



## London Stock Exchange Group continues expansion

LSEG's acquisition of MayStreet will give the exchange group high-quality market data, low-latency direct feeds, and packet-capture capabilities, but integration concerns remain.



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*WatersTechnology* (ISSN 1068-5863) is published quarterly (four times a year) by Infopro Digital Risk Limited. Printed in the UK by Stephens & George Print Group, Dowlais, Merthyr Tydfil, Wales.

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# The buy-vs.-build debate

After it was announced that London Stock Exchange Group (LSEG) had bought MayStreet, Max Bowie, Joanna Wright, Wei-Shen Wong and yours truly reached out to a bunch of people to get a feel for what the industry thought of the deal. You can read that story on page 24. But if you want something more gossipy and recklessly speculative, read the editor's letter.

In our conversations with people directly connected to LSEG/Refinitiv and MayStreet, or who are industry participants and competitors, two schools of thought emerged. The first is that it's simply a smart move. The second is that LSEG was essentially painted into a corner. Yes, a smart move, but one that could not be avoided and, as such, cost LSEG a pretty penny.

The theory here is that LSEG had to buy MayStreet because Refinitiv relied entirely on the supplier of low-latency direct datafeeds, a small but crucial piece of technology. LSEG had a choice: Either buy MayStreet or make a huge investment into the vendor to protect its stake in this piece of critical tech. Taking no action at all wasn't an option. If a competitor were to buy or make a huge investment in MayStreet, Refinitiv would be screwed by having to build its own low-latency direct datafeeds or buy (and install) a lesser provider's tech after ripping out MayStreet's. In this instance, it proved smarter to buy rather than build. No need to reinvent the wheel. But could this have been avoided?

Some wondered that when LSEG bought Refinitiv, how much did it consider third-party and fourth-party risk? Did the exchange know that it was going to have to buy or make a major investment into a company like MayStreet? Or was that a surprise? Maybe they did, but these are the questions that the industry's observers, gossipers, and speculators are asking today.

I think the most interesting thing to watch going forward is this: Don't be a mediocre provider of something. And don't get forced into transactions you hope will make you a great tech provider ... because you can't count on that working out. It's an old story, but the frustrating thing about M&A is that all too often a big company acquires a smaller specialist company. But when they try to integrate, things get messy, the talent who created the specialist product leave, or they get pooled into a development organization where they no longer specialize in the things they're good at (and then leave to found a new startup). So the acquiring firm just becomes a bigger, more mediocre tech provider.

I'm not saying this is what's happening today at LSEG/Refinitiv—I'm saying it's the concern. That is the worst-case scenario. LSEG bought MayStreet, but now it will be responsible for building out the product in the future. Refinitiv, Tora, Quantile Group and now MayStreet. Buying is easy ... integrating and sustaining is hard. 

**Anthony Malakian**  
Editor-in-Chief

# waterstechnology



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# SEC warned of alt data due diligence risks days before Thinknum crisis emerged

Only proper due diligence on datasets and the companies providing them will safeguard alt data consumers from similar risks in the future. By [Max Bowie](#)

On the corner of 47th Street and Madison Avenue in New York City, half a dozen cement mixer trucks line up to deliver their loads to the growing construction that will ultimately be JP Morgan's new headquarters at 270 Park Avenue. The construction site—spanning an entire city block—is a hive of activity.

Across the street, it's a different story on the 26th floor of 575 Fifth Avenue, home of alternative data provider Thinknum. The office is open, and staffed by a skeleton crew, though it's not clear whether that's due to the company's woes recently reported by Insider—which include allegedly not paying staff, and the abrupt departure of co-founder and president Justin Zhen, who didn't respond to a request for comment, but whose email auto-reply confirms he is “on leave”—or Covid-19 work-from-home policies.

Either way, the company is still alive, though Zhen's co-founder and Thinknum CEO Gregory Ugwi won't say for how long. Ugwi can be overheard on the phone reassuring someone that the company is “still operational.” He looks harried, as would be expected given the circumstances. I'm clearly not the first reporter he's given the brush-off in the past week, though I may be the first one who walked into his office in person. Once I introduce myself, he declines to hear my questions, politely but firmly asking me to leave. “Please leave. Please just leave our building,” he says. If he has a rescue plan, he's not sharing it with outsiders.

A former employee confirms the staff in the office is about the number required to keep the company running,



The SEC has placed alt data providers under greater scrutiny in recent years

collecting and delivering its data—which at time of writing, it continues to do. “When something like this happens, you have to maintain the codebase, and you need to keep your existing clients happy, and keep delivering data,” the former employee says.

Whether Thinknum can pull together a deal with investors to fund the company through this crisis, or whether it could even find a buyer remains to be seen. One alt data expert believes this week is critical, and that the company will either be snapped up or close shop altogether.

Ironically, anyone using Thinknum's data—which the firm collated from public sources to enable clients to “track when companies are hiring or firing employees, interacting with customers, moving product, and many other metrics indicative of company performance” for more than 450,000 companies—to look at the firm itself should have seen this coming.

