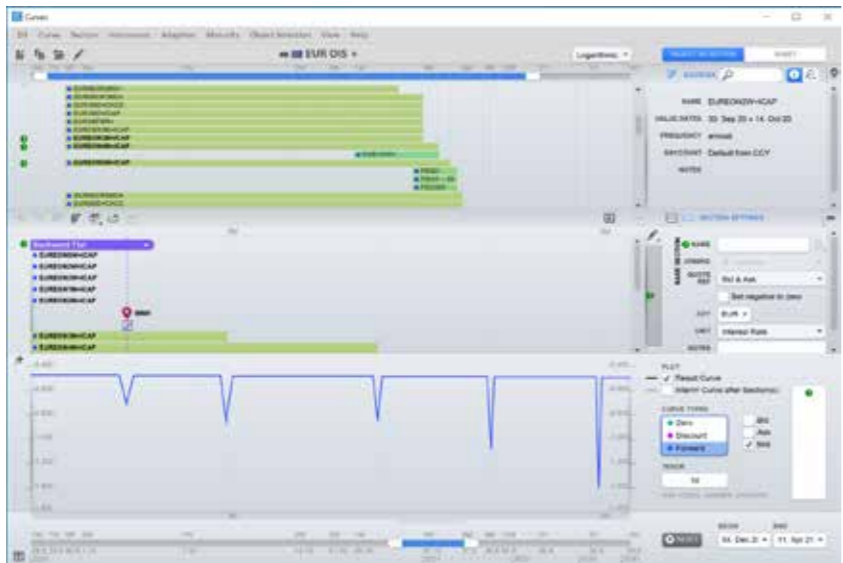
successful – addition to our product portfolio reflecting our expertise and deep domain knowledge in FX swaps and forwards. The SDF is consumed by the full range of FX market participants, from banks and brokers to asset managers and corporates.

Last but not least, with our product 'DealLane' we have been a provider of backoffice trade settlement technology solutions for more than 10 years. We have a complete and fully scalable backoffice settlement system



D3s modular architecture

DIGITEC – Talking with an e-FX specialist



D3 curves

that handles FX and Money Market transactions.

In what key ways can banks enhance their market making capabilities with D3?

D3 is the world's market-leading pricing engine for eFX swaps and forwards, with more than 40 clients that already trust in our solution. Although there are similarities across the various use cases, each instance represents our client's unique use case.

A very common theme is that banks with ambitious growth plans can increase their volumes with our D3

core pricing technology on multi-bank platforms, while they can also begin trading new currencies and extend their trading hours to other time zones – all made possible by the high levels of automation and the monitoring tools that D3 provides.

Yet - besides all the functionalities that define a pricing engine, we have also learnt from our customers that they often choose D3 because neither Microsoft Excel nor most in-house solutions are able to deal with the challenges of capturing audit trails, regulatory requirements, system monitoring, accountability and system

security. D3 addresses all these areas and offers much more.

Larger and globally leading FX businesses on the other hand often use D3 to offer the best connectivity across their different in-house systems. D3 serves as their dedicated distribution tool for downstream use, while some of them also turn to our advanced module D3 curves, a sophisticated yield curve editor used to build best in class models and curves via futures, OIS etc. These curves and models are then used in D3 sheets to derive FX points from. These are just a few of the use cases that have a common theme across our clients and I could go on for much longer. On the other hand there is always a unique element to all of our installations, as we offer a powerful and flexible tool, while our clients create their own models and curves.

DIGITEC has recently talked about expanding its customer base and supporting smaller banks to become competitive market makers. Why have you taken that decision and how are you going about it?

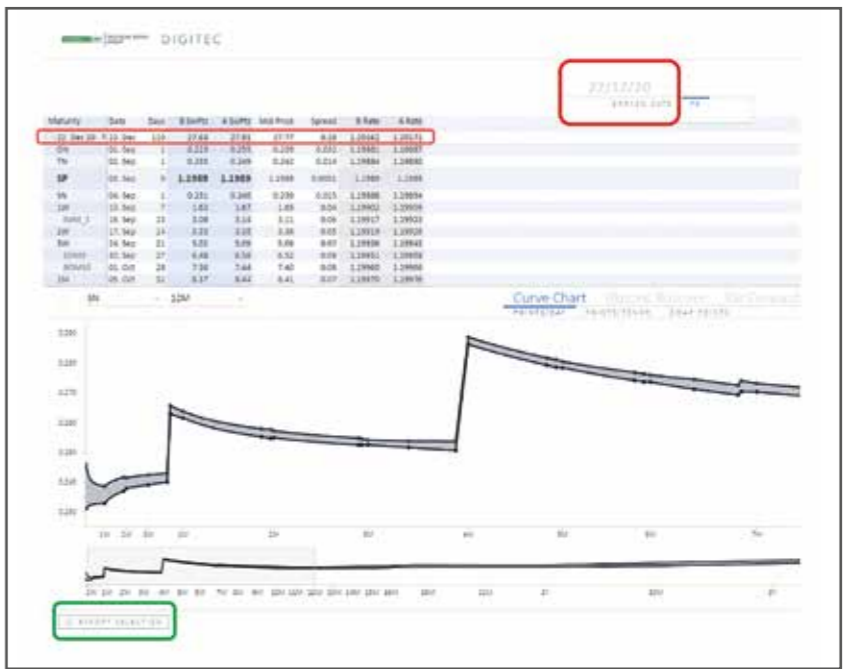
This development is obviously closely tied to the fact that the banking industry is increasingly opening up to cloud and SaaS technology solutions. Until very recently most banks were running third party software solutions on-premise.

