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FX SETTLEMENT RISK
Closing the remaining mitigation gaps

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FX OPTIONS GROWTH
Which platforms win?

THE API ECONOMY IN FX
From access layer to alpha engine

DIGITAL ASSET SETTLEMENT
Bridging TradFi and Blockchain



COVER INTERVIEW

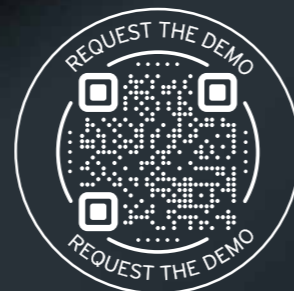
TIM HUTCHINSON

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This month we explore why FX settlement risk still remains a serious problem today and what steps are being taken to tackle it. Various things are keeping it alive, including incomplete payment versus payment (PvP) coverage, the continued growth of emerging market FX and a lack of standard methods and systems for FX payment processes which place added pressure on settlement systems and liquidity management. Settlement risk has become inextricably linked to liquidity risk, meaning that liquidity efficiency is increasingly seen as a settlement risk problem. The latest version of the FX Global Code of Conduct places much greater emphasis on settlement risk mitigation as a core pillar of market conduct, reflecting increased regulatory concern over systemic vulnerabilities. We will continue to report regularly on FX settlement risk and the various efforts the industry is taking to address this very important issue.

In this edition we are also investigating settlement solutions for institutional digital assets and have brought together a few important enablers of fiat-to-tokenised convergence in institutional post-trade infrastructure to discuss some of the core challenges that leading digital asset settlement providers are tackling. These include fragmentation, counterparty risk, regulatory uncertainty, slow settlement times and liquidity constraints to make institutional adoption viable. A key development is likely to be the convergence of digital asset settlement with tokenised collateral, intraday liquidity and repo markets and we agree with thinking that says once institutions can settle transactions atomically and with finality, entirely new liquidity and balance sheet optimisation models will become economically viable.

Finally our special report this time examines how APIs are becoming increasingly important in FX. They drive automation by removing friction at every touchpoint and enable instantaneous straight-through processing which lowers transactional costs and facilitates reporting obligations. They have evolved into the core architecture of systematic trading and are now expanding into the trading of more complex instruments which reflects an evolving market structure where speed, automation and automated rules-based trading frameworks are critical to managing complex portfolios.

As usual, I hope you enjoy reading this edition of the magazine.

Charles Jago
Editor

Susan Rennie
Susan.rennie@sjbmedia.net
Managing Editor

Charles Jago
charles.jago@e-forex.net
Editor (FX & Derivatives)

Charles Harris
Charles.harris@sjbmedia.net
Advertising Manager

Ben Ezra
Ben.ezra@sjbmedia.net
Retail FX Consultant

Michael Best
Michael.best@sjbmedia.net
Subscriptions Manager

David Fielder
David.fielder@sjbmedia.net
Digital Events

Ingrid Weel
mail@ingridweel.com
Photography

Tim Hendy
tim@thstudio.co.uk
Web Manager

SJB Media International Ltd
Suite 153, 3 Edgar Buildings, George Street,
Bath, BA1 2FJ United Kingdom
Tel: +44 (0) 1736 74 01 30 (Switchboard)
Tel: +44 (0) 1736 74 11 44 (e-Forex editorial & sales)
Fax: +44 (0)1208 82 18 03

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SGX FX welcomes CIBC as Liquidity Provider

SGX FX has announced that Canadian Imperial Bank of Commerce (CIBC) has joined the SGX FX ecosystem as a Liquidity Provider, expanding institutional access to FX options and enhancing liquidity across CAD, USD and other major global currency markets. CIBC will initially provide liquidity in OTC FX Options, with plans to extend its participation into OTC cash FX over time. This addition enhances depth and competition in FX options trading on SGX FX, supporting robust price formation across CAD and USD pairs, alongside a broader range of actively traded G10 and selected emerging market currencies, for institutional participants trading across global sessions.

CIBC is a leading North American financial institution with 15 million

personal banking, business, public sector and institutional clients and operates a global FX franchise.

The addition of CIBC further broadens the SGX FX liquidity ecosystem, particularly in FX options and core Canadian dollar and U.S. dollar markets that are central to macro, hedging and relative value strategies. Looking ahead, SGX FX and CIBC expect to continue developing the relationship across additional FX products, supporting continued expansion of liquidity provision and execution choice for institutional clients.

“CIBC’s decision to join the SGX FX ecosystem strengthens our institutional liquidity network across key markets. Their initial focus on OTC FX Options,



Scott Gold

combined with a clear path toward cash FX, enhances liquidity and execution quality across a broad range of currency pairs and supports our commitment to serving sophisticated trading and hedging activity across regions and time zones”, said Scott Gold, Head of Americas, SGX FX.

Central Bank of Congo selects Bloomberg’s BMatch

The Central Bank of Congo (BCC) has adopted Bloomberg’s BMatch solution to enhance transparency and efficiency of interbank foreign exchange trading in the Democratic Republic of Congo. As part of Bloomberg’s foreign exchange electronic trading platform, FXGO, the BMatch solution enables participants to electronically negotiate trades securely and efficiently in real time. This offers greater clarity on pricing and market conditions and creates a more transparent and stable environment for the country’s interbank FX trading. Through the implementation of BMatch, the BCC benefits from greater visibility into market activity, an increased transparency in the price formation process, and a strengthened framework for overall financial stability.

Led by the Central Bank, this initiative has already gained significant momentum within the local banking community. The BCC’s involvement has facilitated the engagement of 10 additional local banks to use Bloomberg’s FXGO, marking a major expansion of the country’s digital trading infrastructure.

“We are proud to support the Central Bank of Congo in this implementation,” said Kat Furber, Bloomberg’s Global Head FX Trading (FXGO). “The speed of this deployment underscores the BCC’s commitment to modernizing its financial infrastructure. FXGO’s BMatch is increasingly the solution of choice for Central Banks across Africa looking to enhance liquidity

and market integrity.” The DRC joins a growing list of African nations that have integrated BMatch into their national FX frameworks to drive economic growth.



Kat Furber

Institutional

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iSAM Securities launches Radar Lite

iSAM Securities has launched Radar Lite, a leaner, more cost-effective version of its Radar risk management platform, designed for growing brokers looking for sharper risk visibility without heavy onboarding or enterprise-level spend. Built to provide practical, accessible behavioural intelligence, Radar Lite delivers many of the essential capabilities from the existing Radar platform within a streamlined operational framework. One of the standout features within Radar Lite is Network Alerts, a new capability designed to help brokers identify behavioural risk signals that may not be visible through isolated broker analysis alone.

Commenting on the launch, Dennis Weissert, CCO at iSAM Securities

Apex, said: "Many brokers are already actively managing risk in-house. Radar Lite acts as an addition to that functionality, providing entry-level brokers with access to the behavioural intelligence and monitoring tools typically associated with larger enterprise operations. The streamlined platform provides the most essential capabilities from Radar within a leaner, more cost-effective framework to help brokers make faster, more accurate decisions, improve operational visibility and ultimately protect P&L more effectively over time. Network Alerts is our newest addition, providing valuable behavioural insight that would otherwise be difficult to identify through isolated broker analysis alone. We have designed Radar Lite to seamlessly enhance existing risk



Dennis Weissert

operations, enabling brokers to make more informed decisions and gain greater visibility into the behaviours driving performance across their book."

TransferMate launches new FX hedging product

TransferMate has announced the launch of a new FX Hedging product with risk management capabilities designed to help businesses mitigate FX volatility, manage international payment exposure, and improve certainty over cross-border cash flow. The new solution expands TransferMate's broader financial infrastructure offering, which already enables businesses to pay, receive, and store funds globally. It introduces integrated risk management functionality, including FX forwards, spot FX, multi-drawdown hedging, global payments, receivables, and virtual accounts within a single unified platform. The inclusion of FX forwards allows customers to actively hedge against FX losses and reduce exposure to currency volatility across future international payment obligations. The launch forms part of TransferMate's wider product evolution and innovation

strategy, following its recent partnership with stablecoin infrastructure provider BVNK, which has enabled TransferMate to introduce stablecoin-enabled settlement capabilities across its global network to further enhance payment flexibility and support faster, more efficient cross-border transactions. Built on TransferMate's proprietary global payments infrastructure, its new solution provides customers with access to payments into more than 200 countries and territories, support for over 140 currencies, over 35 virtual account currencies, and TransferMate's network of more than 100 licenses globally.

"As businesses increasingly look for greater certainty around international transactions, FX exposure, and future cash flow, the infrastructure supporting them must evolve as well,"



Gary Conroy

said Gary Conroy, President and Chief Commercial Officer at TransferMate. "Too many organisations are still operating across disconnected systems that separate FX, payments, receivables, and settlement workflows. By bringing those capabilities together into a single integrated experience, we are helping customers manage risk more effectively while simplifying how international payments are handled."

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Nicholas Pratt

Settlement risk remains a persistent problem in the FX market despite years of efforts of mitigation. Significant progress has been made but a number of structural issues are keeping this risk alive. Firstly, payment versus payment (PvP) coverage, which has done so much to reduce settlement risk, is incomplete. Secondly, the growth of emerging market FX continues unabated, as does the involvement of non-bank participants, which bring liquidity and funding pressures respectively.

Thirdly there is a lack of standard methods and systems for FX payment processes like netting, splitting and shaping which are putting pressure on settlement systems and liquidity management, especially in the context of reduced settlement times, as seen with the move to next day settlement (T+1).

As the adoption of electronic trading increases and the volume of trading grows likewise, the move to T+1 has led regulators and supervisors to take note. The updated FX Global Code makes reference to the use of PvP where possible and some alternative approach where it is not.

There are also efforts to expand PvP coverage. A 2023 report from the

A market in transition: Closing the remaining gaps in FX settlement risk mitigation

Nicholas Pratt examines the ongoing efforts to increase PvP coverage and reduce settlement risk in the FX market



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A market in transition: Closing the remaining gaps in FX settlement risk mitigation

Bank of International Settlements (BIS) and the Committee on Payments and Market Infrastructures (CPMI) looked at the issue and found three barriers to broader adoption - weak incentives for market participants to settle FX trades using PvP; technical challenges for PvP providers to access and interoperate with real-time gross settlement systems; and legal challenges for PvP providers to reconcile differences in national legal and regulatory frameworks. "Facilitating further adoption of PvP depends on whether providers of PvP services can overcome these barriers," states the report.

"New solutions, if properly designed and regulated, may complement existing PvP arrangements to support a wider range of EMDE currencies, reach smaller market participants and provide enhanced functionality such as same-day (or even real-time) PvP settlement," continues the report.

Enhancements to existing PvP arrangements and the development of new solutions can benefit from private and public stakeholders working together to address common barriers to facilitate increased adoption of PvP, according to the BIS. "The private

sector could explore potential changes to conventions for value dating, align nostro operating hours, and promote integration and interoperability between legacy and emerging systems.

"Central banks could assess operational barriers to the use of central bank accounts and credit facilities by new PvP providers, including limited access to, liquidity constraints in and operating hours of RTGS systems. Finally, central banks and other public authorities could consider sharpening regulatory incentives for market participants to use available PvP services and catalyse continued private sector engagement on reducing FX settlement risk," states the report.

According to the BIS 2025 Triennial Survey of FX markets, 90% of average daily settlement was via methods which eliminate or minimise FX settlement risk. But 10%, or \$1.4 trillion, remained exposed to these risks.

Just over one third of the average daily settlement volume in April 2025, or \$5.2 trillion, was settled via PvP, which eliminates settlement risk, states the report. Three other methods – intragroup settlement, pre-settlement

netting, which reduces gross payment amounts to a smaller net payment, and settlement over bank accounts with settlement timing controls – all mitigate but do not eliminate FX settlement risk. Roughly \$7.6 trillion, or 54% of the total, was settled via these methods.

Finally, gross bilateral settlement, which exposes the counterparties to FX settlement risk to the full trade value, made up the remaining \$1.4 trillion, or 10% of total settlement, in April. The more granular survey data reveal that the main reasons for relying on this settlement method were that the counterparty did not have PvP access or that the currency pairs or trade type were not eligible for PvP settlement.

In conclusion, the BIS report states that "public and private sector stakeholders should continue their efforts to reduce FX settlement risk for a broader range of currencies and market participants".

DECADES OF PROGRESS

The foreign exchange industry has seen decades of progress in tackling settlement risk since the collapse of Germany-based Herstatt Bank in 1974.

Settlement of FX obligations by settlement method¹

	USD bn	%
Total gross financial obligations settled	14,186	100
PvP	5,157	36
Intragroup settlement	4,950	35
Pre-settlement netting	2,167	15
Net amount ²	(337)	(2)
Settlement over bank accounts with timing controls	496	3
Gross bilateral settlement	1,416	10

PvP = payment versus payment.

¹ Net-net basis, daily averages in April 2025. ² Figures in brackets denote post-netting amounts that settle by other means (eg traditional correspondent banking relationships).

Sources: BIS Triennial Central Bank Survey & calculations made by authors of an article: *Uncovering FX settlement risk: new measures from the 2025 BIS Triennial Survey* published in the BIS Quarterly Review, June 2026



LSEG FX

A market in transition: Closing the remaining gaps in FX settlement risk mitigation

That institutional failure exposed the importance of settlement risk in the FX market, leading to policy changes at a domestic and international level.

In Germany, the Liquidity Consortium Bank was established while at an international level, we saw the creation of the Basel Committee on Banking Supervision, designed to ensure there was some global oversight and standards as regards settlement and other market and credit risks.

More banking failures in the 80s and 90s led to the creation of CLS Bank, possibly the most important development in FX settlement risk mitigation to date. CLS's payment versus payment (PvP) mechanism went operational in 2002 and has been a fixture of the FX market ever since as the de facto market standard for mitigating settlement risk

CLS's payment-versus-payment (PvP) settlement mechanism, CLSsettlement, is a key factor in that success. Its value was seen in the 2008 global financial crisis, during which the FX market remained relatively stable.

Yet, PvP coverage is incomplete. As of now, CLS settles payment instructions in 18 of the world's most traded currencies, capturing approximately 90% of the CLSsettlement-addressable market. In 2025, CLSsettlement average daily settlement values reached \$8.1 trillion, with a record \$22.9 trillion

settled on 17 December 2025. The total funding required to settle this amount was \$100 billion, a funding efficiency of just 0.5% of the gross value settled. However, according to the 2025 BIS Triennial Central Bank Survey, there remains a proportion of FX trades not settled on a PvP basis. This has increased in recent years, largely driven by the growing share of emerging market and developing economy (EMDE) currencies in global FX turnover. As EMDE currencies account for an increasing share of global FX turnover, approximately one-third or \$2.8 trillion daily, the proportion of trades exposed to settlement risk also continues to grow.

Adding new currencies to a settlement system can be a complex process subject to several high hurdles, particularly the satisfaction of crucial legal, risk and liquidity standards in the target jurisdiction. Consequently, local authorities typically determine the timing and pace of onboarding.