Certainly US regulator the Securities and Exchange Commission saw something like this coming—perhaps not with Thinknum specifically in mind, but definitely with an eye on alternative data providers in general.

The first rumors of trouble at Thinknum surfaced just a week after the SEC's Division of Examinations published a risk alert on April 26, warning that financial firms lacked sufficient due diligence practices to address the risks of misuse of material non-public information (MNPI) in alternative data—and those that did have procedures in place did not always follow them properly or consistently when performing due diligence on sources of alternative data. Under Section 204A of the Investment Advisers Act of 1940, firms are required to “establish, maintain, and enforce written policies ... to prevent the misuse of MNPI.”

“Advisers did not appear to consistently implement their policies and procedures related to alternative data providers. For example, advisers did not apply their due diligence process to all sources of alternative data. In addition, staff observed advisers that had an onboarding process for alternative data service providers, but did not have a system for determining when due diligence needed to be re-performed based on passage of time or changes in data collection practices,” said the SEC in its April alert.

Chris Petrescu, founder and CEO of CP Capital, which advises firms and data providers on alt data strategy, says the alert represents a shot across the bow to hedge funds and their alt data suppliers to clean up their act and ensure all

parties are compliant.

Before founding CP Capital, Petrescu held data strategy roles at ExodusPoint Capital Management and WorldQuant.

“The firms I worked at always had solid policies, and I’ve even helped shape the policies at these firms and continue to advise on this topic for my clients. Any fund that is buying data at scale should have policy in place already,” he says. “Four or five years ago, a due diligence questionnaire (DDQ) might be viewed as contentious for a fund to send to a vendor. These days, it is commonplace, and vendors are very accustomed to filling them out. If a vendor refuses to fill out a DDQ, that is an enormous red flag. I’ve had vendors decline to fill out paperwork, so we reject them, and then they end up in the news months and years later,” he says. Simply put, firms and suppliers must “know what they’re collecting and know if they have the right to sell it.”

Kelly Koscuizska, partner at law firm Schulte Roth & Zabel in New York, says the alert is a sign that the SEC is aware that non-compliant situations exist and need to be remedied, and is a public warning to those that don’t yet have their affairs in order.

“The SEC’s Division of Examinations routinely puts out risk alerts. They want to give guidance on what they’re seeing that’s being done wrong,” Koscuizska says. “It’s important for the industry, and it reinforces what we’ve known for a while: that they’ve identified alternative data as a priority.”

The SEC has been increasing its scrutiny of alt data providers and consumers in recent years, and last year charged mobile app data provider App Annie and its founder with securities fraud. Specifically, in return for receiving data on app usage from companies, App Annie agreed to not disclose that data to third parties without it first being aggregated and anonymized. However, the SEC’s investigation found that between 2014 and 2018, the vendor used the raw data to make its

model-generated estimates more valuable to trading firms.

App Annie settled the case for more than \$10 million, and since rebranded as Data.ai.

App Annie was the SEC’s first enforcement action against an alt data provider, but it almost certainly won’t be the last. Over the same timeframe that the SEC has been focusing on alt data, it’s become clear that alt data itself is a moving target and—far from becoming more standardized and easy to manage as it matures—is still evolving quickly and creating new challenges as it does so. One of Koscuizska’s areas of expertise is performing due diligence on alt data providers, and whether they legally have rights to use and sell the data they collect.

“As outside counsel advising buy-side firms, we know what we need to do from a diligence perspective so we should all be in a better place now,” she says. “But what we’re seeing is that because there are so many vendors, there’s such intense competition, and the data is becoming more sophisticated, the issues—even for big vendors—are becoming more complicated. And new products can raise new regulatory issues.”

Ron Troy, a veteran market data management executive, agrees that the rising complexity of data is creating more problems.

“Early on, bankers used what we now call alternate data to help guide decisions on loans and the like. For instance, if you were lending to refineries, oil storage tank farms and the like, aerial photos of such might show indications of degree of utilization. At one point, tank farms were said to be mostly at capacity—something that such photos might at least partially confirm. I don’t recall any actual rules or regs, just that it seemed like good practice to find research firms that collected such data,” Troy says.

“Now alt data use has gone way above and beyond ... and now its use is far more common. And investors may

have little or no understanding of what they are investing in, including whether it’s someone rolling dice, or actually basing decisions on viable data. Some of these firms may literally have only one or two employees and all sorts of other risk issues. And while the Federal Reserve Board and New York State Department of Financial Services have had vendor risk management rules for banks, I’m not aware of such for securities firms—though common sense ought to prevail,” Troy says.

In Thinknum’s case, sources haven’t alleged any impropriety regarding the company’s data itself. Web-scraped data has been controversial because the original sources of the data being scraped consider it theft. Professional networking site LinkedIn sued Singapore-based business intelligence provider Mantheos in February, alleging that the company created hundreds of fake LinkedIn accounts, paid for premium Sales Navigator LinkedIn subscriptions, and used those to scrape information from millions of legitimate LinkedIn member profiles, in contravention of the site’s terms and conditions.