That would have been particularly true for powerful applications with complex calculations like our D3 pricing system. That always also implied an additional investment into hardware and admin resources on our clients' side that would have been needed. Now, with our private-cloud hosted by DIGITEC and especially our plug-and-play full-service SaaS solution, a D3 installation has never been easier, more resource-friendly and accessible.

Recently we have onboarded new clients with only two or three traders on the desk, but who are ambitious to scale up the number of currencies they actively risk manage, extend trading hours and generally enhance their market making capabilities.

With the increased electronification of FX swaps and forwards markets as well as an increasing appetite for and evolution of client preference to electronic trading, we have seen strong interest among smaller and medium-sized banks to move away from back-to-back and become more independent.

With a much more accessible range of D3 technology solutions, like the D3 SaaS solution, and combined with a comprehensive and reliable market data source like the 'Swaps Data Feed', this has now become possible.



Swaps Data Feed

In 2018 you played a key role in the launch of the award winning DIGITEC / 360T Swaps Data Feed (SDF). What role does it play and how successful has it been?

We can see from the client interest that there has been a lot of talk about the SDF. It has effectively become the market standard for FX swaps and forward market data in a relatively short period of time. And, of course, we could not be happier about its success and popularity in the market. Also, we have been very lucky to have partnered with 360T to launch this product. Both their deep understanding of the FX market together with their sales and marketing capabilities have helped to make the SDF as successful as it is today.

How ambitious are DIGITEC's goals for the coming year in terms of launching new products and broadening your industry footprint even further?

I would say we have very ambitious goals. This is a very exciting time in our industry and there is a tremendous opportunity for DIGITEC to build on the strong momentum and growing demand for our products and services.

Advances in technology are now making our products and services more accessible. While this is true for many technology providers, it is especially true for the market-leading core pricing technology that DIGITEC offers. With the increasing electronification of FX swaps and forwards as well as NDFs, there is also greater demand for core pricing technology for these products in FX. As a result, we are currently in the process of expanding our presence internationally.

Historically, we have only had one location in Hamburg, Germany, that we have operated from. We are planning to open additional offices to support our sales and business development efforts globally. Productwise, D3 is a truly never-ending product. We have a team of product specialists and developers that continue to bring new features and capabilities to market, based on our clients' requirements. Recently we have focused on our sophisticated NDF pricing functionality and D3 curves, our more powerful yield curve editor and we have an exciting roadmap with new and additional features. Market data will, of course, also continue to be a major area for us going forward.

Infographic titled 'D3 HOSTING SOLUTIONS' showing three options: 'On premises self-hosted by client', 'Private cloud hosted by DIGITEC', and 'Full-service SaaS solution by DIGITEC'. It also lists 'Import market data' sources (360T/DIGITEC SDF, Refinitiv Elektron, Bloomberg B-PIPE) and 'Export / distribution' methods (DIGITEC FIX API, DIGITEC JAVA Streaming API, RIC EXPORT).

D3 Hosting solutions



Supervision Technology: Why FX needs to go beyond surveillance

As FX banks focus on ensuring their controls around regulations and voluntary codes are robust, Jena Axelrod, Director of Sales, Ideal Prediction, outlines why it is essential that the technology they rely on is suitable now and in the future.

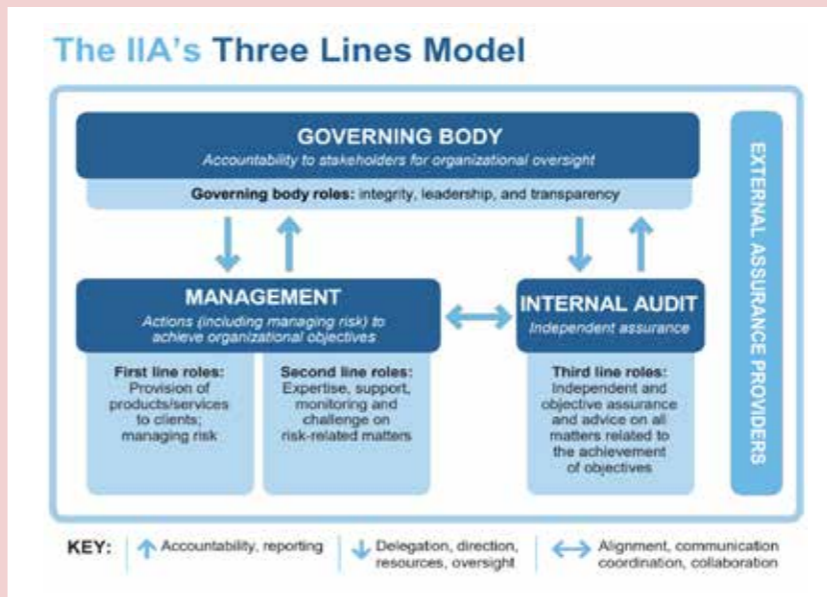


Jena Axelrod

Last year exposed some inconvenient truths and proved a watershed year for conduct risk, with a string of fines, reminding trading firms of the true cost of non-compliance. Individual accountability rules vary by jurisdiction but in Europe The Senior Managers & Certification Regime (SMCR) adds the threat of business heads facing specific enforcement for conduct failures within their teams.

THE NEED FOR SUPERVISION
Within the front office, the first line of defense supervises sales and trading. This construct, with 3 lines of defense, was driven from the 2013 Position Paper of The Institute of Internal Auditors (IIA) and persists in many organizations today, but is one that firms now need to revisit since the IIA 2020 update. The revised IIA standards reflect and reiterate the need for front-office responsibility for the

Source: The Institute of Internal Auditors (IIA)



The IIA's three lines model

supervision and monitoring of their own actions. This doesn't negate the need for an independent surveillance team, the second line of defense, but suggests that firms need to adopt a framework where both the front-line and an independent team work together to ensure that an institution's market conduct is appropriate.