Where PvP is unavailable, the FX Global Code promotes a 'risk waterfall' approach that prioritises alternative risk mitigation measures such as netting. CLS has developed an automated bilateral payment netting calculation service, CLSNet, which is applicable to 120 currencies, including those not currently supported by CLSsettlement. This service continues to grow, and in 2025, its average daily netted value was \$171 billion, up

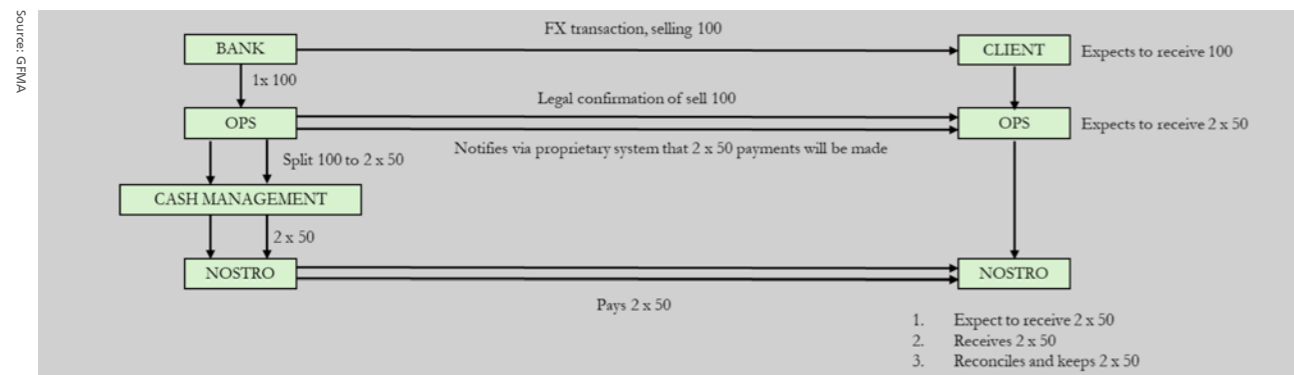
12% year-on-year. EMDE currencies (non-same day) processed in CLSNet accounted for nearly 70% of the average daily netted value.

The Global Foreign Exchange Committee (GFXC) published the latest version of the FX Global Code of Conduct in January 2025. This version places much greater emphasis on settlement risk mitigation as a core pillar of market conduct, reflecting increased regulatory concern over systemic vulnerabilities. The Code also aligns with broader global efforts, including the Financial Stability Board's cross-border payments roadmap, which includes a dedicated workstream on increasing PvP adoption.

PAYMENT SPLITTING

Another process designed to reduce settlement risk in FX is the use of payment shaping and splitting. This involves dividing a large currency payment into smaller amounts, typically to manage intra-day liquidity, risk limits or bank-specific requirements, and ultimately to minimise settlement risk. In April this year, the GFMA Global FX Division issued a paper focused on the payment splitting process and some of the associated challenges. While payment splitting reduces the volumes associated with single trades, it does increase transaction frequency, which can create pressure on settlement systems. As the GFMA notes, this

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A market in transition: Closing the remaining gaps in FX settlement risk mitigation

“A well-adopted PVP service for the six to ten largest deliverable currencies, which currently do not benefit from PVP protection, would mitigate the vast majority of the current market FX settlement risk.”



Keith Tippell

pressure has intensified given that market practices are moving toward faster settlement times and T+1.

“When compared to the full population of daily FX settlements, the numbers of those being split/shaped remains small, and due to liquidity reasons may be more concentrated in emerging market currencies,” states the paper.

“However, if the market moves toward faster settlement timelines, including more same-day (T+0) settlements, splitting payments could become more common even in major currencies. This could increase the number of transactions that must be settled individually rather than being grouped together, which may place additional pressure on liquidity.”

Another challenge comes from the diverse systems and processes used for payment splitting. Market participants often use proprietary or non-standardised methods to allocate and communicate splits, leading to inconsistencies and reconciliation errors. For example, there are essentially two methods for payment splitting – dividing the original

transaction or dividing the payment process itself.

According to the GFMA, the latter approach could increase settlement risk if there is a lack of communication or proper notification. Effective communication, especially automated, is critical for successful reconciliation. The GFMA makes a number of recommendations. These include the adoption of automated payment splitting processes as well as automated processes for communications with counterparties. In addition, there should be greater use of industry-wide standards and protocols – for example, the use of updated ISO messages to include structured split information.

“Whilst it is unlikely that the whole market adopts a single automated approach, there is an opportunity to harmonise the format of the data being communicated,” states the paper. “Consistency would enable market participants to automate processes, improving efficiency and reducing the risks of any funds not being recognised and returned. Such a standardised formatting approach could also be adopted by those using proprietary systems, again driving consistency across the industry.”

The GFMA concludes that there are “opportunities to improve the FX payment splitting/shaping processes which will result in a reduction of FX Settlement Risk as well as improving liquidity flows and reducing overall costs”, such as those incurred though the provision of intra-day credit or through increased manual interventions.

“Such opportunities are reliant on i) increased use of and standardisation of automated approaches and ii) improvements in communications between those involved in the settlement of FX transactions,” states the paper.

EVER-INCREASING VOLUMES

Settlement risk represents a material risk today due to the ever-increasing traded volume in currencies which are not supported by existing solutions, says Keith Tippell, head of FX at OSTTRA.

“The 2025 BIS Triennial Survey results show the Chinese renminbi is now the fifth most traded currency, having nearly doubled its global market share since the 2019 survey. In addition, strong economic growth is driving increased trading in a range of other currencies including the Polish zloty and Thai baht.” Tippell states that safe settlement remains a priority for market participants and OSTTRA is addressing these needs with a pragmatic service model which is specifically designed for the needs of these growing currency markets.

Electronic FX trading, along with other factors such as the availability of FX prime broking services, has led to a significant increase in currency trading. Inevitably, the total notional value of settlement risk has increased, and settlement risk limits have become strained, says Tippell.

“FX liquidity risk is the danger that an entity cannot meet short-term currency obligations. PVP services, such as OSTTRA PVP Settlement Orchestration, help mitigate the risk of a currency shortfall and provide transparency at times of market stress – this allows market participants to react and take appropriate funding actions,” says Tippell.

CLOSE PARTNERING WITH LOCAL MARKET PARTICIPANTS AND A SERVICE MODEL WHICH HAS THE FLEXIBILITY TO WORK OPTIMALLY ALONGSIDE THE LOCAL MARKET INFRASTRUCTURE WILL BE KEY TO CLOSING THE REMAINING MITIGATION GAPS



Practical frameworks for closing the remaining gaps in settlement risk mitigation will be based on PVP services which are initially based on bilateral netting, have flexibility in terms of the timing of funding requirements, support splits for funding obligations and exhibit an overall currency funding footprint which doesn't create liquidity pinch points, says Tippell.

“In addition, close partnering with local market participants and a service model which has the flexibility to work optimally alongside the local market infrastructure will be key to closing the remaining mitigation gaps.”

While PVP services have been a critical development in the mitigation of FX settlement risk, they have not yet reached all parts of the FX market. “Asian currencies such as the Chinese renminbi and the Thai baht, Eastern European currencies such as the Polish zloty and Czech koruna and Middle

East currencies such as the United Arab Emirates dirham and Saudi riyal, are most typically cited by major market participants as the most underserved by existing PVP solutions,” says Tippell. “All these currencies are part of the roadmap for OSTTRA PVP Settlement Orchestration.” Local market dynamics are not directly limiting broader adoption of settlement risk mitigation tools, says Tippell.

“It's a case of one model doesn't fit all and the onus is on PVP service providers to support functional and operational models which respect local market dynamics and conventions - this will lead to optimal service provision for local and international market participants,” says Tippell.

There is clear industry momentum for reducing settlement risk. For example, the updated FX Global Code is explicit. Under Principle 35's settlement mitigation hierarchy, it states: “Where practicable, market

participants should eliminate settlement risk, for example by using settlement services that provide PVP settlement”.

OSTTRA's mission is to ensure it's practicable to use its PVP settlement service for a wide range of currencies which do not currently benefit from PVP protection, says Tippell. “This focus on settlement-risk mitigation is strongly supported by global regulators given the increase in trading of currencies which currently fall out of scope for PVP protection. A major settlement event in the larger of these currencies could lead to a broader, market-wide, systemic event.

“A well-adopted PVP service for the six to ten largest deliverable currencies, which currently do not benefit from PVP protection, would mitigate the vast majority of the current market FX settlement risk. OSTTRA believes this is achievable in the next three to five years,” says Tippell.

The measurement illusion: Why better TCA scores are hiding the real cost of institutional FX execution

By Charles Glah, CFA UK (ASIP)

TECHNICAL PERSPECTIVE



TECHNICAL PERSPECTIVE



Charles Glah

In 1967, Robert McNamara's war command was generating impressive data. Body counts were rising. Kill ratios were improving. By every headline indicator, the United States was advancing. The problem — which took years and enormous cost to acknowledge — was that the measurement had become a substitute for the outcome. What could be counted was counted. What could not be counted — strategic coherence, institutional will, the structural conditions on the ground — did not appear in the reports, and therefore did not officially exist. The sociologist Charles Handy later named this the McNamara Fallacy: the tendency to measure what is easily measurable, disregard what is not, and mistake metric improvement for progress.

The FX industry is not fighting a war. But it may be making a structurally similar mistake — and the metric it is optimising is TCA. As it celebrates the maturation of Transaction Cost Analysis, a more uncomfortable question is emerging: are we optimising the metric while the underlying problem quietly deepens?

The feature: Why Data Analytics and TCA Are the New Currency in FX Trading, which was published last year in e-Forex reflects a genuine industry consensus. Over half of the 400 FX professionals surveyed globally are actively investing in data analytics and execution measurement. TCA has evolved from regulatory obligation into competitive differentiator. By every headline indicator, the industry is winning the execution quality battle — spreads are at historic lows, fill ratios are improving, and venue analytics have never been more sophisticated.

So why, in conversations with institutional execution desks, does a quieter and more troubling narrative persist? That large-clip execution is getting harder, not easier. That adverse selection events are more frequent, not less. That the market increasingly looks liquid at the point of enquiry and isn't at the point of fill.

The answer, I would argue, lies not in a failure of TCA — but in a fundamental limit of what TCA was ever designed to measure.

1. THE METRIC AND ITS BLIND SPOT

TCA is an audit of what happened. It measures slippage against arrival price, spread capture, VWAP deviation, and fill ratios — all anchored to the moment of execution. It is, by design, a retrospective instrument.

What it cannot measure is the structural environment that preceded the execution. It cannot quantify the probability that your liquidity provider's pricing engine had already detected the directional intent of your order flow before you sent it. It cannot record the depth that was displayed but non-actionable — the quote that existed until 400 microseconds before your order arrived. It cannot capture the difference between available liquidity and committed liquidity in a market where AI market-making has made that distinction commercially significant for the first time.

The GBP flash crash of 7 October 2016 is the cleanest illustration. At 00:07 BST, sterling fell approximately 6% in under two minutes during thin Asian session liquidity. Pre-event TCA for every institution that had executed in the preceding hours showed excellent spread capture, strong fill ratios, and unremarkable slippage. Not one of those reports contained a signal that the structural conditions for a liquidity cascade were already in place. The event did not appear in the retrospective data until it had already happened — by which point the damage was done. TCA was not wrong. It was silent.

The e-Forex outlook observed that "tight spreads generated by overly aggressive

The measurement illusion: Why better TCA scores are hiding the real cost of institutional FX execution

skews may not necessarily be in the favour of the broker.” This is a careful acknowledgement of a structural reality: the number that TCA reports as a spread improvement may be, in practice, the price of informing your counterparty of your flow characteristics.

2. WHAT AI MARKET-MAKING ACTUALLY DID TO EXECUTION QUALITY

The spread compression of the past decade is widely celebrated, and on the surface it should be. But it is worth asking what drove it. AI-driven market-making has simultaneously achieved two things that appear contradictory: tighter top-of-book pricing, and greater sophistication in detecting and responding to informed order flow before a fill is committed.

This is not an accusation — it is the rational commercial behaviour of any liquidity provider managing inventory risk. But the consequence for institutional participants is a cost structure that has shifted from visible to invisible. Spread costs are down. Adverse selection costs, market impact on larger clips, and the systemic erosion of depth during structural volatility events — none of these appear cleanly in a TCA report, because TCA is calibrated to the execution, not to the conditions that made the execution inevitable.

Esteban Mora, Chief Commercial Officer of 26 Degrees Global Markets has stated directly in e-Forex that “liquidity analytics will continue to transition from a passive, post-trade reporting layer to a real-time control system.” This is precisely right. But the transition is impeded by a structural problem: when TCA is both the regulatory standard for best execution and the commercial benchmark by which execution desks are evaluated, every participant in the ecosystem has an incentive to improve the same

metric — which means the same collective blind spot persists.

3. THE REGULATORY AMPLIFICATION PROBLEM

MiFID II best execution obligations were designed for a world in which post-trade TCA was the fastest available feedback mechanism. The framework is not wrong — it reflects a genuine commitment to transparency and accountability. But it was calibrated to a market cycle measured in hours and days, not microseconds.

The result is a regulatory architecture that, perhaps inadvertently, reinforces retrospective measurement as the standard of excellence. Firms investing in post-trade analytics to satisfy regulatory requirements are, structurally, investing in the wrong timeline. The structural fragility events that generate the most significant capital damage — flash liquidity withdrawal, adverse selection cascades, the phantom depth that characterises hollow-book conditions — do not wait for the end-of-day TCA report.

The FCA’s own thematic review of algorithmic trading noted that firms had given insufficient consideration to “how they would detect and respond to algorithms behaving in unintended ways” in real time. That observation applies with equal force to how institutions monitor the market conditions into which those algorithms are deploying capital.

A NOTE ON WHAT THIS ARGUMENT IS NOT

This is not a case against TCA. Post-trade analysis remains the correct instrument for post-trade questions: regulatory best execution reporting, counterparty performance review, venue selection, and historical slippage benchmarking all require retrospective measurement, and

TCA performs those functions well. The argument is narrower: that the industry has extended TCA beyond its original design scope — from audit instrument to execution quality standard — and that the gap between those two things is now commercially significant. A physician who uses a thermometer to diagnose a fever is using the right tool. A physician who uses a thermometer to assess cardiovascular risk is using the wrong one. The thermometer has not failed. The diagnostic framework has.

CONCLUSION: A DIFFERENT QUESTION

The industry does not need better TCA. The data is already excellent, the benchmarks increasingly granular, the analytics impressively sophisticated. What the industry needs is a different question.

The transition from “how did we execute?” to “should we have executed at all, in those conditions, at that moment?” represents the genuine next frontier for institutional execution intelligence. It is not a critique of TCA — it is an acknowledgement that TCA was built to answer one question, and the market has evolved to demand another. As the FX industry moves toward the real-time control infrastructure that its own practitioners are now describing as inevitable, the most important investment decision is not which TCA vendor to use. It is whether execution quality measurement begins at the point of the fill — or before it.