According to Bloomberg Law, LinkedIn recently settled the suit with the condition that Mantheos deletes all the scraped data. At time of writing, Mantheos’ website was only a holding page with its logo. Web scraping of public data has recently been ruled legal by a US court, though breaking a company’s terms to scrape proprietary data would still be illegal.

However, experts agree that ensuring a vendor’s data is kosher and the company has the rights to collect, use and sell the data may ensure they’re compliant, but won’t protect against the types of risks that arise when a company like Thinknum experiences financial or management issues.

Instead, data managers say even small providers of niche data should be treated with the same best practices used to perform due diligence on companies tendering for multi-million dollar enterprise deals. **WT**



**Chris Petrescu**  
CP Capital

# Man Group revamps data science platform to tackle data deluge

The London-based investment manager spent four “long and intense” years rewriting its data science platform, Arctic. By [Josephine Gallagher](#)

**A**round five years ago, London-based Man Group ran into a problem that buy-side firms are all too familiar with: its tech and data science platforms were unable to cope with the avalanche of data being generated internally and flowing into its front office from external sources. The firm’s trading desks and quants were struggling to consume this data and create trading strategies from it.

“Imagine a Microsoft Excel spreadsheet with 100,000 columns and 10 million rows. Now, imagine 1,000 such spreadsheets and trying to build a trading model based on them,” says Gary Collier, head of Alpha Technology at Man Group.

At the time, the firm had a data science platform named Arctic, which was developed in 2013 after Man Group grew unhappy with its tick provider and decided to build its own. Arctic’s first iteration was a time-series database constructed entirely in Python, as the firm’s front-office systems were Python-based.

“We thought we could do better ourselves and process tick data in volume across a high-performance computing cluster. That was the genesis of Arctic,” says Collier, who was speaking on the sidelines of the TradeTech conference in Paris in May.

But by 2017, Collier—who has been with the firm since 2001—realized that Arctic was in need of an overhaul. Man Group required a faster platform that could process complex, “industrial-sized” data frames—tabular forms of data such as thousands of Excel sheets. Corporate bond traders, for example, must make sense of hundreds of thou-



sands of columns, and the tick history of a single security could encompass millions of rows of information.

Man Group has a 400-strong business-wide technology unit. Within it sits the Alpha Technology team, which Collier leads, comprising 175 engineers and five business managers. The team set out to rewrite Arctic from the ground up—this time in C++. Collier says it took four years of “intense effort” to complete the version that exists today.

During a fireside chat at TradeTech on data science platforms, Collier said that currently available third-party solutions lack the capacity to deal with large volumes of data cleanly, reliably, and quickly—so they build internally.

Mark Stacey, head of business intelligence, data platform, and reporting

applications at hedge fund Marshall Wace, agreed that vendor solutions are lagging behind. In the same fireside chat, Stacey said processing speeds and technical advancements in third-party tech are evolving much more slowly than the streams of data that investment managers must contend with.

Building or customizing more sophisticated data science tools internally is no longer seen as a “competitive advantage”. Rather, it has become the “table stakes” required just to be successful, he said.

Man Group’s rewritten platform, dubbed Arctic Native, sits across the bulk of the asset manager’s front-to-back-office systems, and is designed to process large volumes of data. Most of the data volume running through it is generated internally, and stored,



cataloged, and versioned within Arctic. The derived data is used to generate alpha signals, build portfolios, and run risk models.

Any user across the business can access Arctic Native's data, including traders, portfolio managers, risk teams, and compliance, simply by typing "http://codex/" into an in-house browser. This prompts admission to the Codex data catalog, encompassing thousands of datasets that users can search using keywords by asset class, and view permissions.

"Vendor data generally have strict licensing conditions, and internally generated data generates its own IP protection considerations. Once discovered, the data can then be served up into a [separate] Python notebook," says Collier.

He says the Alpha Technology team will continue to update and build upon the revamped Arctic platform. But he disagrees with the idea that technology platforms must be pigeonholed as either legacy or new systems, pointing out that tech solutions such as Arctic Native are usually made up of some components that are more advanced than others.

"Thinking in such a binary way is the wrong way of looking at it. Within technology, there are always a huge number of wavefronts of change at any point in time: the language and the language version in use, the operating system version, types of database technology, library dependencies, web frameworks, ensuring security patches are in place, and so on. A simplification such as 'modern versus legacy' trivializes one of the most challenging areas of technology management," he says.

### Learning from open source

Back in Arctic's early days, when it was still just a time-series database, Collier was weighing up the benefits of open-sourcing the platform. He saw a great deal of value in open source for three reasons. Firstly, external technologists could contribute to the code, and his team could learn new ways of

improving the tech from contributors. Secondly, it would drive name recognition. And thirdly, it could attract talented engineers to the firm.

He proposed the idea to senior management in 2015. They were initially taken aback by the idea of giving away the firm's IP for free and took some convincing. But they came around to the idea of open source, and the first version of Arctic was published on Github in 2015. The version made public was written in Python and leveraged Pandas, a software library for the programming language.

The value of any piece of technology is derived from the whole finished product—the way in which individual components are combined, Collier says. As Arctic developed, Alpha Technology built more components.