The IIA update coupled with SMCR means bank senior management can no-longer rely on the idea that it is another person's job to monitor trading behaviors. All institutions are aware that although regulations covering market abuse and misconduct are often principles-based,

the regulators' response to failure is explicit.

The change in IIA standards is consistent with the way that OTC markets have evolved. The adoption of the FX Global Code (FXGC) is a response to many industry factors including scandals relating to fixing and last-look, yet it was in many respects ahead of its time. Bodies like the The Fixed Income, Currencies and Commodities Markets Standards Board (FMSB) and Global Foreign Exchange Committee (GFXC) have promoted best practices within the group of organisations they serve, but the weight of central banks, each

pushing for compliance with FXGC within their jurisdiction has resulted in thousands of voluntary signatories.

By signing the FXGC, a financial institution is declaring an intent to adhere to best practices as outlined in the document text. Ideally, member firms demonstrate their commitment through an independent audit to ensure adherence. While seemingly honor based, we see regulators require banks to demonstrate compliance with the code as part of their enforcement remediation, in such actions as the 2019 settlement agreement of The Ontario Securities Commission with the Royal Bank of Canada. In the next 18 months we can expect more banks to put themselves forward for self certification.

Whilst every firm has embedded a surveillance function to monitor for market abuse, the wider range of best practices outlined in the code stretch way beyond the scope of surveillance. Demonstrating compliance to these broader principles-based requirements, are beyond the scope of the automated tools that exist today. As FX banks focus on ensuring their controls around regulations and voluntary codes are robust, it is essential that the technology they rely on is suitable now and in the future.



Regulators are taking a less prescriptive and more principles-based approach to trading controls

THE RISE OF REMOTE WORKING
With salespeople and traders working from alternative offices or from home, the need for improved supervision in FX has increased significantly. Existing policies that were effective when people were physically located on trading floors are lacking when the same staff are working remotely.

E-comms monitoring cannot detect the use of personal cell phones or communications on unmonitored social channels. Physical and human

deterrents that exist in the office environment cannot be replicated by a firm at a person's home. At the same time, remote workers have been challenged to perform with limited access to necessary systems. Compliance monitoring teams nimbly implemented new flexible policies to address these challenges while many of these risks remain only partially mitigated. It is clear that despite a significant shift to remote working, and in some cases, because of it, the FX market remains volatile and daily volumes continue to grow.

PRINCIPLES VS REGULATIONS - THE SPIRIT AND THE LETTER OF THE LAW

For any firms thinking that the pandemic has resulted in some leniency by the regulators, this is far from the case. For example, the Financial Conduct Authority (FCA) in the UK has been clear about its intention to ensure any market abuse that takes place during the Covid-19 pandemic is tracked down and addressed.

Regulators are taking a less prescriptive and more principles-based approach to trading controls and FX banks are being urged to go beyond what is written in regulations, and demonstrate they also understand and adhere with their spirit.

It is insufficient for a firm to demonstrate compliance in equities (where electronic trading rules are highly prescriptive) but allow an

electronic FX business to trade without the same internal scrutiny. This approach places firms under pressure to ensure their conduct – and ability to evidence it – is of the highest standard, satisfying the most stringent interpretation of any applicable code or regulation. In the past, too many financial firms have waited for such specific direction from regulators before bolstering existing checks related to principles and codes, or rolling out new ones. This is now changing.

PERSONAL RESPONSIBILITY

With regulations such as Dodd-Frank in the US and SMCR in the UK making individual accountability a reality, senior managers are now personally liable for any failure to adhere to regulations governing conduct. SMCR has made senior managers who are responsible for FICC trading more scrupulous about regulatory and conduct risk. In many cases this has been a key factor behind decisions to invest in technology platforms. The first line of defense has traditionally monitored trades for compliance with regulations, and more recently includes best practices around issues like last look and spread, that require a firm to act consistently, fairly and proportionately.

Third party platforms are able to provide supervisory desks with objective independent assessments, as well as an audit trail that they are adhering to best trading practices and

standards, including the Market Abuse Regulation (MAR), the FXGC and the FMSB.

APPLYING ADVANCED TECHNOLOGY TO SURVEILLANCE

As traditional surveillance solutions have started to cover more use cases, the number of alerts that they produce has increased, resulting in what some compliance teams call “alert fatigue.” Sophisticated surveillance tools have created a solution for this - automatically closing some of the alerts through AI /ML – but this really just masks the problem.

Contrary to conventional opinion, advances in technology mean that principle-based regulatory regimes can be translated into prescriptive checks. Firms can independently analyze algo and human trading activity – at scale- but it requires a different approach.

The first step is understanding the principles and standards, such as those included in the FXGC, and correctly defining them, which results in better analytics that go beyond the letter of the law. By combining modern and flexible technology with industry knowledge and experience, some firms like Ideal Prediction have been able to codify principles-based documents to provide structured analytics from raw trade data. This improves supervision and surveillance, enabling evidence that firms are trading in a responsible and ethical way.

Applying innovative engineering to conduct risk further requires that data is automatically ingested from various sources, across multiple asset classes, and in a myriad of different formats, and then normalized by the provider, saving firms many hours of data management issues and headaches. Such technology advances allow providers to mitigate regulatory risks and deliver real-time analytics,

data security, and visualization customized to each user. Compliance and supervision teams rely heavily on this technology to monitor trades and behaviors. As Covid changed the way many people work, the need for flexible technology increased, as clients want to quickly refine services and reports and add new features.