Charles Glah, CFA UK (ASIP), is a quantitative researcher and founder with over 20 years of professional experience in financial markets, specialising in market microstructure, machine learning, pre-trade intelligence, and algorithmic execution. He writes in a personal capacity. His website is: gateway.deepalgo.co.uk

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Spotlight on Rand Merchant Bank:

Taking a look at a super-regional African e-FX powerhouse

THE E-FOREX INTERVIEW

Tim Hutchinson, Head of Global FX and Electronic Execution, Rand Merchant Bank (RMB) spoke to e-Forex about why putting clients first is a cornerstone of its success and how its e-FX services are improving execution, optimising workflows, lowering costs and helping with the banks' pivotal and strategic role in boosting global ZAR trading.

Tim Hutchinson



RMB is headquartered in Johannesburg, South Africa and represents the CIB activities of FirstRand Limited, one of the largest financial services groups in Africa

Tim please could you share a brief overview of your career journey in FX and electronic trading to date?

I have been fortunate to have a 2-decade career in FX across sales, e-FX product and Trading. This has included the build out (and re-build out) of the e-FX capability covering pricing, distribution and risk management. I have been fortunate to be at the forefront of doing this from within the African continent, so I have been able to experience what it takes to implement a global best practise model but tailored for the nuances of emerging markets.

Doing it within the bank has also given me an appreciation of the various clients sets that a regional specialist services from offshore investors and hedge funds to the global multinational, local corporate as well as retail clients across person and high net worth. I have also had the privilege of doing this across

various African countries giving me a true appreciation of the uniqueness of the continent which has currencies like ZAR all the way to NGN which each have their own dynamics.

What is your current role at RMB, and what are the key responsibilities of you and your team?

I am the Head of Global FX and Electronic Execution for RMB (which is part of the FirstRand Group) which focuses on the liquidity management and trading of all major liquid currencies across spot, forwards and derivatives. In addition, I am responsible for the core FX platform including the pricing engine and distribution capabilities for all entities and client segments.

As a group we run a centre of excellence model and as such for our outside of South Africa business, we support our local in-country teams

Spotlight on Rand Merchant Bank: Taking a look at a super-regional African e-FX powerhouse



We have a world class pricing and distribution capability

to market make their local currencies into the platform to enable broad distribution.

In addition to FX, I have a broader Electronic Execution mandate which is focusing on transforming more of the bank's asset classes along the digitization and electronic journey such as Fixed Income and Commodity trading.

Transforming a trading business with new digital workflows, automated pricing, market making, and risk management is challenging. How critical is collaboration across your Trading, Product Management, Quants, and Client Services' teams in order to achieve that objective?

We have been a later mover as RMB and as such the buy in to transform is there. The digital transformation though is as much a people exercise as any other. Working with strong, successful people requires huge amount of trust between people where questioning requirements and suggesting alternatives needs to be embraced. Taking a design lens to any transformation is critical so

that legacy processes and ways of work can be questioned so that new capabilities are not implemented on old processes. Each part of teams helps think of solutions in a continuum which makes new solutions scale better.

What are RMB's core electronic FX offerings and how does your unique liquidity proposition differentiate the bank from other supranational players?

We have invested heavily in our capability over the past few years which has included a complete overhaul of our FX stack across our

trading and sales business. As a result of this, we have a world class pricing and distribution capability where we can meet clients where they need, over the venue they wish in the location they desire.

Through our investment into key technology partners we believe we have a capability comparable with many tier 1s. We have not only implemented the capabilities but equally transformed our teams with an "e-FX First" approach meaning that everything we do is run through the e-FX stack which includes many of the non-liquid activity which may be concluded off platform but



We apply a strong focus on quantitative research and our pricing models offer a truly unique opportunity for people to access onshore local liquidity



At RMB we have a very forward-thinking team market making African NDFs

ultimately is booked through the system to ensure we get the benefits of the control and data that the e-FX stack provides.

Through this work we apply a strong focus on quantitative research which has allowed us to design our offering completely around the importance of us as a primary market maker to our franchise and the role we play in the market. This means that our pricing models offer a truly unique opportunity for people to access onshore local liquidity. We believe this makes us unique on the continent, but we also appreciate that this will evolve and as such I am very proud of the architecture we have built that allows us to scale into new opportunities.

A key focus for us this past year has been evolving our FX SWAP as well as NDF solutions. While these markets are themselves evolving, we are proud that we electronically price and distribute our products widely across all major platforms and are actively looking at ways to continue expand our solutions. The demand for these products continues to grow (from our offshore investor client base)

and the fact that we have made this capability available electronically is a big differentiator for us.

What are some of the key growth drivers for African e-FX and how are they helping to transform the continent's financial landscape from fragmented markets to a more integrated e-FX ecosystem?

The biggest focus for decades has been payments into and out of the continent. While this largely is spoken of in context of remittances and retail flows, it is a systemic issue that has been experienced by all segments. While e-FX has made access to price discovery easier, the settlement and payment processes do remain a challenge.

While modern technologies like Blockchain and the rise of stablecoins appears to be a very promising development this has yet to meaningfully transform the economies. The major financial institutions within the continent (including RMB) have a significant part to play in enabling Africa's growth. Particularly as it pertains to the e-FX capability, we are focused on

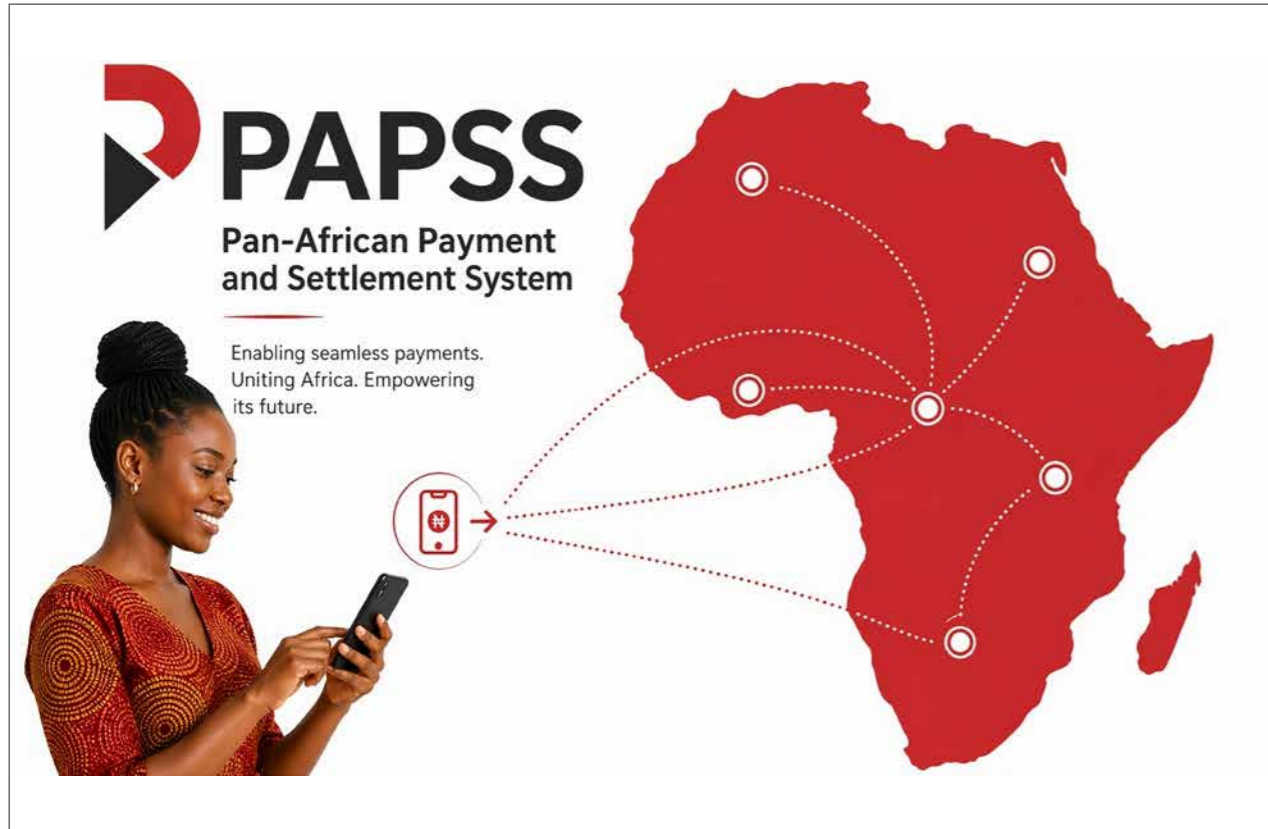
the entire value chain of the FX flows from pricing and liquidity through to settlement and ultimate beneficiary acceptance.

As RMB our investment in the e-FX stack has allowed us to focus on ensuring that our distribution can quickly respond to new requests such as the ability to source pricing for information or payment providers looking for ways to book into Africa.

Secondly we have ensured that our solutions are entirely API native meaning that we can meet new payment providers and solutions at their place of transaction and finally leveraging the e-FX stack normalizes the straight-through-processing into various downstream settlement and reporting systems.

By making it easier to access liquidity and pricing in African currencies while ensuring we can effectively link into settlement systems and be clear on reporting has started to see much more interest in how to solve these challenges. We are actively working with several fintechs as well as our own internal areas in how better to promote these into the core offerings.

Spotlight on Rand Merchant Bank: Taking a look at a super-regional African e-FX powerhouse



A key focus of technology for decades across the continent has been payments

On an adjacent approach we have focused in promoting ourselves as regional specialists with many of the

global banks as well as major investors offshore. This work is important as allowing them to see the ability to

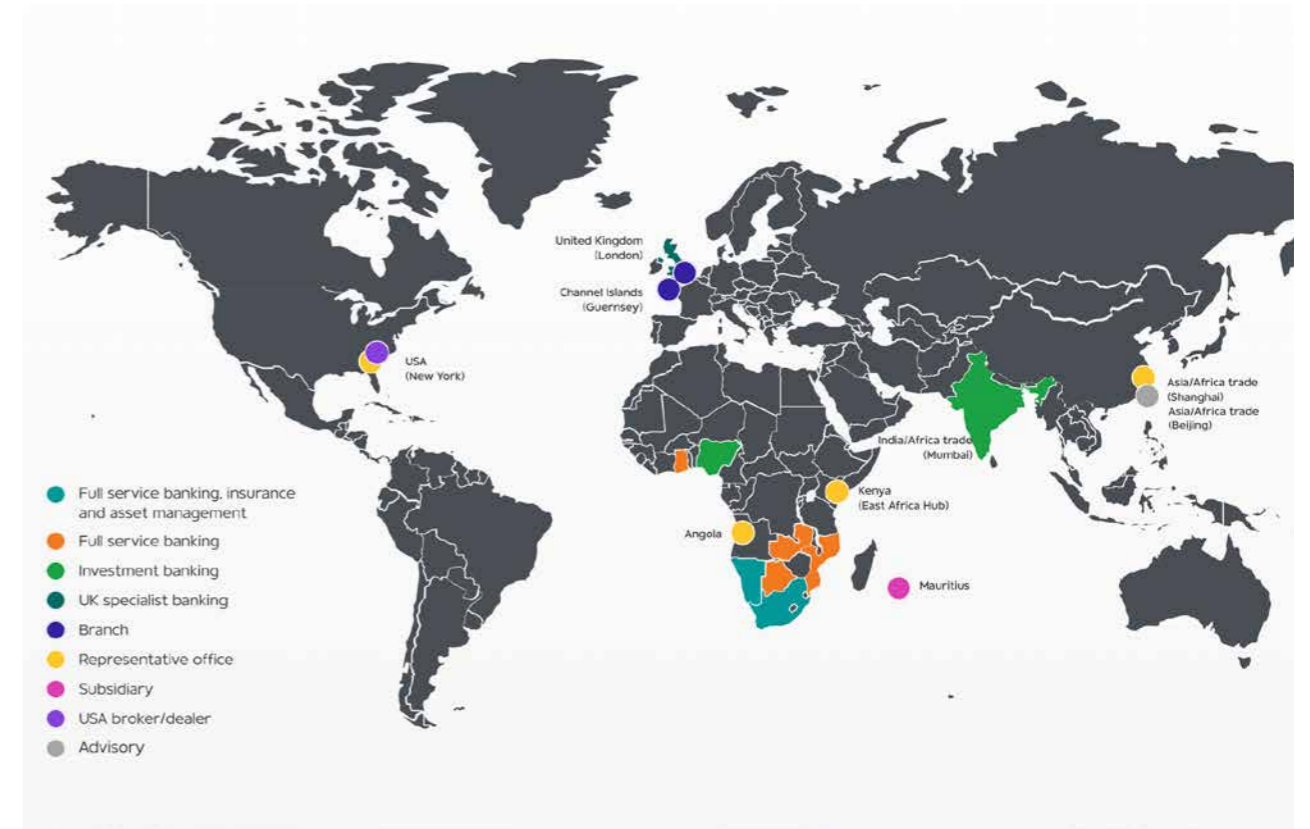
transact and source liquidity through scaled channels (enabled through e-FX) makes doing business in Africa seem more feasible.



A key focus for us this past year has been evolving our FX SWAP as well as NDF solutions

This has been a significant source of growth for RMB and we already see many of the major trading venues reporting us as a significant market maker in USDZAR. We are now actively expanding this into other African Deliverable and Non-Deliverables pairs. By being active in the market and promoting our regional expertise we see a natural second order effect of investors seeking trading opportunities in local bonds and where we as an organization are well placed to respond.

With the global NDF market growing rapidly, what steps has RMB taken to advance electronic non-deliverable forwards (NDFs) trading in your region of the world?



RMB's presence on the continent, together with its offices in London, New York, Beijing and Mumbai provides its global clients with a network to access African markets

This is one of the areas I am very excited about and encouraging for us we have extended our e-FX first approach to NDFs. At RMB we have a very forward-thinking team market making African NDFs and the need to meet more clients on their chosen platform is key to them. We have enabled our team through great technology for both price construction and distribution and we currently market make over 8 African NDFs on our platform and distribute these onto a few of the major trading venues.

While larger transactions still currently go through our sales desk, but we have enabled them to use our Single Dealer Platform for all aspects of pricing and booking of deals. This in turn then ensures that post-trade workflows run seamlessly and timeously. Investor clients appreciate the efficiency in our execution and opens more conversations for platform distribution. By facilitating through the e-FX stack also allows

us to gather valuable data around our NDFs – which is a source of our continuous evolution.

The use of FX algorithmic execution and associated services is also growing. How much demand are you seeing for it from clients and what work has RMB been doing to develop your own quantitative FX capabilities?

I had hoped that this would have grown more within the local client base than it currently has. To this extent the largest number of enquires we receive are from offshore clients who are used to these solutions offered by their global banks. The reality for a local institution is the cost of implementation is extremely high, not purely because of the cost to set up such a solution (including if done



We have ensured that our solutions are entirely API native



Spotlight on Rand Merchant Bank: Taking a look at a super-regional African e-FX powerhouse



Major financial institutions within the continent including RMB have a significant part to play in enabling Africa's growth

on a white-label basis), but more so how to navigate this in terms of internal prioritization.