"Arctic is just one component of this, which is partly why we were so relaxed about making it open source," he says.

Man Group widely uses open-source packages as the foundational building blocks for the tech stack and has its army of engineers develop the added capabilities on top or fill in any necessary gaps in functionality.

“A simplification such as ‘modern versus legacy’ trivializes one of the most challenging areas of technology management.”

**Gary Collier, Man GroupLabs**

The asset manager uses few outside vendors, and its ethos for the past decade has been to build rather than buy, Collier says, adding that he can count on one hand the number of enterprise software vendors Alpha Technology uses outside of its proprietary builds.

"Where there are gaps in open source, we fill the gaps. If it's a significant technology gap, we fill it with something like Arctic. The rest of our time is focused on our financial IP—for

example, building our alpha models and portfolio construction techniques."

For this reason, Collier adds, the firm has few concerns when it comes to over-reliance on one vendor, or vendor lock-ins.

Arctic Native also benefits from the fact that Man Group has built an internal cloud on OpenStack infrastructure and container orchestration system Kubernetes, rather than turning to the public cloud.

"If you go to a third-party provider, you're not going to get the same type of high performance or flash storage, the same type of gigabit-per-second networking, or the smooth, seamless, interactive, fast-as-possible experience for our front-end investment professionals," Collier says.

### Bursting with savings

Marshall Wace's Stacey told the fireside chat's audience that while the cloud is helpful for big data use cases, it's not essential. Marshall Wace turned to research clusters for internal big data projects, in which researchers run their own models on large datasets using clusters of shared resources, such as hardware and machinery.

However, when a firm needs to deploy an application quickly and at scale, but doesn't have the technical means in-house to deal with those intense processing periods, it can use an approach called "bursting", he said. Bursting occurs when a user configures their private cloud so that during times of excessive traffic, that overflow is directed to a public cloud. The public cloud absorbs the load, and the user experiences no interruption of service while also paying only for those resources when it really needs them.

"You might have the ability to scale out, but obviously that scale comes with the massive cost associated with it. So, in the cloud, what you need to do is put the tools and processes in place to manage your infrastructure and manage the workload you're putting onto it," Stacey said. [WT](#)

# Banking group trials quantum computing for portfolio hedging and optimization

After experimenting with gate model quantum computers—as used by IBM and Google—CaixaBank gets to work on real-life problems. By [Wei-Shen Wong](#)

Financial institutions are increasingly experimenting with quantum computing technology, paying most attention to the universal quantum computer—otherwise known as a gate model quantum computing system—that the likes of IBM and Google are known for.

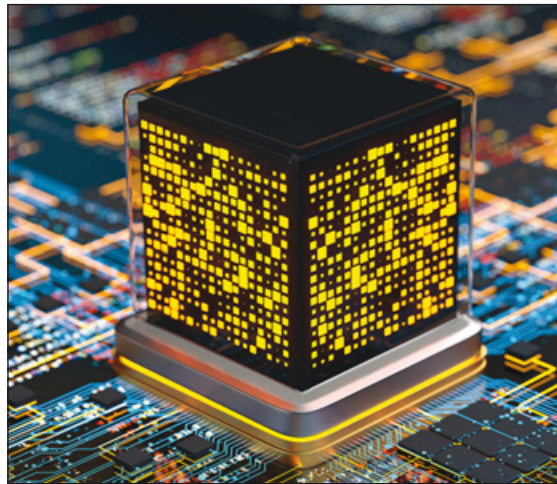
While those projects have shown the advantages that this nascent tech could bring to finance, turning them into actual production applications is still years away. The technology, in theory, is perfect for complex, multivariate analysis, but today's devices lack the scale to handle real-life datasets.

Quantum annealing, however—a quantum computing method for finding the optimal solution to problems with a large number of possible solutions—is starting to become commercially available, with California-based D-Wave Systems renting out time on their machines to developers.

VidaCaixa, the life insurance and pensions arm of Spanish banking group CaixaBank, has developed two proofs of concept using D-Wave's Leap quantum cloud service and quantum hybrid solvers, which combine classical and quantum computing.

"We had been studying quantum annealing, and we understood that it had to be used specifically in optimization problems. But D-Wave seemed to have more commercial-ready technology, even if it was just for a specific set of questions. That's when we started the PoC with VidaCaixa," says Xavier Rebés, innovation director at CaixaBank.

D-Wave is building both annealing and gate model quantum computers,



says Murray Thom, the firm's vice president of product management. Thom says this will help it leverage strengths from both approaches and solve customers' full quantum use cases.

"CaixaBank is seeing that they can build practical applications with quantum annealing right now. That's why we're doing both. We have a roadmap for the gate model systems, and a roadmap for the quantum annealing systems, and the quantum annealing systems are bringing people practical value in their applications immediately," Thom says (see box: *Providing clarity*).

CaixaBank's two PoCs are for investment portfolio hedging and bond portfolio optimization. In the case of portfolio hedging, the PoC resulted in a 90% decrease in compute time compared with the traditional solution. Rebés says the team achieved this reduction on a real-size problem. For the investment selection and allocation use case, the PoC delivered an application that optimizes the internal return

rate by 10% in a chosen bond portfolio.