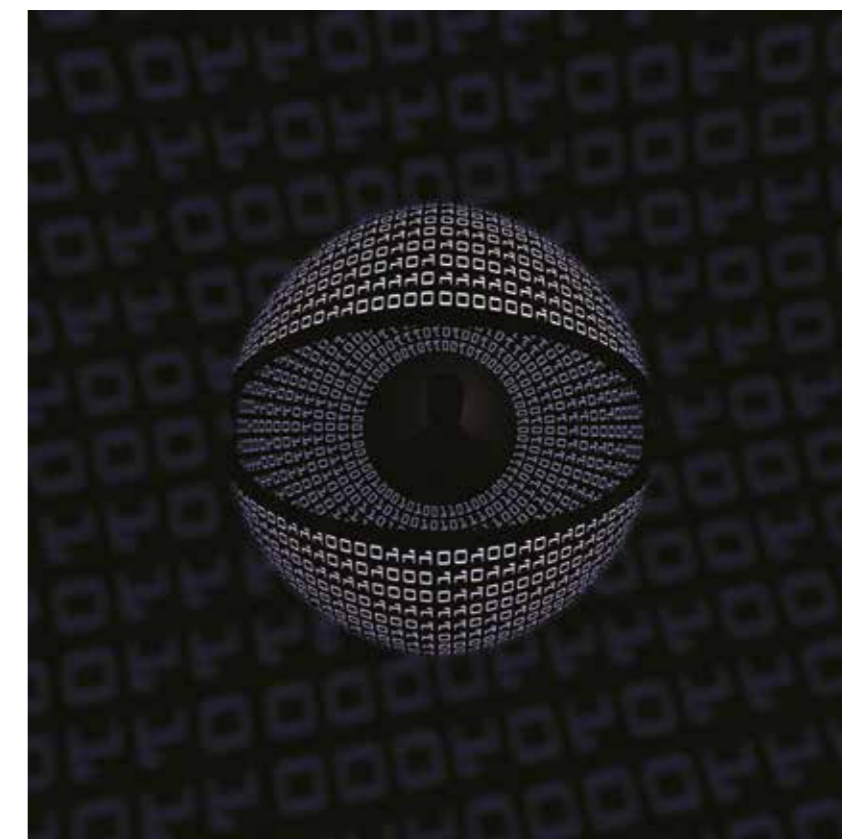
Visualization is a core component of any modern surveillance technology, enabling supervision and surveillance teams to quickly cut through huge volumes of data to identify any suspicious activities, or evidence adherence.

Systems, such as Ideal Prediction's Scope, alert financial firms to potential issues of last look misuse, for example, by examining the order response times on trades. Not only does a system need to check if there are long response times but why, for instance, in response to sudden market moves. Checks for spikes in order throughput and even small breaches of risk limits, can be enhanced by comparing this with peer group activity enabling banks to investigate the causes.

Many of these flagged behaviors are usually not malicious in intent, but may look cosmetically bad, which means that firms need to understand any issues and document them.

INDEPENDENT AUDIT TRAILS - YOU CANNOT GRADE YOUR OWN HOMEWORK

Identifying nefarious trading activities is vital, as is identifying behavior that has the appearance of impropriety. This is why more trading firms are turning to third party systems, where there is little to no risk of a lack of objectivity skewing results and audit trails. Equally important is the storage of records. Documentation around trading activity, storing the flags a system produces in a centralised



Visualization is a core component of any modern surveillance technology

location, tracking the actions taken, and providing an immediately accessible audit trail in the event of an internal or regulator investigation are vital to mitigating regulatory risks.

During an audit or investigation, it can be hard for traders and their supervisors to explain historical decisions and evidence the processes they followed. For example, if asked, “How did you check that the limit you had in place on May 18 last year was really 15 orders per second?” These types of queries are hard to prove unless there is access to evidence from every single year that you are adhering to a process.

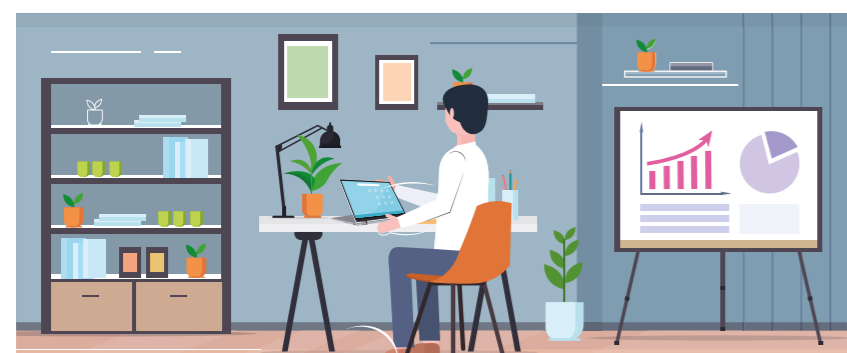
FUTURE PROOFING SURVEILLANCE AND SUPERVISION

As the Covid-19 pandemic continues, some traders have returned to the office, but others are expected to work from home and other locations for some time to come. In this working environment, compliance

and supervision teams need to continue to enhance oversight to better detect and investigate nefarious trading activity. In general, traditional out-of-the-box first and second line surveillance tools are limited in their flexibility, lacking the breadth and specificity to incorporate FX codes and standards to which banks need to adhere.

