EXEQUTION Analytics

Fixing FX : how to illuminate the world's biggest, darkest market

The FX market turns over around USD$9.6 trillion, 24 hours a day, five days a week, generating trillions of data points. Absorbing every geopolitical tremor, rate decision and piece of economic news, it not only dwarfs every other asset class combined, it is also the least transparent, with no exchanges, no tapes and opaque, fragmented data.

The profitability problem

In this opaque world, really understanding profitability from the firm level down to the level of individual client relationships is hard. A trade with one client leaves the desk with a position that must be hedged manually, at a cost. If another client's flow happens to counterbalance the risk, the hedge – and its cost – disappears. Trading slippages; funding; inventory management all add to the cost vs profit problem, but truly understanding where hidden costs are creeping in and profit opportunities are being missed is far from straightforward. A client that looks highly profitable in isolation may in fact be expensive once the true cost of hedging their flow is accounted for; a client that looks marginal may be quietly subsidising risk elsewhere.

This extends to business wins and losses too. Desks need to see how much of the client flow they're winning – and losing – and where, before they can understand why. Uncovering these patterns is essential to genuinely understand and maximise profitability.

The complexity conundrum

In principle, this is all quite simple to manage: capture and store all possible data, then analyse it to manage risk, profitability (from the macro level down to individual client profitability), surveillance and client analysis. In practice though, this is a very hard problem indeed.

And it's not getting any easier. While the dollar is relatively calm, owing to a hold cycle among major central banks and a growth backdrop, calm is always relative in FX. Predictable catalysts, such as US Non-Farm Payrolls or a central bank rate decision, can be planned for, spreads widened in advance, exposure trimmed. The real danger comes from the events nobody sees coming, and there are plenty of catalysts for volatility. Historically, such shocks included the Swiss National Bank's abrupt removal of its euro exchange rate floor in 2015, which sent the Swiss Franc soaring by 30% in a matter of seconds, bankrupting several FX brokerages. Today, markets are more complex than ever: emerging market currency turnover, led by the Chinese renminbi, has grown at more than double the pace of developed market currencies over the past three years; FX options volumes have more than doubled since 2022. Asset managers ended 2025 holding around 32% more FX hedging positions than they started with. And with geopolitical landmines, like the sudden imposition of US tariffs, happening all the time, the ingredients for sudden, sharp moves remain firmly in place. A market that never sleeps, and can move violently any moment, needs participants to be able to see what is happening in it just as continuously.

Even within firms, complexity reigns – the typical sell-side FX desk sits at the centre of enormously varied flow: retail; corporate; hedge funds and other institutions. Each brings a different risk profile and requires different regulatory obligations. This also presents problems for best execution – anyone who remembers the LIBOR era knows how difficult it can be, years later, to demonstrate why and how decisions were made.

Every sell-side desk is connected to a sprawling web of venues, ECNs and other market participants. A large bank might have 60 or more of these feeds running simultaneously, providing access to enormous volumes of proprietary data. Properly ingested and analysed, this data can illuminate everything from risk to profitability, but most only have a partial view at best. While some firms have invested heavily in in-house analytics, many have not, and are left to manage if not completely in the dark, then very much in the shade.

This gap exists because the data problem sits awkwardly between two worlds. The business propositions – improved profitability; better client information and more rigorous risk management – are clear. But the solution – data capture and analytics – sits firmly in the realm of the quants and their technology. With quant resources already stretched thin, and most companies lacking the specialist tech required, few companies are appropriately resourced to solve the problem.

Diamonds in the data

Despite the difficulties, companies that do solve the data problem reap benefits across the business. For quant and technology teams the benefits are two-fold. A good analytics system delivers risk-free validation, powering better development and backtesting by showing exactly what impact – P&L, risk and hit ratio – would have happened as a result of a new model, algo or strategy, cutting down testing to deployment time. Importantly, quant and tech teams also benefit from the ability of other teams to self-serve the data they need, removing a huge burden of high-volume, low-value requests for basic data and analysis. Without this workload, tech and quant resources can be focused on more complex, value-adding work.

For sales and management teams, self-service data delivers real-time insights into business performance and client relationships. When these resources no longer have to wait for other teams to access and analyse data, better management decisions and more productive client conversations can take place at the precise moments they need to.

On the trading floor, traders too benefit enormously from the ability to interrogate their trading data. Being able to benchmark trade performance against peers – as well as history – powers improved trading decision-making, and the ability to capture previously missed opportunities. Being able to see and manage risk from the portfolio level right down to individual clients and instruments ensures that the FX desk is optimised for profit, as well as being able to quickly answer questions from the rest of the business.

For risk and compliance, being able to pinpoint specific events and uncover why they happened, without needing to call on trading or tech resources, not only speeds the time to resolution but also boosts back-office productivity.

Architecture for alpha

Building a system capable of delivering all these outcomes means tapping in to all the existing data (while ensuring raw data is preserved), then transforming it through an API layer to meet multiple use cases, so that the same data sets can be used by different teams to meet their needs – market data for example can be called on by traders to calculate execution costs, or by portfolio managers to better inform client discussions.

Markouts – the price changes following trades – are essential to understanding trading performance in FX. This requires lining trading data up with real-time market data across any number of venues and timeframes. Being able to do this solves the problem of toxic flow almost instantly, as well as informing which clients are more profitable, and how efficiently the firm is laying off risk.

Knowing the VWAP – not just top-of-book – is essential for proper price discovery. This means processing millions of messages every second across multiple venues, requiring sophisticated time-series infrastructure. Once in place, this analysis illuminates the market as never before, showing which venues are best for which trade sizes and currency pairs; where the liquidity is hiding; and providing alerts as conditions change.

Really understanding P&L in FX requires a combination of trade data, market data, hedging activity and funding costs. Together, these provide insights into which clients are contributing to vs reducing risk; where, when and how the firm is making money – as a risk taker or market maker; which resources are performing best; where in the trading day profitability dips and peaks; and where the riskless profit lies within the bid/offer spread.

Individually, all these metrics are valuable. But together, they tell a complete and powerful story. Strong hit ratios but poor markouts? You're winning trades but losing money. Good markouts but poor P&L attribution? You're missing where the profit is really coming from. Integration reveals truth: only by combining hit ratios, markouts, P&L attribution, order book analysis and historical patterns do you see the complete picture of profitability

As in equities, data is no longer the binding constraint in FX. The constraint is the ability to see it, understand it and act on it at the speed the market itself moves. Firms with a live, accurate view of their flow, risk and their execution quality will be the ones positioned to capture what the market offers, rather than being caught out by it.

ExeQution Analytics' framework for FX trading desks is built on more than two decades of experience delivering kdb+/q trading platforms for the world's leading banks, asset managers and exchanges. For more information visit www.exequtionanalytics.com