Rebés says CaixaBank started testing the basic model with some necessary business constraints, such as not being able to extend the duration of the investment past a certain level.

"Obviously, as we have been adding more constraints, the results have become convergent with the original model, but the calculation time was optimized," he says.

The next step for the bank involves identifying other potential hedging and optimization problems within the group to see if they can be solved using D-Wave's solutions.

"We're trying to understand whether we have more problems like this that could benefit from this technology, and see what's the best approach for those—whether we have to go on to more PoCs, or whether we should have an extended service. That hasn't been quite defined yet," Rebés says.

The first step toward identifying potential use cases in the business is finding the quants that work on them. "As you can imagine, we are a large corporation, so it takes time to identify the right partner. Once we identify a potential problem, we must understand how the work is done right now, and create essentially a mapping to the existing model," Rebés says.

## Quantum exploration at scale

D-Wave's Thom says that when working with clients, it's important to focus on the specific challenges they face and then identify the ones that are most suited to the core capabilities of the technology. "Then it goes through a PoC phase, and the important part for

any future step is trying to get as close to the application data as possible,” he says.

D-Wave currently has several 5,000-qubit quantum processors in the cloud, which it has integrated in hybrid solvers that combine quantum computing and classical computing, allowing it to work on full-scale problems, with up to one million variables or 100,000 constraints, depending on the problem.

“It will start processing on the full problem and pull out pieces to pass to the quantum computer to re-incorporate it in the solution. That’s really important in order to make sure you’re working with the actual application data, so you’re solving the real problem itself. At PoC phase, it’s usually to create a demonstration of business value where they can achieve, just like the one with CaixaBank, up to a 90% reduction in time to solution for their portfolio hedging calculations.”

From there, the client will move into a limited production stage that involves testing how the solution operates in their workflow. “From that phase, it’s expansion and scale-up into full production,” Thom says.

CaixaBank had an 18-person team of business and technical staff working on the deployment of the PoCs. Rebés says the process began with a quantum



**VidaCaixa is building practical applications using quantum annealing**

computing seminar for VidaCaixa in November 2021, after which the pensions arm identified the PoC use cases.

Santiago Murillo, innovation manager at CaixaBank Tech, says there are limits to the problems that quantum computing can solve in the analytics department at VidaCaixa, even with the technology’s promise of massive computing power.

Other companies had tested the portfolio optimization use case, though not with the complexities that CaixaBank added, Murillo says: “We also included the capital, the volume that we had to invest in the bonds.”

Murillo says Caixa discovered an interesting use case for the technology, namely portfolio hedging calculations.

“It’s not a use case in public today. There have been some exercises done by JP Morgan in put options optimization, but not the hedging process,” he says.

D-Wave’s Thom says the CaixaBank team did the bulk of the work on the PoCs, with D-Wave providing tech support. The two teams arranged several Zoom meetings to discuss CaixaBank’s results, provide guidance, and help with any challenges they ran into while coding. The D-Wave team also assisted frequently

by email in reviewing CaixaBank’s code and helping them to identify errors and areas of improvement to find better performance or results.

### A quantum journey

CaixaBank started exploring quantum computing in late 2018, mapping potential use cases for the bank and for the industry at large. It did its first PoC using IBM’s Framework Opensource Qiskit, which includes a simulator and a then-16-qubit quantum computer, to assess the financial risk of two mortgage and two bond portfolios. The experiment analyzed a quantum algorithm to estimate credit risk more efficiently than Monte Carlo simulations on a classical computer, and resulted in a whitepaper published with IBM.

“We understood that in that effort, the Monte Carlo simulation took less time—it was a more efficient calculation, and the results were convergent with the results using traditional computing. That was insightful for us because it was our first effort, but we couldn’t consider industrialization because it was a very downsized problem: you can imagine that CaixaBank has a lot more mortgages and bonds than in that PoC,” Rebés says.

CaixaBank saw the promise in the technology, however, so it began to diversify its efforts. The bank looked to accelerate its machine learning capabilities, partnering with Xanadu and its PennyLane quantum computer to develop a machine learning algorithm that classified 1,000 artificial customers according to their credit risk.

While there was a significant time reduction in that use case, CaixaBank found that it could not attain a more precise model than what it already had.

“After this second PoC, we realized that the size of the problems in both cases were significantly below what we would need on a production level. So we started thinking about whether there was something quantum adjacent, if not purely quantum, that was production ready,” Rebés says. **WT**

## Providing clarity

D-Wave Systems has a three-year roadmap, called Clarity, that outlines its future. Murray Thom, vice president of product management at D-Wave, says the roadmap touches on providing annealing systems, a plan for gate model systems, and developing more powerful hybrid solvers that combine classical and quantum computing.

D-Wave is planning for the next-generation Advantage 2 quantum system, which will contain 7,000+ qubits, incorporating a new qubit design to enable 20-way connectivity.

The company also has an initiative to develop the industry’s first scalable and practical error-corrected gate model computing system, which will be carried out in five phases.

It will also expand the use cases for its hybrid solvers and build more cross-platform open-source developer tools.