Looking to the future, technology platforms that will thrive are location and asset class agnostic, highly adaptable, analyzing the spirit as well as the letter of the law.

In essence, trading firms must pick a technology partner that is future proof. In the mitigation of conduct risk, it is vital to adopt third party tools to enhance internal systems and to evidence independent objective audit trails. Equally important is to work with providers who are skilled at implementing the more nuanced approaches needed to adhere to principle-based codes of conduct.



Physical and human deterrents that exist in the office environment cannot be replicated by a firm at a person's home

Prime benefits become more apparent for Non-Banks in today's trading environment

BENEFITS



Justin Boulton

With everything that has happened in the past 18 months – the COVID-19 pandemic, the mounting geopolitical tensions and the collapse of the oil market to name a few – it's no surprise to see Non-Bank financial institutions (NBFIs) wanting more security when accessing credit as well as pricing and execution, writes Justin Boulton, Head of FX Prime Brokerage at FXCM.

The effects of the economic, geopolitical and health crises are complex and multi-layered. While they are felt in every corner of the market today, the smaller and medium-sized NBFIs are poised to suffer the most. Even before COVID-19, banks were tightening credit conditions and raising asset requirements for accessing their prime brokerage clients. Over the last few years, this has squeezed out smaller market participants from trading opportunities – a pain keenly felt during a time of unprecedented market volatility. As the world begins its slow push towards normality, how market participants in the prime broker space react will set the tone for years to come. Is it likely to be more of the same, with more and more participants being squeezed out of the market?

At a time of volatility and rising volumes, the FX market remains strong. Access to a prime broker and all the benefits and security they offer have never been more important than today. Luckily, as the pool of market participants has expanded over the last decade, banks are no longer the sole providers of prime brokerage services.

Access to better trading opportunities, liquidity and the security of trading through an established broker and credit provider are available at faster and cheaper entry rates than traditional tier-one banks. The use of prime-of-prime brokers is an avenue that small and medium-sized hedge funds, emerging market banks, retail brokers, asset managers and high-frequency trading firms should carefully consider.

MANAGING CREDIT RISK IN TIMES OF VOLATILITY

While capital market participants are no strangers to volatility, no one could have been ready for the stress brought by the COVID-19 pandemic. Trading volumes hit record highs in some areas while ceasing altogether in others.

Like banks, the biggest challenge for most brokers offering prime-of-prime services is often how to manage credit lines efficiently across a range of platforms. Given the volatile nature of the foreign exchange (FX) markets, the prices offered by trading platforms vary significantly, meaning that clients may want to trade across several platforms at any time in order to hedge their exposure effectively and get the best prices.

A true prime-of-prime broker can help manage this exposure with low-latency software and by conducting thorough pre-trade credit checks on every trade that goes to the system.

ACCESSING THE BEST LIQUIDITY

Without a prime-of-prime broker, smaller trading institutions are not only cut off from the best pools of liquidity but also see stunted trading opportunities. Trading solely with institutions of the same size can limit trading opportunities as market participants are constrained by the size of their trades and the frequency of their counterparty's trading activity.

By leveraging a prime-of-prime broker, a neutral intermediary that facilitates access into a bigger and bolder trading space, such constraints are less likely to occur. Participants can have more trading opportunities at better prices, and trade at a greater frequency with bigger institutions.

As the growth of NBFIs in FX is set to continue, the market environment should complement an all-to-all trading model, whereby users can act as both liquidity providers and liquidity takers. While some brokers will use the words 'prime' to suggest they offer these services, not all offer the same depth of institutional liquidity that should rightly be expected from a prime broker.

In this respect, its key to recognising the difference between those offering direct market access to multiple venues while acting as a clearing partner, and those offering access to their own liquidity pools while claiming to be a neutral prime-of-prime broker.

THE CHALLENGES FACING THE PRIME COMMUNITY

One of the biggest challenges for brokers offering prime-of-prime



Trading institutions usually prefer to access multiple platforms to achieve the best possible execution

services is managing credit lines and risk exposures efficiently for multiple clients. Typically, trading institutions prefer to access multiple platforms to achieve the best possible execution and use their allocated capital across different trading venues.

If a customer is allocated a net-open position of USD100 million, for example, and has access to five trading venues, some prime brokers can only offer USD20 million for each platform to ensure fair access and distribution of capital across trading venues. This limits a customer's ability to use the allocated capital efficiently and achieve the best trading experience.

To counter this, some prime-of-prime brokers have occasionally found themselves extending credit lines of USD100 million for each venue, exposing them to significant operational and credit risks if their customer were to default. When replicated across hundreds of customers, these institutions become a potential source of systemic risk.

It's therefore critical for prime-of-prime providers to incorporate robust risk and credit management mechanisms. Low-latency solutions have permeated many areas of financial markets such as trade execution and analytics; prime services and credit management should not be exempt from this innovation.

The technology exists for service providers to enhance their business by operating a unique low-latency software that automatically conducts a pre-trade credit check on every trade that goes through. This ensures its customers have access to sufficient credit across all venues so that their trading is not impacted.

Credit is the lifeblood of the FX market, yet many lenders were delivering credit largely in the blind, with no idea if the borrower is good for that amount. Pre-trade credit checks are therefore essential and must have the capacity to operate seamlessly in the fast-paced nature of the FX market.

Not only should it deliver checks but taking our own pre-trade credit

solution as an example, it should be able to provide aggregation, SOR and TCA capabilities and all back-office requirements that an FX participant should want.