Given that many banks run lean technology teams who also (generally) have the mandate of supporting the broader FX transactional needs, it is hard to re-direct this capacity for the algorithmic build out.

At RMB we have made the call to be e-FX first and one of the more interesting developments has seen our e-FX trader being the key source of market colour and insight into our sales teams and in turn to clients.

The views produced by our e-FX trading team has sparked a keen interest by salespeople and clients alike in how we view liquidity, our

measurement of client flows and general techniques in achieving optimal execution.

Many of the local client understanding of market dynamics is anchored in the primary market activity (exclusively) and the insights provided by our e-FX trading team have been a huge source of understanding for many.

These e-FX quantitative techniques have been incorporated into research ideas and client specific reports which has opened many new conversations. A general curiosity has emerged on liquidity management, mark-outs and overall internalization rates and how to optimise these. These insights expose many more people to how the market has evolved and our

approaches to our own executions and internalization.

Lastly, I have been delighted in our technology partners who have enabled us through native algo containers and frameworks that has sparked internal curiosity on execution algos.

This capability has been a significant source of inspiration for our quants and allowed us to build out our own pricing and execution approaches on the platform.

We are actively working on this and do expect that more clients will embrace these solutions in the near future.

“AT RMB WE HAVE MADE THE CALL TO BE E-FX FIRST”



TwoWay:

Helping to transform your trading intelligence

TwoWay builds next-gen software and optimizes trading workflows in financial institutions, transforming high-volume chat messages into structured market data in real time. We spoke to the firm's CEO, Chirine BenZaied-Bourgerie, to learn more about why growing numbers of financial institutions are using TwoWay to extract the true value of their data.



Chirine BenZaied-Bourgerie,

Please tell us a little about what TwoWay's solutions are designed to do and the problems it is setting out to address.

TwoWay started with a first conversation with an FX Option trader. A market maker at a top-tier bank who shared his problem: receiving hundreds of broker chats every hour, missing up to 80% of that, and struggling to keep his vol well marked to market. He shared stories of times when the broker market would shift, with no market data platform reflecting it for hours. And during that time, if you don't check your chats, you keep distributing wrong prices to your clients. Since then, we have had

100+ more interviews with traders across FX, rates, and fixed income, all sharing the same pain: an abundance of unstructured data in the interbank market that traders handle manually to update their curves.

One of our partners, a top-tier UK bank, recently shared an average estimate of that problem for them: £5K per trader per day, lost in mispricing and missed opportunities. That's £1.2M per trader per year. TwoWay solves that challenge. Our solution ingests broker communications in real time, parses them with proprietary models, and surfaces structured market intelligence in milliseconds, giving voice traders real-time market awareness and giving e-traders more accurate curves to power their algos and distribution. And we do it across FX Options, FX Swaps, NDFs, and Fixed Income.

What types of firms are using TwoWay and is it mainly targeted at larger institutions?

Our first clients and partners are top-tier financial institutions. Some of them have already invested in building their own algos to parse the chats. They're familiar with that pain

point and understand the difference between building a prototype at 80% accuracy and getting an enterprise-grade platform to production, with the confidence that the prices feeding your curves are accurate. Others are new to that challenge.

They generally chose TwoWay for two reasons: (1) to increase their confidence in the prices extracted from the chats to feed their curves automatically, thanks to our algorithm and data quality layers; (2) to fit traders with a purpose-built interface that gives them genuine market awareness and context, not another dashboard to manage.

Beyond Tier 1 banks, we see significant interest across tier 2 and tier 3 institutions, where the problem is the same, the resources to solve it in-house are limited, and the pressure for efficiency is equally strong.

What are some of the key features and functionality your platform offers?

In simple terms, TwoWay first turns chats into structured data in real time, then makes sense of it. Our proprietary models assign a confidence score to every parsed

message, maintaining high accuracy while ensuring data quality and control when automatically feeding the traders' curves.

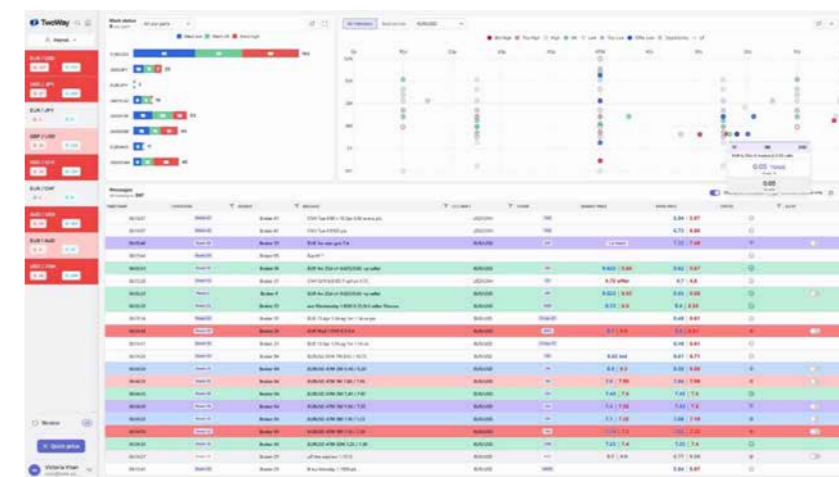
Then TwoWay compares broker prices with the trader's own marks to provide the right insights, highlighting pricing risks or market opportunities. In addition to real-time analytics for traders, TwoWay builds the data foundation for broker market data to feed risk and IPV systems.

How have you engineered TwoWay to take advantage of powerful new technologies like AI?

TwoWay is built using a hybrid approach that combines deterministic algorithms with AI models. The right balance between the former and the latter ensures we can get results in milliseconds while handling ambiguous context-dependent language or verifying and enriching the output. This approach allows us to achieve both high accuracy and millisecond performance, both of which are critical to traders. While our objective is to take on as much of the traders' tedious work as possible, we also ensure traders retain control and can review everything the app does at any time. That's why we've built TwoWay with a traders' feedback loop by design, allowing the algos to improve continuously from real desk corrections, and with a data control and quality layer.

What about performance? How do you ensure zero-latency data processing to enhance decision-making and pricing accuracy?

Speed is non-negotiable in trading, so our architecture is engineered for millisecond display with progressive enhancement: traders see parsed data as messages arrive in real-time,



TwoWay first turns chats into structured data in real time, then makes sense of it

not after a batch process. The hybrid architecture described above enables this. Deterministic algorithms return results in milliseconds for more than 90% of messages, with AI enrichment layered on top.

Compliance and security are other critical requirements for institutional trading firms. How do you go about ensuring these essential needs are met?

We treat security and compliance as core to our product, not an afterthought. Our deployment architecture is built to meet institutional-grade standards. We offer our clients on-premises deployment, so they can keep control of their data, and none of it leaves the bank's servers.

TwoWay's data quality and control layer is designed to satisfy the data governance requirements of regulated financial entities, including the

creation of a complete audit trail of what the market showed, and a full history of how traders engaged with that data.

What are some of the main benefits financial institutions are getting from using TwoWay?

TwoWay delivers value at three levels:

- Level 1 is direct P&L protection: eliminating the mispricing and missed opportunities that cost desks over \$1.5M per trader per year.
- Level 2 is franchise impact. Once you are pricing with confidence and capturing the full broker flow, you can offer tighter prices to clients, improving your hit ratio, reputation, and franchise.
- Level 3 is efficiency. Our clients report 20–30% efficiency gains for their traders. In FX Options, that means responding to client requests 10x faster; in FX Swaps,



We build with traders, not for them

TwoWay: Helping to transform your trading intelligence



We treat security and compliance as core to our product, not an afterthought

managing up to 10 currency pairs instead of 3-4. Both compound significantly during market stress, when staying on top of your book is what separates the best desks from the rest.

How does your approach to product development differ from many other traditional fintech companies?

The difference is simple: we build with traders, not for them. Every feature has been developed alongside front-office FX and FI traders under real market conditions. And it's still the case in production, iterating as the market moves. Our product decisions are grounded in what genuinely changes a trader's day, not what looks impressive in a demo. As an AI-native company, we also ship fast. We iterate in days and weeks, not quarters. When a trader identifies a gap, we close it in the next release cycle.

How have you gone about making integration with TwoWay as seamless as possible?

We designed TwoWay to minimize integration friction wherever possible. The platform is delivered as a containerized, cloud-ready deployment that sits alongside existing systems. It doesn't replace a bank's parsers or pricers but enriches them. We connect

to chat platforms' APIs through pre-built connectors and provide hands-on support for any additional integration work. The average deployment and integration project takes 2 to 3 weeks.

TwoWay is a ready-to-deploy solution. What advantages does that bring?

A ready-to-deploy solution means the path from decision to live traders is weeks: 2-3 on average. That matters because every week faster is a week of value captured: at \$1.5M per trader per year, time to deployment has a very measurable impact. Building this capability in-house is the alternative some institutions consider, but what looks like a 6-month project consistently takes 2+ years to reach production quality, if it gets there at all. A ready-to-deploy solution skips all that, accelerates time-to-value, and reduces project risk.

You offer a purpose-built user interface. Why is that important?

A trading desk is a high-pressure environment where every second counts and cognitive load matters. A generic analytics interface is not fit for that context, and traders are quick to abandon tools that don't match how they actually work. TwoWay's interface was shaped through constant iteration

with traders. The information hierarchy reflects trading priorities, not software conventions: the most actionable signal, a mismatch, an opportunity, or an unusual broker move is made to surface at the right moment, without the trader having to dig for it. The result is a genuine sense of the live market at a glance. The proof is adoption. As one of our traders puts it: "Not having TwoWay would be like driving in heavy rain without windscreen wipers." That's what turns a 2-week test into a permanent fixture on the desk.

What options do clients have for testing TwoWay before buying or deploying it?

We offer a structured evaluation pathway that aligns with how institutions actually make technology decisions, with flexibility in the level of pre-deployment testing required. TwoWay is production-proven across top-tier FX desks, enabling new clients to go from decision to live deployment faster than a traditional PoC cycle would allow.

For institutions that want a more gradual ramp-up, we're happy to accommodate that too. The path is shaped around what gives each client the confidence they need to move forward. Either way, we work closely with each institution's team throughout, and the goal is always the same: demonstrating real value as quickly as possible.

How can firms looking to use TwoWay or collaborate with you find out more information about doing that?

You can find more information on our website at www.twoway.finance, reach out to contact@twoway.finance, or connect directly with Guillaume Spay or me on LinkedIn. We always welcome a good conversation and are keen to collaborate and find ways to help.



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Paul Golden

APIs have evolved into the core architecture of systematic trading, expanding heavily into complex derivatives like FX options and swaps. This shift reflects a market structure where speed, automation and automated rules-based trading frameworks are critical to managing complex portfolios.

Leading providers are moving away from siloed tools for pricing, execution or clearing and are instead using APIs to orchestrate the entire trade lifecycle explains Bloomberg's Oleg Shevelenko, head of pricing and execution product for FXGO.

"For example, an order generated in a client's internal system can be automatically priced via an API, routed to optimal liquidity on a multi-dealer platform, executed via bank algorithmic logic, hedged instantly and fed into post-trade compliance modules," he says.

This reduces manual intervention, drastically cuts operational risk and allows clients to build highly customised trading environments while unlocking valuable market data they can feed back into their own proprietary analytics engines.

APIs drive automation by removing friction at every touchpoint, adds

The API economy in FX: From access layer to alpha engine

Paul Golden investigates how APIs in FX are evolving from external connectivity tools into internal control mechanisms which are increasingly being used to stitch together controlled, endtoend flows.

Images by Shutterstock

“During execution, smart order routing APIs automatically match the order type to the best venue or bank algo.”



Oleg Shevelenko

Shevelenko. “In pre-trade, they ingest live, aggregated streams from multiple liquidity providers, enabling algorithms to continuously scan for the best price. During execution, smart order routing APIs automatically match the order type to the best venue or bank algo.”

Finally, they enable instantaneous straight-through processing. The second a trade is executed, post-trade APIs automatically trigger trade

allocations, portfolio updates and clearing or settlement instructions. This lowers transactional costs and handles complex derivatives reporting obligations like Dodd-Frank and EMIR by automatically consuming UPI and RTN data streams.

IMPROVING DATA FLOW

APIs have evolved the information loop between liquidity providers and consumers, enabling clients to capture and store significantly more data from their liquidity providers and allowing them to analyse execution quality, monitor relationships and make more informed trading decisions.

“APIs have enabled a much greater degree of automation across the trading lifecycle,” observes James Gavin, global head of trading at iSAM Securities. “They allow firms to build more controlled and efficient workflows, reducing manual intervention while improving

consistency, monitoring and operational efficiency.”

APIs also allow firms to access liquidity from a wide range of providers wherever there is both the technical capability and willingness to trade. Gavin notes that this has helped break down barriers between liquidity providers and consumers, enabling access to liquidity sources that may previously have been difficult to reach.

Data volumes continue to grow as market participants demand faster updates and more granular information, which creates challenges around data storage, processing and infrastructure costs. “Firms must also balance the benefits of ingesting more data into their decision-making processes against the potential latency impact that additional processing can introduce,” says Gavin, adding that advances in AI are likely to accelerate research cycles, model development and implementation. “However, human oversight remains essential to manage operational risk and ensure appropriate controls remain in place.”



APIs drive automation by removing friction at every touchpoint

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“APIs have enabled a much greater degree of automation across the trading lifecycle”



James Gavin

APIs have evolved from external connectivity tools into internal control mechanisms. For modern FX brokerages, APIs are no longer just access points - they are revenue enablers, client retention tools and the foundation of scalable trading architecture.

“Leading FX providers are using APIs not just to execute trades but to automate the entire trading lifecycle, from pre-trade analytics to post-trade reporting and risk management,” observes Cristian Vlasceanu, CEO Centroid.

On the pre-trade side, APIs are used to provide real-time depth of book and liquidity tiers and differentiated price feeds based on client segmentation. On the post-trade and

risk management side, APIs power automated trade confirmations, real-time P&L and exposure monitoring. “By integrating execution data directly into internal risk and analytics systems, brokerages gain immediate visibility into flow quality, hedging performance and margin optimisation,” explains Vlasceanu. “All of this is done without relying on batch reporting or manual processes.”

ENHANCING LIQUIDITY ACCESS

When APIs are combined with the use of a liquidity aggregator, they enable brokerages to access multiple liquidity pools at the same time, consuming and comparing the different offerings in real time.

“This consolidated access provides clear visibility into the characteristics of each liquidity provider, whether in terms of pricing, depth, execution quality or fill performance,” says Vlasceanu. “Based on this visibility, brokerages can embed predefined risk and operational criteria directly within their trading infrastructure.”

By pre-setting criteria such as exposure thresholds, flow toxicity metrics, execution quality benchmarks or margin utilisation levels, the system can automatically trigger changes when those thresholds are met.