“With the technology stack developed to the point where it is, most of the challenge for the application developers, the practitioners, is in formulating their problem and then finding the mathematical language to represent what is a word problem,” Thom says.

D-Wave is further developing its Ocean open source toolkit

and its hybrid solvers to make that process easier for developers and enable them to represent their problems natively in the space they are working in, accelerating the time to adoption and time to demonstrate business value for their use cases.

“Right now, we’re giving them some tools that give them a lot of capabilities, but the direction we will be heading in is to enable them to do that in specific verticals, as each industry has its own specialized language,” Thom says.

While the technology has advanced, it still requires a specialized skillset, says Santiago Murillo, innovation manager at CaixaBank Tech. “Quantum technology is not quite at the mature point where a normal data scientist could use it in their pipeline. You need specific skills to deploy this kind of modeling. It’s quite complex to have the skills of understanding the business rules, and also understanding the mathematical knowledge that you need in order to code this problem in the new language,” Murillo says.

D-Wave has a good UX and it’s improving each day, he adds. “They deploy new features that make it easier to use. But from here to having a quantum package that solves financial optimization problems, I think it’ll take a few years. We are quite far from that.”



# One versus many: Firms question viability of UK CT model

Market participants and industry groups are challenging the UK government's approach to a competitive framework for the consolidated tape. By [Josephine Gallagher](#)

**M**arket data users and market participants are concerned about the viability of the UK consolidated tape (CT) if the government adopts a model that allows for competing providers to come forward, rather than allocating a single vendor as CT provider (CTP).

Daniel Mayston, head of electronic trading and market structure at BlackRock, says any CTP will have to make massive investments to build their offering, and a competitive model would diminish the promise of good returns.

"They would know that they are competing rather than being awarded an exclusive contract or tender, and that the share of revenue that is up for grabs is automatically reduced by having multiple providers," Mayston says.

On March 1, Her Majesty's Treasury published the response to its consultation on the Wholesale Markets Review, a review of the UK's financial regulation post-Brexit. In the response, Treasury says that promoting competition and allowing multiple CTPs to come forward would help meet the overall aims of having a high-quality and low-cost CT service—as intended under the Markets in Financial Instruments Regulation and its attendant directive (Mifir/Mifid II), the EU rulebook that was folded into UK regulation after the nation left the EU.

Under a competitive model, several UK CTPs would have to fight for their share of a limited revenue pool. The European Commission has taken a different approach, saying in a proposal for the CT that a single tape provider will be awarded a contract for a five-year fixed term, and there will be one CTP



per asset class (fixed income, equities, ETFs, and derivatives).

UK lawmakers and the Financial Conduct Authority (FCA) have told market participants during industry forums that they favor competition because it will allow for the best and highest quality tape provider to emerge naturally.

Neither the FCA nor the Treasury responded to multiple requests for comment for this story.

Since the Treasury published its review, market participants and industry associations have been challenging its rationale for a competitive CT model. Critics argue that competition is typically good for most kinds of markets, but not when it comes to a cost-recovery service like the consolidated tape.

BlackRock's Mayston says that under the UK government's approach, vendors would compete on providing what should be the exact same ser-

vice—one that is high quality and low cost. But there should be no competitive edge to gain in the provision of the CT.

"A consolidated tape is about having a universal record of trades or a golden version of the truth. That is where I see a challenge around having multiple consolidated tapes: you're nearly by construction creating multiple versions of the truth rather than one single version of the truth," he says.

The viability of the tape is a leading concern for many. Any vendor that came forward as a CTP would have to replicate the labor and absorb the costs associated with building the CT before they were aware of how much market share they could expect to attract.

"We don't think it's viable. If there are 10 of them [CTPs] and they only get 10% of the market, the cost benefits will not be there," says Stephane Malrait, global head of market structure and innovation at ING.

The burden entails building connectivity to the different trading venues and Approved Publication Arrangements (APAs), aggregating, cleansing, and publishing the data, in addition to handling payments and tech management costs. The CTs will also have to absorb the expenses that come with operating in a competitive environment, like hiring sales and marketing teams.

"So if there is less revenue but the same costs, it will be a lower return, not a higher return. It's difficult to see why or how the argument holds up that this would reduce costs or give a lower-cost version to consumers," Mayston says.

Liz Carter, managing director of trade reporting and clearing at Tradeweb, says CT candidates might

be discouraged from even coming forward due to the high overheads and lower revenue opportunities. This is a concern, she says, that the UK regulator should be heavily considering.

“The competitive nature creates increased risks around cost recovery, which ultimately ensures commercial viability. Before continuing with this approach, we’d urge the FCA to consider all the potential risks, including a scenario where no CTP emerges,” Carter says.

### Surcharge for all

Many also worry that adopting this approach would not only mean higher costs for the CTPs, but also for users of the data and even data contributors such as the APAs and venues, which are mandated to provide data to the CT under Mifid II.

“A multiple tape model would mean that trading venues and APAs would have to give data to an undetermined number of sources, as it’s still unclear if a cap will be introduced on the number of CTPs. This would add more layers of complexity and would also inflate both costs and resources,” Carter says.