BROADENING THE TRADING COMMUNITY WITH SMALLER PARTICIPANTS

The increasing participation from NBFIs in the FX market is a welcome development. Prime-of-prime brokers can take on the exposure that prime banks are unable to provide and help support this all-to-all trading environment. In today's conditions, we should look to develop trading opportunities rather than limit them.

A broader trading community with a diverse range of actors and institutions is not only necessary for the growth of our dynamic market, but it is a rapidly materialising reality thanks to the growth of prime brokers.

As the access to bigger and better trading opportunities is widening, a true prime-of-prime broker can be the solution to greater market access, greater liquidity, and ultimately, greater profitability.



It's critical for prime-of-prime providers to incorporate robust risk and credit management mechanisms

Build vs buy

Key considerations when seeking best in class trading platform technology to satisfy your clients demands

When heavyweight competitors have the ability to invest millions of dollars in their product offerings, the reality is that many smaller brokers who are limited to a generic trading platform or even a modest proprietary interface are likely to struggle to maintain client relationships in the long term. Those well-worn claims of best execution, tight spreads and quality customer service invariably lose their lustre over time, meaning best laid marketing efforts go to waste and client churn numbers remain stubbornly high.

As the industry continues to mature and more broker owners are looking at sustainable business models that may also have the potential to yield a meaningful exit strategy, is a more prominent focus on the actual user experience the route to a brighter future?

The sheer number of downloads for the MT4/MT5 trading platform makes it difficult to ignore the popularity of this core product. However, with functionality being limited and brokers

who want to truly support clients being left to augment this with a series of third-party add-ons, it hardly creates a slick client experience. It remains too easy for clients to be lured to other providers on factors such as price and there's little reason for any adhesion in the customer relationship.

Smaller brokers do however have a choice here, one that can deliver a quality service at an acceptable price point. For many, committing to building then maintaining their own platform would be prohibitively expensive, but linking with an established broker who has a partner program can prove to be a genuine win-win solution. There's no change in 'ownership' of the client relationship and individual brokers retain the ability to customise pricing, but at the same time can offer access to a state-of-the-art trading platform, which has been built to - and is then maintained at - exacting standards.

As Craig Inglis, CMC Markets Head of Europe, explained, "There are such clear economies of scale when it comes to platform development, that smaller brokers really will struggle to get a toe-hold if they're trying to develop a multi-channel offering that's built to a high specification. We invested \$100m in our product at the outset and have a team of almost 100 in-house developers working to fine tune and enhance the offering every day. The economics of that only

makes sense as a result of the sheer numbers of clients we are working with, both directly and via CMC Connect, our institutional division."

The challenge goes beyond the technical task of building and maintaining the functionality of a platform, too. It seems clear that understanding how users interact with any platform and ensuring that the experience is as engaging as possible at all times will also provide a significant benefit in terms of the client relationship. Again, that's a task which is always going to be far easier to fulfil when there is a bigger cohort of clients to work with.

As Inglis went on to note, "We have a community of traders who we seek feedback from on an ongoing basis, not only to help us understand what they want for the best possible user experience, but also to ensure any new developments are tested fully. There's no point investing in enhanced functionality if ultimately it doesn't help improve the client experience. I think this is becoming even more important for CMC, now that we have devolved commodity aspects of our IT set-up such as server management out to AWS, which has freed up a lot more developer resource internally. That means we can accelerate product releases, but again these have to be tested. A big pool of users who are willing to share their opinions again is hugely helpful here."

Smaller brokers looking to establish that foothold in the market will inevitably have a keen eye on costs, alongside how any additional spend will impact shareholder returns. MT5 licenses offer a cost effective starting point, but once additional features and functionality are bought in to make the client experience better, the costs soon start to mount up.



Brokers have a fine line to walk when it comes to balancing traders' needs whilst simultaneously delivering against shareholder demands.

"Out of the box, it's fair to say no one does it better than CMC" was the concise assessment of Inglis, who went on to explain that the company's white label solution was fully comprehensive, whilst still allowing for plenty of flexibility to suit individual business needs. "These brokers get the entire package with us, including access to the entire range of almost 10,000 different instruments, all backed off by a strong support network with great execution and no hidden costs. When it does come to customisation, that revolves very much around the commercial aspects of the broker's relationship with their client; reporting tools to understand which products perform the best; and the integration of sentiment data. What's more, that's all available on a self-serve basis to the broker, allowing them to complete simple client admin tasks without the need to call us every time, but those prized functions such as our market-leading charting – both on mobile and desktop – and third-party news feeds, are always part of the core offering."

CONCLUSION

Brokers do have a fine line to walk when it comes to balancing traders' needs whilst simultaneously delivering against shareholder demands. There may be quick and cheap routes to market on offer, but recruiting and then retaining those clients remains a huge drain on resources. If brokers want to build a sustainable business model, the clear message appears to be that generic trading platforms simply won't cut it and without a significant user base, trying to fine-tune a proprietary or hybrid trading platform will be a relentless task.

As Inglis concluded "Up front, the economics on a white label proposition may look a little daunting, but it's clear that the total cost of operation cannot be ignored. What's the actual cost of doing this yourself, then supporting and enhancing the platform over time? Or perhaps even more significantly, what's the opportunity cost of not simply taking a comprehensive, off the shelf solution, in the first place?"