Through API connectivity, both the brokerage’s internal risk engine and the client’s trading system can interact with the aggregator in real time. This allows the infrastructure to:

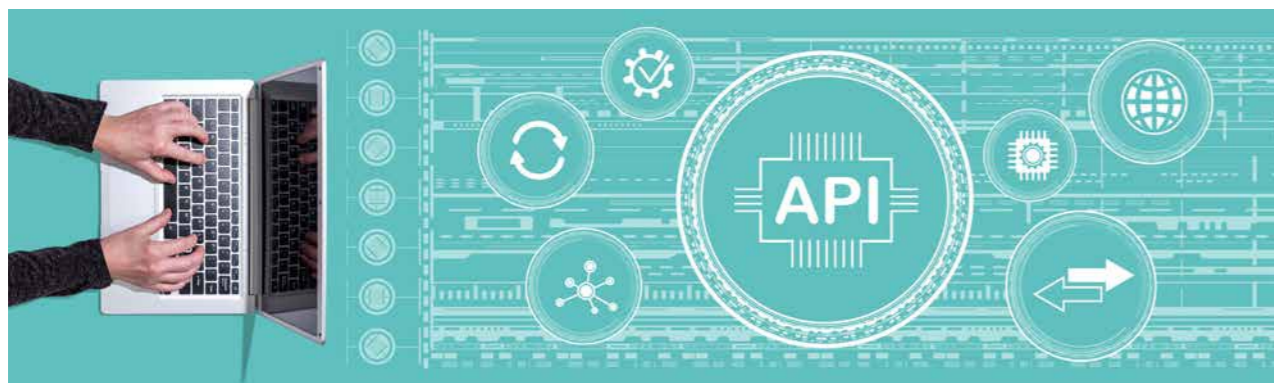
- Re-route flow to alternative liquidity pools
- Adjust mark-ups or spreads
- Modify execution settings
- Change hedging logic
- Segment or isolate specific client groups

“Instead of manually intervening, the system responds automatically based on predefined rules,” says Vlasceanu. “This creates a dynamic, self-adjusting liquidity framework that improves execution control while reducing operational friction.”

On the surface, firms still talk over fairly rigid standard protocols like FIX or ITCH/OUCH, but behind that they have built more flexible internal wiring that runs orders through limits and other safety or compliance checks before anything hits the street.

That is the view of Ideal’s CTO, Walter Bell, who adds that this internal layer gives firms a clean onramp to external venues and a single place to plug in new strategies or tweak execution logic without replumbing every connection.

“It has also become the natural choke point for watching and managing the flow, where teams add monitoring,



API driven trading is hard to do well

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The API economy in FX: From access layer to alpha engine

“On the real-time side, APIs stream tick-level pricing, depth of book data, liquidity tiers and execution metrics directly into trading engines and risk infrastructure.”



Cristian Vlasceanu

going to record their own FX data, because no vendor feed matches the liquidity streams they trade on or the quirks of their stack.

“APIs have simply made capturing that bespoke view cheaper and easier,” he says. “For higher frequency strategies, having a record of what prices actually reached them, when they arrived and how their systems reacted is often the line between a back-test that holds up and one that was never realistic.”

throttles and simple kill switches so the workflow behaves like industrial infrastructure rather than a fragile chain of bespoke integrations.” Instead of wiring up every pool separately, most firms now sit a common API layer in front of multiple venues, stream what they need from each and let their smart order routing sit on top so they can change behaviour per pool without a big replumb.

Day to day, that means routers and algos can react to how each source of liquidity actually trades instead of treating everything as the same. “Liquidity recycling is one thing they watch for: the same interest echoing across platforms, which shows up in leadlag patterns and venue profiles and tends to disappear first when markets get jumpy,” explains Bell. “Because access runs through APIs, it becomes much easier to observe how behaviour changes across pools and to understand the impact of routing decisions, so firms are steering how they tap each pool, rather than just spraying orders everywhere.”

Bell observes that firms are always

MULTIPLE VIEW OPTION

Rather than choosing one source, participants increasingly overlay external and internal views. “They pull in curated data via APIs alongside their own records and focus on where the two diverge, especially in busy markets or around events, because that’s where performance issues usually show up.”

In practice, APIs now sit inside quoting, routing, credit checks, posttrade processing and settlement. In FX, Bell refers to venue APIs behaving more reliably than in many other asset classes because once electronic channels become the main way business gets done, firms have to put real money into resilient infrastructure, monitoring and recovery.

“High speed API access is turning FX into a kind of superconductor of information into rates and credit, especially around macro and geopolitical news that shows up in FX first and then bleeds quickly into other markets,” he says. “Firms use that flow not just for price discovery but to trigger orders, hedges, and risk adjustments in their rates and credit

books, so a move seen via an FX API can translate into crossasset execution in seconds rather than minutes.”

However, he also acknowledges that API-driven trading is hard to do well because you are competing with specialists who optimise individual pieces of the stack - risk, execution and market data - and any weakness in latency, resiliency or scalability shows up directly in P&L.

“Shaving latency without equally strong failure handling, capacity planning and throttling controls just lets you break things faster and the bar keeps rising as spreads compress and more flow moves electronic,” says Bell, adding that good data recording is just as important as raw speed.

“You need an evaluation loop that ties trading performance back to the infrastructure, parameters and versions you were running at the time, so you can tell whether results came from market conditions or from changes you made. That lets you cut off deteriorating performance early and keep iterating in a world where small technical advantages or mistakes compound over time.”

According to Bell, the era of getting away with stale quotes or stuck prices in a market data feed is over as the cost of those glitches is simply too high. On the flip side, well-designed APIs make it much easier to keep things sailing smoothly when the seas are rough. “More of the workflow is machinechecked and matched in real time, so you see far fewer cases where a small EUR/USD ticket cannot be confirmed and ends up burning hours of back office time to reconcile,” he says. “Instead of bolton, manual checks at the end, risk limits, monitoring, and controls now sit in the same automated pipes that prices and trades flow through.”

TRANSFORMING INFORMATION AVAILABILITY

Vlasceanu notes that APIs have fundamentally transformed access to both real-time and historical FX market data by making it programmable, scalable and directly embedded into trading and risk systems.

“On the real-time side, APIs stream tick-level pricing, depth of book data, liquidity tiers and execution metrics directly into trading engines and risk infrastructure,” he says. “This allows brokerages to integrate live market intelligence into pricing, routing and exposure management decisions without relying on external terminals or manual monitoring.”

On the historical side, APIs provide structured access to archived tick data, order book snapshots and trade records. Brokerages can use this data for back-testing, spread optimisation and liquidity performance analysis. Instead of working with static data files, firms can query and retrieve datasets programmatically, integrating them into analytics workflows.

Crucially, this data access enables more sophisticated risk optimisation. By analysing flow behaviour such as holding time, slippage patterns, position concentration levels, win-rate consistency and latency profiles, brokerages can dynamically adjust their risk model.

“This includes determining when to internalise flow, when to hedge externally and when to switch between the two based on exposure thresholds or market conditions,” adds Vlasceanu. “In this sense, APIs have shifted FX market data from a reference feed to a strategic decision-making layer, powering automated execution, liquidity management and real-time risk control.”

“Because access runs through APIs, it becomes much easier to observe how behaviour changes across pools and to understand the impact of routing decisions.”

Trading firms are increasingly using APIs to facilitate broader multi-asset strategies by consolidating liquidity from different asset classes into a single infrastructure layer, typically the liquidity bridge/aggregation system.

Vlasceanu observes that by integrating multiple liquidity providers across FX, commodities, indices and other instruments within the bridge, brokerages create a centralised control point for pricing, routing and risk management. APIs then allow this infrastructure to interact dynamically with trading platforms and internal systems.

This setup enables:

- Coordinated cross-asset execution
- Automated FX hedging of non-FX exposure
- Unified risk monitoring across products
- Consistent routing logic and margin controls

“In essence, the bridge becomes the operational core of the multi-asset environment, while APIs act as the communication layer that allows trading, risk and liquidity components to function as one integrated system,” he adds.

Centroid focuses on balancing latency, resiliency and scalability, as they are fundamentally interconnected and critical to a brokerage’s long-term success - particularly in API-centric trading environments.

LATENCY CONSIDERATIONS IMPORTANT

Latency requires co-located infrastructure near liquidity providers, high performance bridge engines



Walter Bell

and efficient network routing. Deterministic, low latency directly impacts execution quality and real-time hedging effectiveness.

Resiliency relies on redundant infrastructure, automatic liquidity provider failover and continuous monitoring. Robust failover mechanisms are essential to prevent operational disruption and unmanaged exposure during market stress.

Scalability is driven by modular, API-first architecture, high message throughput capacity, horizontal scaling of pricing and risk engines, and effective load balancing, explains Vlasceanu.

“This ensures brokerages can handle growth and volatility without degrading performance,” he says.

“Ultimately, the objective is not just speed, but infrastructure that remains stable under stress, adapts to volume surges and scales alongside client demand without compromising execution quality or risk control.”

APIs are already the plumbing for fully autonomous, model-driven FX trading.



APIs have shifted FX market data from a reference feed to a strategic decision-making layer

Bell reckons the only real constraint now is human judgment.

"Many systems already let models watch the tape, make trading decisions and manage risk endtoend via APIs with minimal human input," he says.

"The strongest shops focus on where their models work, where they break and have clear playbooks for switching models, tightening risk or falling back to simpler logic so they can stay in when markets are stressed."

"Too many firms still pull out entirely when things get tough, thinning liquidity just when clients need it most, while the ones that remain - albeit on more conservative settings - protect relationships and capture dislocated opportunities."

Looking ahead, Bell anticipates a move away from the 'choose your parameters at inception' style of FX algo execution toward models that adapt continuously to the liquidity that is actually available.

"In practice, APIs make it much easier to plug into multiple venues and

liquidity pools at once, so execution logic can respond in real time rather than following a static template," he says. "That has to be backed by a strong analytics feedback loop so these models can improve and so clients can see, in the data, that they are getting good execution rather than just a more complicated story."

As that kind of transparency improves, he expects it to be harder to charge a premium for 'advanced' algos and technology without demonstrating that they consistently beat simple, easiertounderstand execution.

"Complicated doesn't always mean better and I think the market's willingness to tolerate black boxes without clear evidence of outperformance is going to be limited."

Supporting automated environments On the question of whether APIs could become the foundation for fully autonomous FX trading systems driven by AI and machine learning, Vlasceanu refers to this as part of his company's ongoing strategic roadmap, where

AI capabilities are being integrated alongside its bridge engine and API infrastructure to support more adaptive and automated trading environments.

"Because APIs enable bidirectional communication between trading engines, liquidity aggregators and risk systems, they allow machine learning models to operate in a closed feedback loop," he adds. "This makes it possible to build adaptive systems that continuously refine execution strategies based on market conditions and flow characteristics."

However, fully autonomous FX trading also depends on infrastructure stability, latency control and embedded risk safeguards. AI models can make decisions rapidly, but APIs must ensure those decisions are executed reliably, within predefined exposure limits and compliance frameworks.

"In this sense, APIs are not just connectivity tools - they are the orchestration layer that allows AI-driven models to interact with markets safely and at scale."



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Trading more efficiently: Why FX liquidity dynamics really matters

By Will Holt, Head of FairXchange.



Will Holt

Why has liquidity dynamics become increasingly important in FX, and what factors can influence liquidity over time?

As events in the Middle East unfolded in March 2026, institutional FX volumes surged across the major venues. Average turnover rose around 22% month-on-month, but headline activity masked substantial variation in available depth, transaction cost and markout profiles. Tradable pairs did not always behave as expected, for example, gold did not behave like a clean safe-haven asset. It first sold off as investors preferred USD liquidity, then later rallied as conflict intensity increased. Oil-related currencies were volatile and investor demand for USD fluctuated as risk changed. In this environment, spot ECN volume hit very high levels as dealers warehoused

less risk and flow went to anonymous channels.

Bid-ask spreads widened, quote volatility increased and there were days when major LPs stepped back in metals and oil-correlated currency pairs. You could see the same risk-warehousing dynamic in the Treasury market, where two-year bid-ask spreads were roughly 27% wider in March than in February.

This is why liquidity dynamics matters more than ever to understanding how depth, spread, skew and rejection behaviour change through time and around events. Target internalisation rates now run upwards of 80% for major LPs, so much of the price a client sees reflects an individual LP's moment-to-moment risk appetite rather than a visible central book. Periods of time that really matter such as economic releases or news headlines appear to keep getting shorter and more concentrated. Assumptions about who can be relied upon to be consistently available on the other side of an order, and at what cost, require ongoing assessment.

What benefits can knowledge of liquidity dynamics deliver for FX trading firms — many of whom may be looking to keep performance more consistent across market conditions?

With LPs aiming to internalise as much as possible, a client's realised cost on any given day is shaped by a small set of LP relationships rather than by the market as a whole. Maintaining consistent liquidity means knowing how each LP behaves through different regimes and which counterparties can be trusted with different sizes and flow rates.

ECNs, brokers and clients that are able to measure the interaction of flow to liquidity at the microstructural level are best placed to maintain trading relationships in challenging markets. They see widening pricing, clusters of rejections after an event and counterparties whose skew tilts before flow moved against them. These changes in activity are normally framed in a negative light but behaviour and outcomes are not always obvious. An LP may widen a price but greatly reduce reject rates or round trip times. Having detailed analysis of flows, cost and impact can present positive opportunities to both LPs and clients that can be directly measured by pair to potentially suggest opportunities in related instruments.

In what ways are AI and next-generation analytical toolsets transforming liquidity dynamics?

It is no longer economically sensible to react to changes in flow or liquidity

on monthly or quarterly reviews. Conventional TCA tends to completely average out the details that can have massive economic impact through surprisingly simple changes to order flow or pricing.

The quantity of data in FX can be overwhelming and there is a temptation to blindly apply AI to extract insights. We believe AI has a central role in analytics but that it will only be robust as part of a well defined, and most importantly trusted, quantitative framework. Firstly, data must be appropriately cleaned and labelled to appropriately sample the data so that features may be extracted and metrics computed. The bedrock of this area is machine learning which is fundamental in compressing large noisy datasets into something that AI frameworks can reliably analyse. Behaviours that matter tend to be short-lived and counterparty-specific: an LP that starts rejecting asymmetrically after losing flow, skews before a headline lands, or quietly halves or doubles a quote refresh rate.

The streams themselves also vary far more than headline spread numbers indicate. In our own tick-to-tick quote analysis there is no single archetype of an LP price stream, some are wide and firm with low reject rates, some flicker between narrow and wide but reject almost nothing; others are tight on screen and high on rejection. Each of these characteristics is best matched with a particular orderflow. None of this is visible without LP-level analytics at tick resolution, which is what FairXchange's Quote Dynamics module does: tick-by-tick analysis of how each LP behaves around trades and events.

How is new technology enhancing transparency through advanced visualisation while enabling precise FX pricing adjustments based on order flow and volatility?



Having detailed analysis of flows, cost and impact can present positive opportunities to both LPs and clients

Transparency in FX has always been a visualisation problem as much as a data problem. The raw data has long existed but the difficulty is that LP behaviour is at least four-dimensional: timing, sizing, skew and rejection. Liquidity dynamics analysis begins to assess how these dimensions interact. March 2026 was a case in point: "spreads widened" misses the more interesting point that they widened asymmetrically by size, counterparty, currency group and even time of day. Visualisation lets a trader see those dimensions in the same analysis.