Malrait says multiple competing CTs running on tight revenue margins could take many years to build a high-quality tape—meaning users could have to purchase data from several of the CTs to get a complete view of the market. Data consumers would also have to find the time and resources to evaluate the different data models and delivery methods used by vendors in the first place, to determine which one they would be confident using.

For example, firms might have to analyze a week’s worth of data from each CTP to better understand their version of the “truth” when it comes to the aggregated market view, Malrait says. “They might have eight different answers [or versions of the CT] because they must apply different logic to describe the ways they develop their tape. Why should they remove dupli-

cates? How do they decide that the trade is duplicated? Should I remove what they consider as internal trades or fat finger trades, erroneous trades, etc.?” he adds.

In the Wholesale Markets Review, the Treasury says it believes the priority should be on developing a fixed-income consolidated tape ahead of equities or other asset classes. To qualify for a consolidated tape in fixed income in the EU, the vendor must cover a minimum of 80% of the market. It is still not clear whether the UK will adopt the same qualifying approach. If it does, in the case of a competitive CT market, firms worry that having multiple tapes with partial visibility will only give rise to the same issues with data fragmentation that exist now, where asset managers are forced to pull data from multiple APAs and venues to gain a view of the market.

The FCA could also have to absorb extra costs to monitor and supervise the multiple CTPs to ensure they meet the criteria in terms of data quality and delivery—at a low cost. The regulator will have to manage a more complicated governance framework to keep tabs on each CT.

Neil Ryan, CTP lead at Finbourne Technology, one of the candidates vying to become an EU and UK CT, says if there are several CTPs with different tapes—including different aggregated solutions, data, and delivery methods—this makes it much harder for the regulator to manage and supervise.

Malrait says many firms, including ING, have proposed that the UK could follow the same approach as the EU and allow the CT candidates to compete for a single contract through a tendering process.

### Who are the players?

There are several candidates that have come forward and have publicly expressed interest in becoming the EU consolidated tape provider—among them are Ediphy, Finbourne, Propellant, and TransFicc. Several others, such as Etrading Software, have

also stated their interests in the initiative, and there have been rumors of two consortiums, one founded by banks and another that combines the efforts of the three major rival market operators in fixed income: MarketAxess, Bloomberg, and Tradeweb.

For many of these candidates, a big decider on whether they will choose to become a CTP for the UK market rests on winning the EU prize first.

Christopher Murphy, CEO of Ediphy, says his firm will compete for business as a UK CT if it wins the EU tender. If Ediphy is not awarded the contract, he says it will have to assess whether it is viable for the company to put an offering forward.

“In terms of the cost of running it and the core infrastructure, the task is very similar for the UK and EU tape. There are a lot of fixed costs that you need to bear to just do one of them. Adding a second is, relatively speaking, quite simple and quite cheap. So, I think anyone that wins the EU tape will have an immediate competitive advantage in being able to offer the UK tape at a very competitive price,” he says.

Finbourne’s Ryan says he expects candidates to drop out of the race as time goes on. The biggest challenge for any vendor entering the space, he says, is coping with the data quality issues.

Ryan says that while the Treasury is keen to have a competitive model in the UK, Finbourne hasn’t changed its business objectives to provide a CT and help rectify the data problems. But he says Treasury’s approach makes things harder from a business perspective: “What it does lead to is pressure on the business model, that’s for sure, if there are more competitors out there.”

There is no indication yet when the industry can expect more clarification on what the UK tape will look like or what the next steps are for the industry. But sources tell *WatersTechnology* that industry associations are continuing to lobby the regulator to reconsider its position on having a competitive tape model. [WT](#)



**Stephane Malrait**  
ING

# Corporate actions overhaul ‘saves hours,’ but industry still seeks elusive silver bullet

Some market participants are trying to automate corporate actions internally, but full STP is unattainable without end-to-end buy-in from all participants along the event lifecycle. By [Wei-Shen Wong](#)

Corporate actions, a largely manual function, has historically struggled to gain the attention of management, or to innovate. But BNP Paribas’ securities services business has decided to invest in the back-office process. In doing so, the bank estimates it has shaved three to four hours off the time it took for its ops team to process corporate action events per day.

“Someone had to put it into a template, review it, validate it with a four-eye check, and input it into the system. But all of that has now disappeared,” says Mark Wootton, regional head of local custody and clearing for Asia-Pacific at BNP Paribas Securities Services.

As part of its strategy to automate corporate actions functions, BNP Paribas has implemented the Australian Securities Exchange’s real-time corporate actions straight-through processing (STP) feed. The feed, which ASX launched in June last year, is designed to deliver corporate actions event notifications to investors in an accurate, comprehensive, and timely manner.

Prior to using the STP feed, the bank’s corporate actions events team had to split the work into different buckets. For instance, companies whose names began with letters A through D would be managed by one corporate actions employee in the ops team, while companies beginning with D through G would be handled by another member of the team, and so on.

As part of the workflow, employees would log on to both company registry websites and the ASX site to download



what is known internally as a “daily diary,” and try to contextualize and summarize large amounts of corporate actions information.