Craig Inglis

Upgrading FX payments systems to reduce risk without causing disruption

By Arjun Jayaram, CEO and Founder of Baton Systems



PAYMENTS



Arjun Jayaram

It goes without saying, payments are fundamental to the financial ecosystem. Whenever banks or financial institutions interact with one and another, such as through transactions or trades, it results in one or more subsequent payments. The larger the financial institution, the more complex the products traded; the risks they take; the value of settlements; the regulatory constraints; their balance sheets; and the liquidity knock on effects. This makes

payments systems and workflows in capital markets very difficult to manage, as they need to function with multiple asset classes, across multiple jurisdictions and connect effectively with an array of other systems. As FX industry participants continue to adopt digital and electronic systems, financial institutions are grappling with the idea of enhancing their legacy payments systems to make workflows more efficient, reduce risks and increase intraday liquidity. However,

upgrades cannot be done by massive “rip and replace” strategies. Not only would this be extremely costly for an institution, but also incredibly time consuming, both of which can explain why legacy systems are still in place today.

Instead, enhancements have to be made metaciously by a set of deliberate module by module upgrades that provide interoperability with the objective of future-proofing the system. This is so that future upgrades can continue to deliver increasing value with lower risks, faster settlements, and lower costs while in compliance with global regulatory standards.

Nonetheless, financial institutions push back on making these enhancements, as they can still be expensive despite being only a small part of the overall cost picture. We don’t need to look far to see other areas where costs manifest in a bank itself, including:

1. Capital costs
2. Suboptimal management of liquidity
3. Operational costs
4. System development and maintenance costs

In each of these, legacy systems exacerbate the bank’s operations and processes expenses, which is why it is essential for financial institutions to upgrade their payments infrastructure.

THE NEED FOR FASTER SETTLEMENTS

Many market participants are familiar with the 2019 BIS paper, which highlighted how FX settlement risk still remains significant in the industry. It found that more than 50% of the 18 trillion plus gross notional of daily FX trades are not settled in a payment-vs-payment (PvP) manner. Furthermore,

in December 2020, BIS issued supervisory guidance to banks that do not settle FX transactions via PvP to help minimize the size and duration of their principal risk, while enabling them to conduct timely reconciliation of payments received.

When there are delays to settlements or increased risks, it may lead to additional capital and funding charges of processing the payment, making it more expensive to do business. In many cases, banks will be unable to conduct more transactions unless this risk is covered or actively reduced. Delayed settlements can also lead to pressures on intraday liquidity, exacerbating these costs if the bank is unable to cover a payment.

Often, these capital and liquidity charges dwarf the operational and system costs necessary to facilitate and improve the whole settlement process. The good news is that banks are realizing that these issues need to be addressed now. By having safer and faster settlements, banks can mobilize their assets quickly to reduce risk and capital and liquidity costs, while possibly increasing revenues. So what do post-trade systems need to be able to achieve this?

NORMALIZED REAL-TIME VIEWS, MEASURES OF EXPOSURES AND FUNDING SOURCES

Currently, it can be fairly straightforward for most banks to calculate what their settlement exposure is going to be when taking on an FX trade, but this forces certain assumptions to be made:

1. If the currency pair is CLS eligible, it will be settled through CLS without any issues
2. The trade may or may not be netted – this will provide some room for manoeuvre unless the

bank prevents the counterparty from having any flexibility

3. Offsetting trades will/will not be placed subsequently – this lack of clarity means a bank may reject a trade that is going to subsequently be “flattened” (e.g. through a rolled position/swap) or will accommodate a trade on the assumption that it will be flattened, therefore taking on that risk if it isn’t
4. When under FXPB, banks will have to control the risk operationally rather than by managing the situation at the point of transaction, as it is much harder to manage settlement exposures at the client level due to the nature of the give-up agreements

Banks already assign risk and limits to clients based on whether they are settling payments on a net or gross basis. Similarly, a CLS client will be viewed as less risky when compared to a non-CLS client, as the payment is settled by PvP. The problem for calculating risk, though, is in the actual process downstream. For example, if a client now decides to settle under a gross basis for some trades, those will never be sent back to the central risk management system (CRM) to adjust earlier risks and limits; this also applies to CLS. Additionally, many of the larger banks have highly manual processes for settling trades outside of CLS. Operators often need to get VP-level approval to process the trade, and then will have to inform the relevant CRM for this.

Also, given the fragmented and complex nature of the FX trading landscape, it can still be challenging for some banks to view FX risks by counterparty, currency pairs, and funding sources across legal entities in real-time – especially when settling

Upgrading FX Payments systems to reduce risk without causing disruption



It can still be challenging for some banks to view FX risks by counterparty, currency pairs, and funding sources across legal entities in real-time

outside these assumptions. To make matters worse, current legacy banking systems are also complex and changing them could add additional risks to their overall settlement process.

Thus, it's imperative that implementation of new modules only requires configuration changes, and are not intrusive to the current payment infrastructure. If these modules deliver access to and measure the real-time risk metrics of exposures and obligations – with real-time visibility across all funding sources for all entities, while being transmitted over high speed APIs and consolidated on a dashboard presenting cash flow projections – banks will gain a distinct advantage. Without this, it will become increasingly difficult for banks to compete as the industry evolves.

RISK THRESHOLDS AND NETTING STRATEGIES

By upgrading a payments system with access to real-time exposures, banks can more proactively manage funding sources and liquidity across any given trading day. This helps unravel the topology of maximum exposures by counterparty or currency position, opening up a new dimension of resource management. To do this, banks may apply actionable risk and

netting strategies, such as automated notifications of approaching limits, imposed limits and exposure cut offs, collateralized positions, and counter positions.

Additionally, introducing new netting strategies on a collaborative basis, including the ability to pre-test, enables banks to more readily see the risks they will be taking. Most netting is done on VD-1 or early morning of VD, whereby netting of all trades is agreed across currency pairs at that particular point of time, but this is usually limited to one product. In the case of FX, these transactions are not normally netted with PM FX, NDF closeouts, or option payouts, and even exercised trades can be out of scope. Thus, deploying STP or an automated netting process that provides programmability and interoperability with existing systems is incredibly important.