Traditional metrics such as daily volatility are of limited value when in real time we can process order flow and estimate very short-term volatility. We can then condition on different regimes enabling LPs to adjust spreads and skews to current conditions instead of relying on static settings. Clients can ensure that execution strategies are appropriate to the actual market conditions at the point of order generation. This transparency helps both sides: clients know that sharp flow will be instantly detected and LPs know that their quotes are being monitored at tick resolution in all market regimes.

What impact has the arrival of real-time analytics dashboards had on giving firms clearer views of liquidity depth, spreads, and execution quality across sessions?

For most firms the shift is still under way. Many still rely on monthly or weekly TCA, which is useful for governance and useless for immediate decisions on the trading desk. Even a move to daily dashboards allows depth, spread and execution quality become visible across Asian, London and New York sessions.

Trading in 2026 really underlined what that measurement gap costs. Firms relying on month-end TCA only saw LPs withdrawal in retrospect after the market had cycled through numerous risk-on, risk-off regimes; firms watching depth and rejection rates in real time saw it on the day and adapted. Liquidity monitoring becomes a daily workflow, surfacing short-lived spread & skew changes, rejection clustering and quote update behaviour.

What sort of actionable insights can be delivered by using next-generation technology to empower data-driven decisions?

Insights only matter if they translate into something a desk can act upon. Several areas benefit from direct action. Panel composition: a client observing an LP that underperforms in volatile sessions, or rejects asymmetrically after losing flow, can engage in immediate conversation with the LP rather than observing delayed metrics with a less focussed





The latest AI tools are able to build quite complex analytics with relative ease

and out-of-date TCA report. Routing: orders can be steered to the counterparty actually clearing the size, not the one parameterised by last quarter's results. Timing: understanding the periods around events when liquidity thins lets clients avoid them or work orders appropriately.

A byproduct of analysing liquidity dynamics provides insight into the performance and behaviour of order management and trading infrastructure. Consistent analysis of the interactions of flow and streams can readily surface latency issues and bottlenecks in trading infrastructure. The more timestamps that are collected the easier it is to reconcile the LPs perspective of a trade or reject to that of the client. As well as assisting LPs to price as they aim to, the analysis can surface client trading behaviour such as sweeping or persistently hitting quotes that is not actually intended.

What factors should influence a firm's choice of suitable provider to partner with to help them capture the benefits that liquidity dynamics is now able to deliver?

The latest AI tools are able to build quite complex analytics with relative ease. Having confidence in them, managing history and maintaining reliability as analytics expand remains complex and fraught with difficulty. Data fidelity is extremely important: is the vendor capturing complete data? Are they able to handle bad data, dropped feeds and do they have the ability to reload and patch gaps? Does the vendor have a consistent, reliable framework for managing evolving and improving analytics, so that today's results can be placed in historical context?

Consideration should be given to the additional reference data that vendors can provide. This may be truly independent reference data which is unpolluted by customer orderflow, consensus data or peer comparison.

Vendors should ideally be independent as a provider with no stake in the game with a set of LPs or platforms is only incentivised to provide the facts as they are. As the market evolves with new venues and liquidity providers it is then in everyone's interests to integrate.

It is also worth considering whether vendors can offer multiple integrated products, so that firms benefit both from a simplified procurement process and from reduced compliance overhead. Risk frameworks such as DORA and the UK operational resilience rules are placing increasing scrutiny on each vendor relationship a firm holds. That due diligence should extend beyond the product itself to cover a vendor's ongoing compliance strategy and funding stability.

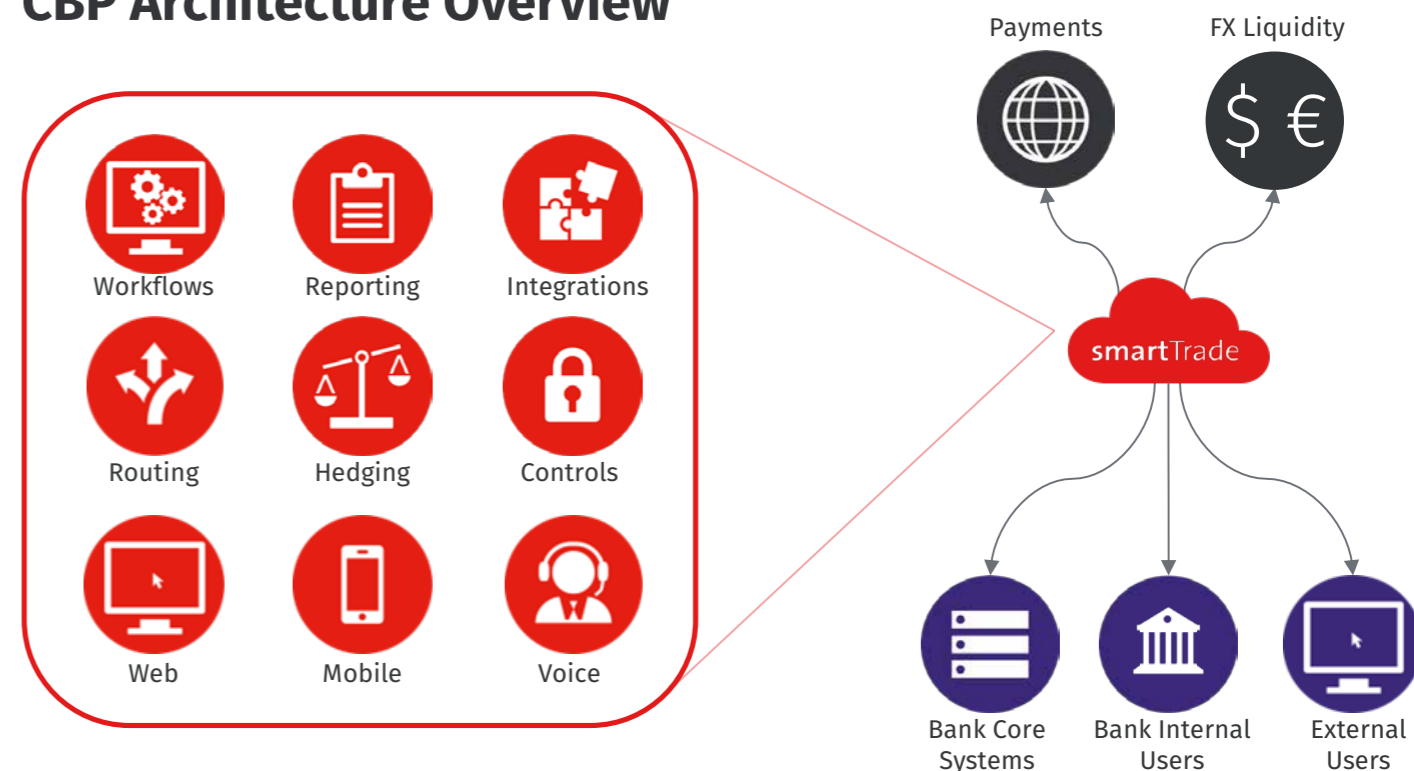
Global coverage and integrations are becoming increasingly important as pricing and liquidity vary substantially by venue and time zone. Having pre and post-trade liquidity dynamics analysis that are consistent across venues, LPs and clients allows both sides of each transaction to talk the same language and genuinely match flow to suitable liquidity.

We've seen this first-hand with the introduction of consistent benchmarks and liquidity dynamics that will only extend this communication as the markets continue to evolve.

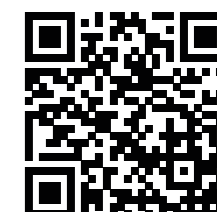
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Scaling crypto the FX way

Ralph Achkar, Head of Digital Currency Strategy at 360T, outlines the strategy, architecture and institutional design principles behind the launch of 3DX — a digital asset trading platform built on proven FX infrastructure.



Ralph Achkar

While the price of Bitcoin and other cryptocurrencies continues to fluctuate significantly Deutsche Börse Group's (DBG) strategic commitment to the digital asset space remains strong and consistent, as evidenced by the launch of 360T's new digital exchange, 3DX.

Built as a fully integrated digital offering within the 360T ecosystem, 3DX is a fully (MiCAR) regulated bilateral trading platform designed specifically to meet the needs of institutional firms. Crucially, it runs on the same infrastructure and operates with the same workflow logic as 360T's existing SuperSonic trading solutions.

This means that FX market participants already connected to 360T can leverage their existing

legal agreements, API connectivity, operational processes and workflows to now also access crypto assets via 3DX. Regardless of whether execution is occurring via GUI or API, the user experience remains exactly the same as on 360T — the only difference occurs in the post-trade workflow.

INNOVATING AROUND SETTLEMENT

Settlement for crypto trades is structured on a T+1 basis, deliberately aligning with FX conventions to mirror what treasury departments and risk managers are doing today.

However, 3DX has introduced a significant innovation around settlement risk. Whereas participants are generally asked to prefund trades and accept significant bilateral settlement exposure today, 3DX offers a DvP style model inspired by the CLS framework.

While trading remains bilateral, settlement can be routed through an independent settlement agent. Funds and digital assets are delivered to the agent, which ensures that both sides have funded before simultaneously swapping assets, hence removing settlement risk. Importantly, the service is modular. Clients may use this settlement mechanism or implement

their own arrangements, just as they do in FX.

REGULATED TRADING

It's also important to highlight that 3DX was launched in compliance with MiCAR across the European Union. 3DX offers all the robust governance and operational safeguards that institutional clients would require. We are hopeful that rules around crypto trading will soon solidify in the US and elsewhere, enabling us to scale up 3DX globally.

In addition, 3DX works with a set of well-known liquidity providers in the crypto space to provide clients with competitive crypto prices, offering the same experience as trading on an FX multi-dealer platform.

GROWING CLIENT DEMAND

The timing of 3DX's launch was not an accident. We have been building this digital asset ecosystem so that it would be in place for our existing institutional client base when they were ready to trade cryptos.

And we believe that time has come. Banks, for example, are rapidly moving to offer crypto-related services to their end customers, who have been moving deposits elsewhere if their existing banking institutions don't

offer them crypto services. Banks also recognize that integrating crypto services into their broader offering helps prepare for the emerging tokenized world.

Similarly, as crypto-native brokerage firms have begun to expand their offerings into tokenized securities, traditional brokers are looking to counter this move by offering access to cryptos.

INSTITUTIONAL FLOWS

For the institutional buy-side, the drivers are different. We see a growing number of asset managers assessing allocation strategies that include crypto Spot, Derivatives and ETF products. However, these are highly regulated, risk-averse institutions, demanding a trading venue which aligns with all their best execution, audit and compliance frameworks.

Many corporate treasurers, meanwhile, are examining stablecoins as tools for cross-border payments that can bypass delays and fees. But treasury departments require regulated venues and familiar settlement cycles to engage. By listing regulated stablecoins, 3DX creates the bridge required by such treasurers.

Beyond these traditional client segments, some crypto-native firms have matured and gained scale. They are increasingly indistinguishable from 360T's institutional partners.

OPPORTUNITIES FOR COLLABORATION

Two of these firms — Bitpanda and Kraken — have announced major partnerships with DBG recently. In February, 3DX revealed an enhanced integration with Bitpanda designed to accelerate time-to-market for financial institutions looking to expand their digital asset capabilities.



3DX platform

And in December of 2025 Deutsche Börse Group entered into a partnership with Kraken, one of the largest crypto platforms, to offer unified access across traditional and digital asset markets, the first phase of which involved integrating Kraken with 3DX.

This strategic partnership was expanded upon in April of 2026 as DBG announced a \$200 million investment in Payward, Inc., the unified infrastructure layer behind Kraken, which resulted in a 1.5% stake in the company.

These partnerships highlight the ongoing convergence between traditional and crypto-native institutions, demonstrating that we are witnessing the emergence of pragmatic collaborations which recognize and augment the strengths of each.

A FAMILIAR MODEL

Ultimately, what 3DX does is remove the barriers preventing FX market participants from accessing crypto assets, de-risking their entry and removing the costs normally associated with it.

That is because the platform utilizes 360T's proven technology to offer the same functionalities, tools and advantages in the crypto space as in FX.

Finally, 3DX preserves the established economic model of the institutional FX market. Unlike many crypto-native platforms, which typically charge liquidity consumers to trade, 3DX maintains a pricing structure where takers do not pay transaction fees — instead, costs are borne by liquidity providers.

CONVERGING MARKETPLACES

In many respects, the evolution of digital assets is beginning to mirror the early days of electronic FX: initial fragmentation and volatility gradually giving way to institutionalization, regulation and scalable market infrastructure.

The next phase of growth will not be driven by speculation alone, but by the ability to embed crypto assets within the operational, risk and governance frameworks that institutional firms already rely on.

3DX represents a deliberate step in that direction, it provides a familiar and robust gateway for institutional participation, which is crucial for the growth and sustainability of the crypto ecosystem.

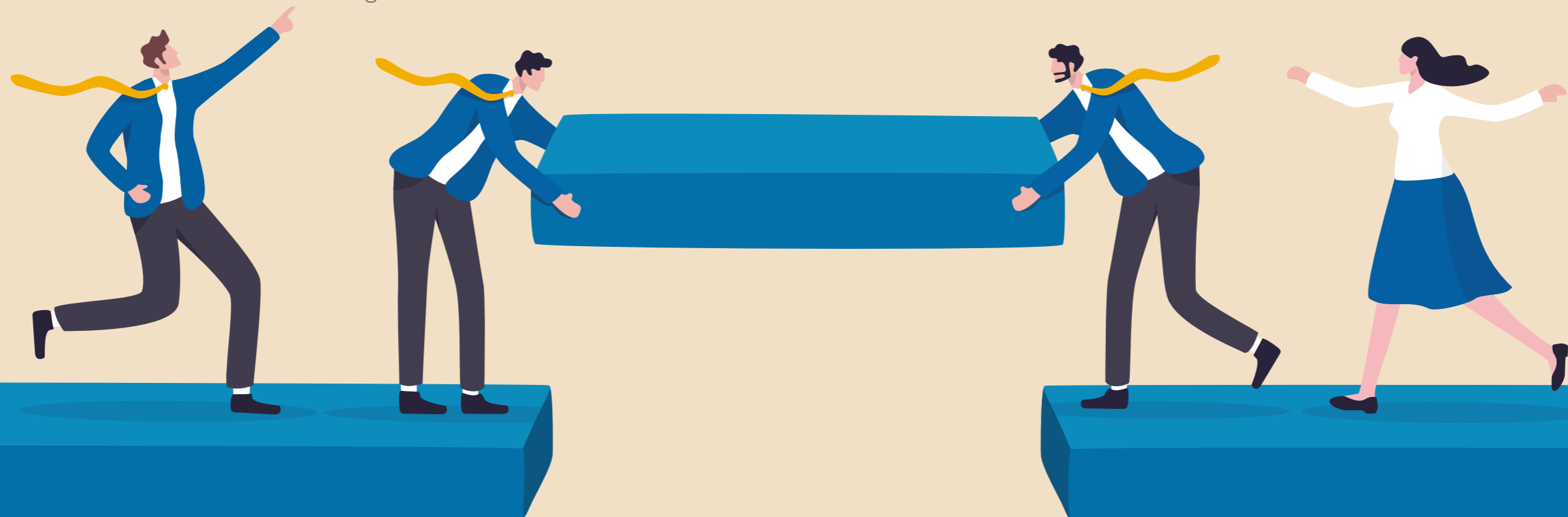
As traditional finance and crypto-native firms continue to converge, platforms that can bridge both worlds will play an increasingly central role in shaping the future market structure.

Bridging TradFi and Blockchain:

Paul Golden examines the core challenges facing leading digital asset settlement providers and how these issues are being addressed.

Advancing settlement solutions for institutional digital assets

Images by Shutterstock



Fragmented liquidity remains one of the biggest operational challenges in digital asset markets, affecting both the asset and liability sides of settlement. That is the view of Myles Wright, CEO Finality Services, who notes that the market is responding by building more interoperable infrastructure and venue-agnostic pricing and matching solutions designed to create a more unified view of pricing. Finality complements this by providing a regulated settlement layer using on-chain central bank money, helping institutions mobilise

liquidity more efficiently across venues, currencies and jurisdictions.

“Execution and settlement also frequently occur across different platforms, timelines and legal frameworks, further complicating operational workflows,” Wright says. “Finality addresses this challenge through a regulated DLT-based wholesale payment system that enables institutions to settle obligations on-chain using central bank reserves, supporting more efficient liquidity movement across currencies,

jurisdictions and networks. This helps institutions access liquidity where and when it is needed, improving capital efficiency while reducing operational complexity.”

The value of atomic real-time settlement, explains Wright, is that cash is not released until the asset exchange is completed. In addition, atomic settlement does not require every transaction to settle immediately, if parties to it do not need it. Future-dated settlement can still be synchronised so that payment and

delivery of an asset can occur together at the agreed point of settlement. For institutions, this can materially reduce principal risk while supporting more efficient use of liquidity and balance sheet resources. Settlement finality of the kind Finality offers, alongside asset classification and custody rules, remains one of the most important foundations for institutional digital asset markets because it is what makes a transaction legally irreversible and enforceable.

“The industry is increasingly recognising how critical settlement

finality is to building credible and scalable digital asset infrastructure,” says Wright. “Many firms are pursuing this capability but only a small number of regulated infrastructures currently provide it. As the market moves from experimentation to production-scale adoption, that distinction is becoming increasingly important.”

SETTLEMENT SUPPORTS CREDIBILITY

Crypto was built to eliminate dependencies on intermediaries and

other centralised counterparties - but when it comes to settlement, having a centralised counterparty in the middle turns out to be a useful feature observes Anton Deshchenko, senior product manager for Talos portfolio and treasury management systems.

“In digital assets, settlement has remained predominantly bilateral and the danger that one leg settles while the other fails is very much alive,” he says, noting that the industry is converging on three approaches to address this.

“The industry is increasingly recognising how critical settlement finality is to building credible and scalable digital asset infrastructure.”



Myles Wright

“Whichever model prevails, the critical precursor is settlement orchestration – understanding your obligations, sequencing activity intelligently and managing the risk of failing to settle,” explains Deshchenko, referring to commercial bank money settlement. “For sell-side institutions in particular, sequencing is essential. Efficient downstream settlement depends on first collecting on upstream obligations without tying up treasury capital.”

A final complication is that although on-chain asset settlement can happen in near real time, the fiat leg in many cases remains beholden to banking hours and correspondent bank checks. Finality gets around this by ensuring that participant banks have access to their on-chain central bank reserves at any time for settlement, 24/7, irrespective of whether local RTGS systems are open or not.

“Truly atomic DvP for crypto-versus-fiat remains largely out of reach today, which is where regulated stablecoins become a compelling settlement mechanism, allowing both legs to move on the same rails,” says Deshchenko.

Whether a digital asset is treated as a security, commodity or currency determines how it can be held in custody, how it must be reported and what settlement obligations it carries. Until major jurisdictions converge and more firms obtain the settlement finality designation Finality possesses, institutions face the unattractive choice of operating under worst-case assumptions or risking being caught on the wrong side of a future ruling.

“DLT finality introduces a risk dimension with no real analogue in traditional markets: irreversibility,” notes Deshchenko. “In TradFi, settlement errors can be unwound whereas on-chain, there is no recourse. Sending assets to the wrong address is a permanent loss, which makes pre-settlement validation, exception workflows and confirmation controls critical.”

REAL-TIME RECONCILIATION VITAL

In this context, real-time, transactional reconciliation, rather than end-of-day batch processes, is essential to catching discrepancies before a transaction is broadcast. Fragmented liquidity creates both execution and operational challenges for institutions, observes Adam Sporn, head of prime brokerage and institutional sales at BitGo. When liquidity is dispersed across exchanges, OTC desks, custodians and blockchain networks, firms can face wider spreads, inconsistent market depth, slippage and less reliable price discovery.

“It also increases settlement complexity,” he says. “Institutions may need to pre-fund multiple venues, move collateral across platforms and reconcile balances across disconnected systems. In a 24/7 market, those frictions can increase counterparty exposure, reduce capital efficiency and make institutional risk management more difficult.”

Custodians are leading the charge on atomic bilateral settlement, where both legs settle simultaneously or not at all. New centralised clearing counterparties are positioning themselves as the ‘DTCC of crypto’ with the additional benefit of netting obligations across counterparties and freeing up balance sheet capital. Further out, blockchain-native settlement protocols governed by smart contract logic are emerging.

In addition, there is the choice institutions have of settling in commercial bank money with stablecoins or tokenized deposits, or the ultimately safety of central bank money.

Whether a digital asset is treated as a security, commodity or currency determines what settlement obligations it carries



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“Efficient downstream settlement depends on first collecting on upstream obligations without tying up treasury capital.”



Anton Deshchenko

Sporn describes regulatory clarity as essential because settlement is a legal and risk management function, not just a technology function. “Institutions need confidence in how assets are classified, how they may be custodied, how client assets are protected and when settlement is final and enforceable,” he says.

The regulatory environment is becoming more constructive. In the US, the GENIUS Act created a federal framework for payment stablecoins, with implementation ongoing, which is important because stablecoins and tokenised cash are likely to play a meaningful role in institutional settlement. Recent OCC guidance has also provided additional clarity for national banks and federal savings associations around permissible crypto-asset activities, including custody, certain stablecoin-related activities, DLT network participation, custody and execution services and related operational functions. “At the same time, broader market structure legislation remains important,” says Sporn. “The CLARITY Act - which recently advanced out of the Senate Banking Committee - would, if enacted, help clarify the treatment of digital assets, intermediary

obligations, disclosures and market oversight.”

He suggests the industry should continue engaging with regulators and building infrastructure that meets institutional standards from the outset, arguing that clear rules around custody, disclosures, reserves, transaction monitoring, operational resilience and settlement finality will support broader adoption.

“Regulation should not be viewed as a barrier - for institutions, it is a prerequisite for trust and scale,” says Sporn, adding that the market is moving toward more interoperable infrastructure, including custody-integrated settlement networks, API connectivity, tokenised cash and collateral models, regulated stablecoin-based payment rails operating under clearer regulatory frameworks and secure cross-chain messaging.

“For institutions, interoperability must be controlled, permissioned and auditable. It is not enough to connect systems: firms need settlement workflows that integrate with custody, treasury, compliance and risk platforms. The most practical progress will likely come from regulated or permissioned environments where participants are known, controls are defined and settlement processes can be monitored.”

UNDERLYING ISSUES REMAIN

Compressing settlement cycles from T+2 to T+1 does not solve the underlying structural issues that drive credit and operational risks in the case of commercial bank money settlement, because settlement will still be hampered by legacy design, unconnected processes and duplicated

systems that create delays, uncertainty and costly repair work for all parties.

Moving towards real-time settlement orchestration changes that model, explains Ross Dilworth, head of strategy and partnerships at Baton Systems. Mechanisms such as atomic PVP and DvP synchronise both legs of a transaction, so each leg moves only when the corresponding leg is ready and both settle under a robust process and legal framework.

“That removes the timing mismatch that creates principal settlement risk and uncertainty, is scalable to a wide range of use cases and - when paired with liquidity optimisation strategies such as netting - can provide institutions with substantial economic benefits and increase business capacity,” he says.

DLT networks can enable this by providing shared, real-time and transparent workflows where participants can agree settlement requirements, timing and scope, but parties also need to be able to link these workflows with their existing internal systems and processes.

Dilworth reckons the major challenges for institutions include understanding the end-to-end business case, the practical steps required to connect these new assets into existing models and ensuring that any investment is future-proof to the range of differing digital solutions that are developing.

“Firms also need confidence that new assets, models and settlement mechanisms can fit within established operating and legal and regulatory frameworks before they can use them at scale,” he adds. “However, waiting for this clarity should not stop progress. There are settlement, liquidity and collateral challenges in today’s markets that banks can address now.”

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“Digital assets can help accelerate the move to genuinely real-time settlement as connected and interoperable settlement networks emerge.”



Ross Dilworth

This has the added benefit that it supports hybrid use cases, for example FX PvP where one leg sits on traditional fiat rails and the other on digital asset infrastructure, using consistent settlement logic across both.

“This helps to future-proof the process by connecting existing operating processes and making it easy to scale and onboard new digital assets,” says Dilworth. “Equally importantly, it also expands the range of business use cases where these assets can be leveraged.”

Dilworth agrees that siloed blockchains can create a real adoption challenge because they often require institutions to build separate controls and workflows for each blockchain, digital asset or venue and are not designed to work with existing institutional processes and systems.

One approach that is gaining traction, he observes, is to leverage more flexible networks that are not asset specific and provide banks with the capability to orchestrate settlement in real-time across a range of traditional and digital flows without requiring replacement or a new operating model for each new asset.

Digital assets are inherently well-suited to supporting real-time settlement without constraints around traditional business days or settlement windows, with the concurrent liquidity and risk benefits that this offers.

“For a long while, digital assets were a solution looking for a problem but when leveraged as part of a wider simplification and modernisation of process, they can help accelerate the move to genuinely real-time settlement as connected and interoperable settlement networks emerge,” says Dilworth.



Digital assets are inherently well-suited to supporting real-time settlement

MARKET SIMPLIFICATION OPPORTUNITY

Looking ahead, he suggests there is a generational opportunity to simplify the way markets settle today and to extend these capabilities to broader collaborative processes that allow banks to automate more of the processes they currently do between themselves.

According to Deshchenko, a consistent pattern when institutions enter digital assets is that trading gets the primary attention and settlement becomes the afterthought, although that is now starting to change.

“The systems institutions already have were not built for digital assets,” he says. “They weren’t designed for on-chain finality, for assets that simultaneously exist across multiple chains, or for a market that never closes. Retrofitting them is often more fragile than starting fresh.”

The solutions are maturing on several fronts. Cross-chain interoperability protocols are reducing the friction of moving assets between networks, custody providers are building richer settlement APIs that allow institutions to orchestrate movements programmatically and orchestration platforms are beginning to bridge the TradFi/DeFi divide.

As for how tokenisation might reshape post-trade and settlement for institutional digital assets, Deshchenko says the most immediate impact is compressing timescales toward zero. “Extending the atomic settlement model to tokenised securities would eliminate the bilateral exposure window between execution and final settlement,” he observes. “Beyond speed, tokenisation enables programmable settlement where what currently requires a chain of instructions across multiple intermediaries can, in principle, be reduced to a single atomic transaction.”

There is also the potential for meaningful gains in collateral mobility and capital efficiency since tokenised assets can be pledged and moved in near real-time. For institutions managing multi-asset portfolios across both digital and traditional instruments, that composability is a significant operational and capital efficiency advantage.

Sporn explains that tokenisation can make post-trade processes faster, more automated and more transparent. If assets, cash and collateral can exist in tokenised form, settlement can become less dependent on sequential, manual workflows. “It can also improve collateral mobility, reduce reconciliation burdens and support more automated lifecycle management,” he adds. “I believe the most meaningful opportunity is the ability to settle tokenised assets against tokenised cash or regulated payment instruments, reducing counterparty exposure and improving capital efficiency.”

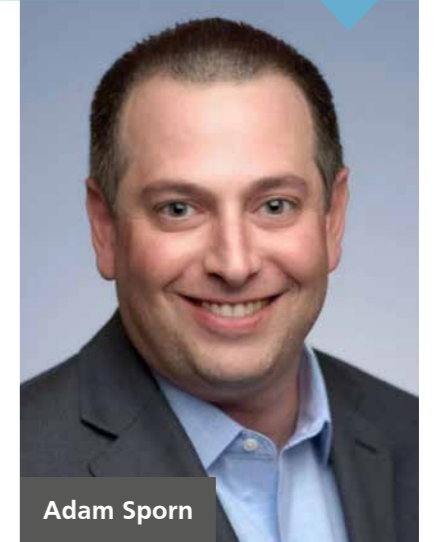
BitGo supports triparty collateral management workflows that allow clients to segregate collateral from counterparty, - particularly for financing and derivative activity, - and has growing institutional interest in posting tokenised money market funds as collateral, given their funding efficiency and 24/7 transferability.

MULTIPLE MODEL MOVEMENT

The market is increasingly moving away from the idea that a single blockchain network will dominate institutional finance towards a network-of-networks model where different platforms specialise in different assets, markets or jurisdictions while remaining interoperable through shared standards, messaging frameworks and legal agreements.

“Several solutions are emerging to support this shift,” says Wright. “Cross-chain messaging protocols

“Institutions need confidence in how assets are classified, how they may be custodied, how client assets are protected and when settlement is final and enforceable.”



Adam Sporn

are becoming more sophisticated, enabling transactions on one network to trigger corresponding actions on another. Shared settlement layers are also developing, providing a common cash settlement mechanism that can connect multiple asset platforms.” Bridges to legacy financial infrastructure, including RTGS systems, custodians and payment networks, are helping integrate tokenised transactions into the broader financial ecosystem where required.

Fnality believes tokenisation has the potential to fundamentally simplify post-trade infrastructure by collapsing many of the separate layers that exist in traditional financial markets.

When both assets and cash are represented on distributed ledger technology, many of these steps can become integrated into a single shared workflow. Trade execution and settlement can occur as part of the same event, records become synchronised rather than reconciled across institutions and many manual operational processes can be significantly reduced. The result, says Wright, is not simply faster settlement but a more structurally efficient system where collateral can move intraday, liquidity can be deployed more dynamically and balance sheets can operate more efficiently while reducing operational and counterparty risk. “Tokenisation also makes assets inherently more programmable, allowing rules, workflows and post-trade processes to be embedded directly into the asset itself,” he adds. “This creates greater automation, fewer manual interventions and improved interoperability between assets and different forms of money.”

According to Wright, the next phase of industry development is likely to focus less on underlying technology innovation and more on institutional adoption, interoperability and regulatory integration at scale. “One major trend will be broader participation in shared settlement infrastructure,” he says. “Early adopters have already demonstrated the viability of these models but wider institutional participation is where network effects and meaningful transaction scale will begin to emerge.”