It is also mandatory for banks to have intraday liquidity buffers in case they don't receive all payments, but must still make all outstanding payments. Settling on a PvP basis rather than going through a bilateral settlement can help reduce the size of the buffer and provide more certainty to counterparties from both a risk and funding perspective.

This is why new modules must be compliant with ISO 20022 to avoid being excluded from international payments systems. Alongside, they must also have normalized data models that can integrate with existing bank infrastructures through secure access protocols, even if the new modules are built on more recent technologies, such as DLT and cloud.

CUSTOMIZABLE LIQUIDITY MANAGEMENT AND ACTIONABLE PAYMENT ANALYTICS

Banks need to ensure that any module upgrades can interoperate with existing treasury systems through API or embedded user interfaces, allowing them to manage their settlement processes more effectively. For example, at Baton (along with other workflows), we've gained two simple but powerful actionable insights that delivered greater ROI in six months for customers:

1. The ability to use shared settlement accounts across legal entities to settle FX obligations, instead of having separate nostros for each currency in each legal entity
2. Automated conditional payments, where two FX payment legs occurred simultaneously in different markets

These not only enable banks to view nostro balances in real time with interbank collaboration, but also optimize cash movements for a safer and faster settlement process.

ESTABLISHING DISTRIBUTED, COLLABORATIVE WORKFLOWS

Even the most sophisticated and well architected bank post-trade systems often have exceptions and new standards for the FX payments ecosystem will not be emerging

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anytime soon. Consequently, banks need to think differently about how they collaborate, so they can break down the barriers to progress which exist today.

I'm a strong advocate for banks being able to see a shared view of real time normalized data with three-way merges, as it enables financial institutions to identify and address anomalies in their settlement process. With three-way merges, the golden copy of trades based on confirmed copies, books and records can be sourced between two banks. This shows in near real time, the differences at a gross/net level, giving the two banks a platform to collaborate with a shared audit trail – easing the management of the whole FX trade lifecycle, from matching all the way to faster safe settlement and instant reconciliation

Finally, any upgrades made to the post-trade settlement system must be done securely as cloud-based installs. Over the past few years, we have seen banks accelerate their adoption of cloud technology and move to cloud-based infrastructure to reduce costs and increase scalability. Cloud technology is also providing the standards of security and encryption that banks require. This is why when implementing newer technologies, banks must ensure that they are able to demonstrate the discipline and rigor of information security, business continuity, and disaster recovery.

While it may seem daunting to upgrade post-trade systems, the truth is that legacy technology is outdated. As the market continues to evolve and open up to new jurisdictions and more currency pairs outside of CLS, where possible, banks need to minimize their

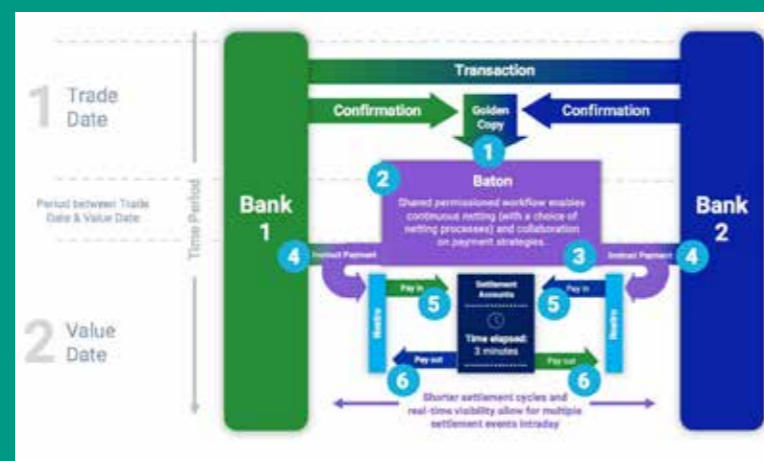
exposure to risk. By making these necessary upgrades, banks can move closer to settling in a PVP manner, not only reducing costs, but also

accelerating the entire settlement process, while generating significant capital efficiencies.

At Baton Systems, we accelerate the movement of assets in any currency or security between counterparties through distributed ledger technology and a rules-driven engine, enabling on-demand clearing, settlement and payments.

In the financial ecosystem, post-trade workflows, payments and reconciliations are complex and involve manual intervention to solve disparities between fragmented banking systems. This high-risk process is further burdened by capital and operational inefficiencies that slow payments and increase transaction settlement costs. The result is delayed payments between counterparties, requiring billions of dollars of capital to be locked up to pre-fund transactions.

Our platform speeds up a typical two-day settlement process to under two minutes – eliminating the need for pre-funding, freeing up billions of dollars in capital and improving operational efficiency – without the need to tokenize the assets being settled. For example, by integrating seamlessly with a firm's existing payment rails and operations, the platform synchronizes the change of ownership of two legs of a currency transaction, regardless of time or the number of settlement and custodian banks involved. Not only does this result in faster, more efficient payments, but also reduced risk, and instant reconciliation and reporting for all parties.



Our technology can be extended across multiple banks to synchronize payment-vs-payment (PVP) flows, providing full visibility of the movements between counterparties, settlement finality, complete audit trails, and real-time notifications. To find out more about how Baton solves the issues of peer-to-peer transactions by eliminating settlement risk, improving the availability of liquidity and reducing the operational burden for counterparties, visit our website.

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Clear Conversations.

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