Another key development will be the convergence of digital asset settlement with tokenised collateral, intraday liquidity and repo markets. Once institutions can settle transactions atomically and with finality, entirely new liquidity and balance sheet optimisation models become economically viable.

“This transition from proof-of-concept activity toward live, regulated and production-grade infrastructure is expected to drive the next stage of growth in institutional digital assets,” adds Wright. As tokenised markets mature, regulated digital cash and settlement finality are likely to become foundational components of market infrastructure rather than optional enhancements.

How ChelseaAI brings trading into the AI workflow

ThinkMarkets has launched ChelseaAI, an open MCP integration that connects ThinkTrader accounts to the AI assistants clients already use. The architecture is deliberate, the permission model is rigorous, and the implications for how traders work are significant.

The AI assistant has become the default first tool for a lot of professionals, and that shift has happened across almost every part of the working day. The one obvious gap has been the trading account, which has stayed locked inside its own platform regardless of everything else moving into the conversation.

ChelseaAI closes that gap. Available now on ThinkTrader WebTrader, it connects ThinkTrader accounts to any MCP-compatible AI assistant through the open Model Context Protocol. Claude is the recommended starting point, but the integration works with any compatible client. Switch assistants and the ThinkTrader connection stays.

Previously, an AI assistant could help you think through a trade.

With ChelseaAI, it can act on your instructions too.

BUILT ON AN OPEN STANDARD
MCP is an open standard that defines how AI assistants connect securely to external systems, handling authentication, permissions, and data exchange through a consistent protocol rather than a proprietary handshake.

ThinkMarkets built ChelseaAI on it because the openness is the point. Most broker-side AI integrations connect the trading account to a named AI provider, which means the trader ends up adopting the broker's choice of AI rather than their own.

ChelseaAI inverts that. A trader using Claude today can switch to a different MCP-compatible assistant tomorrow.

The ThinkTrader connection stays. You keep using the AI you already use. Your trading account is just part of the conversation now.

WHAT CHELSEAAI DOES
ChelseaAI gives traders access to 26 tools across market data, account information and order management, with more to come. Choose your access level and change it whenever you like. Revocation is immediate.

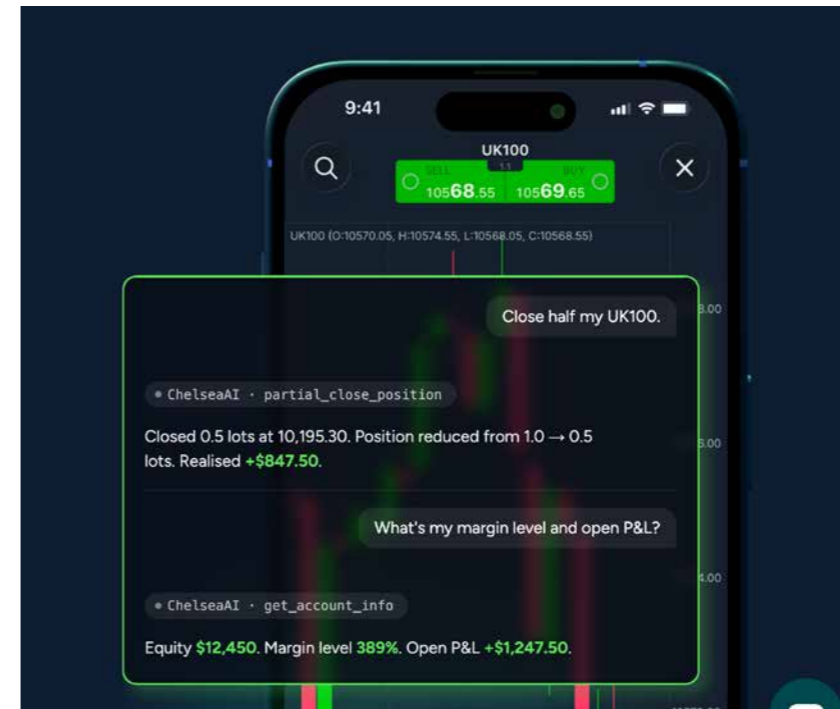
READ-ONLY ACCESS
For traders who want full account visibility without any execution capability. You can see everything, change nothing.

- Live prices and market data
- Balances, equity and margin
- View open and closed positions
- Trading history

FULL ACCESS INCLUDES EVERYTHING ABOVE, PLUS:
For traders who want to manage their account entirely through the conversation. Every action still requires your explicit instruction.

- Place and manage market and pending orders
- Set or modify stop loss, take profit and trailing stops
- Partial or full position closure
- Cancel pending orders

Everything runs through the



Traders can place orders, manage positions, check their exposure, all without leaving the conversation

conversation you are already in. No platform to switch to, no separate module. Control stays with you throughout. ChelseaAI acts only when you instruct it. It does not trade on your behalf or run autonomously. Every action is recorded in your in-platform audit log with a full timestamp, so you always have a clear picture of exactly what has been done.

The one thing ChelseaAI cannot touch is your funds. Deposits, withdrawals and transfers are not accessible at any permission level.

CHELSEAAI IN ACTION
"Move my GBP/JPY stop to break-even, take profit at 250 pips."
ChelseaAI modifies the position and confirms the new levels.

"What's my current exposure across forex pairs?"
ChelseaAI pulls your open positions, groups by pair, returns a clean summary.

"Buy limit on EUR/GBP at 0.8550, expires Friday."
ChelseaAI places the pending

order and confirms level, expiry and protective levels.

WHY THIS MATTERS NOW
There is a practical reality to how traders work now that was not true five years ago. The AI assistant has become a genuine part of the professional workflow. For a growing number of people, research and analysis happen in the conversation before they happen anywhere else.

The trading account has been the obvious exception — until now.

How it has been integrated matters as much as the fact that it has. Building on an open protocol in a regulated environment, with the trader in control of permissions and a full audit trail of every action, reflects a deliberate position on what this kind of integration should look like. It belongs to the trader rather than to a named AI provider, and that is a meaningful distinction.

Most AI integrations in finance tether the account to a specific product. This one does not. The protocol is open, which means the trader's choice of AI assistant stays theirs today and as the landscape shifts.

GETTING STARTED
Getting started takes under two minutes. Once a trader has signed up to ThinkTrader, all they need to do is head to ThinkTrader WebTrader, open their account settings, and select Connect MCP Client. From there, choose their preferred MCP-compatible AI assistant, set their access level, and confirm. If traders want to explore further before diving in, ThinkAcademy has a full collection of guides and step-by-step walkthroughs covering everything from the connection process to making the most of what ChelseaAI can do.



MCP is an open standard that lets AI assistants connect securely to external tools, including trading accounts

The AI assistant has become a genuine part of the professional workflow



EXPERT OPINION

FX Options' growth boom raises a bigger question: Which platforms win?

By John McGrath



John McGrath

While spot and swaps FX remain enormous, the strategic energy increasingly sits elsewhere — in volatility, optionality and more sophisticated hedging and trading workflows. As macro volatility, rate divergence and geopolitical uncertainty continue to drive demand for hedging instruments, the FX options market appears to be entering a new phase of electronification.

That raises a larger strategic question for the industry.

As FX options trading becomes more electronic, does the market consolidate around the large multi-product FX platforms? Or do options remain a specialist workflow where niche providers such as Digital Vega and OptAxe retain defensible positions? History suggests both outcomes are possible.

In some electronic markets, scale and network effects eventually overwhelmed specialists. In others, complexity preserved fragmentation and allowed niche firms to thrive alongside larger incumbents. FX options now appears to sit directly between those two paths.

WHY FX OPTIONS IS GROWING

The structural drivers behind FX options growth are relatively clear.

First, the post-2020 macro regime has fundamentally changed hedging behaviour. Higher interest rates, larger FX swings and more persistent geopolitical uncertainty have increased demand for optionality across both institutional and corporate client segments.

Second, volatility itself has increasingly become an investable asset class. Many of the macro hedge funds and banks I meet talk about the increase in systematic volatility strategies and relative-value trading across their firms. Most product client types (banks, asset managers, corporates, etc) have all expanded their activity in FX volatility markets over the past decade.

Third, dealer technology has improved materially. Pricing engines, automation tools and RFQ/RFS infrastructure are now significantly more sophisticated than they were even five years ago. Products that historically required heavy voice interaction can increasingly be

traded electronically, particularly in G10 vanilla options. As the technology becomes more mainstream many more Liquidity Providers (LPs) are happy to start to integrate pricing across multibank FX platforms. At the same time there has been a large reduction in transaction revenue rates on platforms as LPs squeeze them in negotiation with their pricing feeds. Some platforms continue to try and hold firm on higher vanilla option transaction fees but it's just a matter of time. Platforms are just stalling option transaction revenue reductions to balance the books on their revenue growth projections to investors and ownership.

Finally, buy-side firms themselves are becoming more comfortable with electronic options workflows. Many traders have grown up in increasingly multi asset electronic markets - rates, equities and listed derivatives. Expectations around execution, workflow integration and data transparency have evolved accordingly. The result is that FX options are beginning to move from a relatively specialist corner of the market toward a more scalable electronic business. It's easier for fintech's to access the market as technology builds get cheaper and more Dev efficient with the introduction of AI into the Dev space.

Does that transition ultimately favour the largest platforms (Bloomberg, FX Connect, FXAll, etc) or the more specialised ones (Digital Vega, OptAxe, etc).

THE CASE FOR CONSOLIDATION

The argument for consolidation is compelling.

Large FX platforms already possess the three assets that historically matter most in electronic markets: distribution, connectivity and embedded workflow.

Firms such as the large ones mentioned above already maintain deep client relationships across spot, forwards, swaps and some in such as LSEG and Bloomberg in broader fixed income workflows. Extending those relationships into FX options appears strategically logical.

Clients themselves increasingly prefer workflow consolidation. Asset managers and corporates alike are under constant pressure to reduce operational complexity, simplify vendor relationships and integrate execution with compliance, analytics and post-trade systems. For many institutions, "one more specialist platform" carries a real operational cost and regulatory risk. That dynamic has played out repeatedly across electronic markets over the past two decades.

Electronic cash equities provide perhaps the clearest historical parallel. In the early days of ECNs and alternative trading venues, fragmentation flourished. Specialist venues emerged with differentiated functionality and unique liquidity pools. Yet over time, network effects began to dominate. Liquidity attracted liquidity.

Large exchange groups and platform operators consolidated the market through a combination of acquisition, integration and scale advantages. Firms

such as Nasdaq, NYSE and Cboe Global Markets expanded aggressively as electronic trading matured. There are obvious parallels with FX.

The major exchange and infrastructure groups have already spent years acquiring FX businesses and workflows, as I have written about previously:

- CME acquired EBS
- Deutsche Börse acquired 360T
- SGX acquired BidFX
- LSEG acquired Refinitiv

These were not simply revenue acquisitions. They were strategic bets on workflow ownership and capturing data points. If FX options ultimately becomes a highly scalable electronic market, the logic points toward consolidation around the firms already controlling the broader FX ecosystem.

I would argue Vanilla options flow, appears vulnerable to this outcome. As pricing becomes more standardised and execution increasingly automated, the competitive advantage may shift away from specialist workflow design and toward distribution scale and liquidity aggregation.

In that world, the largest platforms become increasingly difficult to displace. However, there are 2 parts to this argument.

Large FX platforms already possess the three assets that historically matter most in electronic markets:

- 1 DISTRIBUTION**
Deep access to a broad base of buy-side and sell-side clients globally.
- 2 CONNECTIVITY**
Direct connections to a wide network of liquidity providers, venues and ecosystem partners.
- 3 EMBEDDED WORKFLOW**
Integrated into the daily workflow of market participants, from pre-trade to post-trade.

These three assets create durable advantages in liquidity, efficiency and market leadership.

As the market grows, workflow ownership — not just liquidity ownership — is likely to become one of the most strategically valuable assets in global electronic trading.

Workflow Ownership Orchestrates the entire trading process.

Workflow Ownership Scales with the market. Drives efficiency. Builds lasting advantage.

Liquidity Ownership Important but increasingly commoditized.



History suggests many successful workflow innovators ultimately become acquisition targets

WHY SPECIALISTS MAY STILL WIN

Yet the counter-argument is equally strong.

FX options are not spot FX. Spot FX is fundamentally a speed and liquidity business. Options trading is a workflow and risk-transfer business. The priorities of an FX options trader differ materially from those of a spot trader.

Options participants care about volatility surfaces, skew dynamics, structuring flexibility, liquidity discovery and RFQ sophistication. Execution quality is often less about raw speed and more about information, negotiation and workflow precision. That complexity may protect specialist firms.

This is where the comparison with electronic rates and credit markets becomes more relevant than equities. Despite years of electronification, fixed income and derivatives markets did not fully converge into a single winner-takes-all platform structure. Instead, specialist workflow providers retained meaningful positions alongside larger incumbents.

Firms such as Tradeweb and MarketAxess succeeded not simply because they aggregated liquidity, but because they understood the intricacies of dealer-client workflow in complex OTC markets. Electronic execution did not eliminate fragmentation because

the underlying products themselves resisted commoditisation. FX options shares many of those characteristics.

Large portions of the market remain episodic and relationship-driven. Liquidity is often nuanced rather than continuous. Pricing models, dealer axes and structuring expertise still matter enormously.

That creates room for specialist firms such as Digital Vega and newer entrants such as OptAxe to build defensible positions despite the presence of far larger competitors. In fact, I would argue specialists may possess structural advantages precisely because they focus narrowly on options workflows. We built and successfully sold BidFX on the back of a narrow focus on complex hedge fund workflow knowing this was an area more generic platforms couldn't compete with.

Specialists can iterate faster. They can tailor functionality more aggressively around the needs of volatility traders. They can optimise RFQ logic, dealer interaction and analytics in ways that broader platforms may struggle to prioritise internally. In electronic OTC markets, depth of workflow often matters more than breadth of coverage. That has repeatedly allowed niche firms to survive longer than many observers initially expected.

THE MOST LIKELY OUTCOME: BIFURCATION

The most probable outcome for FX options is neither complete consolidation nor permanent fragmentation. Instead, the market may bifurcate.

Highly standardised G10 vanilla flow is likely to become increasingly consolidated and electronic over time. That segment naturally favours large platforms with scale, distribution and existing client connectivity.

More sophisticated and complex workflows, however, may remain specialist for far longer. Structured products, multi-leg strategies, EM options and nuanced volatility trading workflows are less easily commoditised. Those areas may continue to reward firms with deep domain expertise and highly specialised execution tools. This hybrid structure already exists across multiple electronic asset classes.

The more interesting question may therefore not be whether specialists survive, but whether they eventually remain independent.

History suggests many successful workflow innovators ultimately become acquisition targets rather than long-term standalone challengers. That pattern has repeated itself across FX, equities and fixed income markets for two decades. Smaller firms innovate around workflow friction; larger infrastructure providers later industrialise and distribute those innovations at scale. The recent history of electronic trading is full of such examples.

FX options may simply be the next chapter in the same story. As the market grows, workflow ownership — not just liquidity ownership — is likely to become one of the most strategically valuable assets in global electronic trading.









John McGrath's Substack page can be found at: <https://substack.com/@johnmcgrath616049>



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