“Take BHP, for example. It’s a big mining stock in Australia. If BHP announces a dividend, that will come as a 60- to 70-page PDF and then the corporate actions team would have to read all the pages and translate that into one message that we can send to our clients,” Wootton says.

Turning that 70-page PDF into meaningful data that clients can decipher can be an exhaustive and time-consuming task. This was the catalyst that prompted BNP Paribas to adopt ASX’s STP feed, a decision that Wootton describes as a “no brainer”.

“It’s not just bringing those operational benefits to us, it’s also getting vital information to our clients in a timelier manner,” because whether a client elects to receive cash or stock can affect a company’s share price at that time, and impact clients’ investment decisions. “The quicker we can get vital information to our clients is also

a competitive advantage to us,” he says.

By using the ASX feed, the bank’s clients now receive corporate actions information four to six hours earlier than before. Wootton says many clients have welcomed this efficiency because it also means they have more time to relay the information to their own downstream customers.

## Innovation breeds innovation

In addition to saving time, implementing the ASX STP solution has enabled BNP Paribas to innovate in other parts of the corporate actions process, Wootton says.

As a custodian, after sending the corporate actions information to clients, BNP Paribas needs to collect clients’ instructions on the event, reconcile them, and then send that information to the relevant share registry.

“We’ve fully automated the [corporate actions] reconciliation process using robotic process automation, and the beauty of having a staff member that is a bot is they can work around the clock,” Wootton says.

BNP Paribas has built two bots that fully automate the corporate actions reconciliation process. The bank’s securities services arm has also developed a bot that logs into company registries and sends out automated emails on corporate action events. In one use case, the bank has a bot that can log into the website of one of the biggest company registries and elect on events, such as a decision about dividend payouts or a merger vote.

But many challenges remain, especially since some registries still ask to receive corporate action event elections



by fax, which is further complicated by how companies present the information in inconsistent formats on paper.

BNP Paribas looked at implementing a fax bot that could transpose an event election into readable and non-readable fields, but rather than create a workaround, Wootton says, the industry should work to remove the problem.

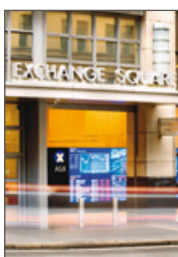
“We’ve looked at that a few times, but we would rather push the registries to not use fax, and to either use an API interface, log into their GUI or [implement another] more automated way of doing that. In the modern day we are not fans of fax machines,” he says.

### Work smarter, not harder

BNP Paribas has also run an internal proof of concept with Digital Asset, using smart contracts to automate elections on behalf of its clients. Clients provide custodians with instructions to follow during a corporate action event: For example, in a dividend payment, a client might want certain criteria to be met before it elects to receive a cash payout, versus different criteria that would prompt it to elect a stock payout.

By using smart contracts, Wootton says BNP Paribas is trying to develop thresholds or “cutoffs” for when an instruction should be followed and to provide the client with a pricing feed to support their decisions. “We could use a smart contract to work out, if the price is above ‘x’, to take stock, and if the price is below ‘x’ or ‘y’, to take cash,” he adds.

The PoC was run from the bank’s Asia-Pacific presence, but was based on a multi-market approach. While the smart contracts service for client elections was designed for the Asia-Pacific region, accounting for synergies between the Hong Kong and Singapore markets, in addition to other local markets, the Daml (Digital Asset’s smart contract language)-based tech will be adjusted to meet other regional specifications around the globe and incorporate new possible use cases.



BNP Paribas chose ASX's real-time corporate actions STP feed

“We’re also thinking of the next catalog of ideas and iterations, not necessarily all for corporate actions, but also what else can that technology do in our ecosystem,” Wootton says.

All custodians want to offer their clients better automation and the best cutoff timeframes possible, Wootton says. The closer BNP Paribas can bring that cutoff to the time the registry needs to process the corporate action election information, the better it will be for clients and consumers of corporate actions data.

“Whether they’re based in Paris or the US, giving clients an extra 5 to 10 hours still adds value so they can make decisions as late as possible. Important information in our clients’ hands is one benefit, but the second element we’re working on, and doing some internal automation around, is streamlining our processing to leave that cut off as late as we physically can for our clients to be able to instruct on what their intention for the event is,” he says.

### If it ain’t broke...

Many industry participants believe, or want to believe, that the corporate actions data process is just not that broken, says Barnaby Nelson, CEO of Toronto-based research, benchmarking and sales enablement advisory firm The ValueExchange. Nelson knows BNP Paribas’ corporate actions firsthand, having served as head of business development and sales for Asia at BNP Paribas Securities Services between 2008 and 2014.

According to a survey authored by The ValueExchange, there is a clear case for transforming the corporate actions process but many participants that took part expect savings of only 2% to 3% from automating the processing of corporate actions data.

Nelson says that the market has evolved to the point where the corporate actions space isn’t setting off any big alarms, and where there are no immediate “fires” to put out, and that this has led to complacency and a lack of

innovation. Many firms in the corporate actions lifecycle also struggle to see the gravity of the potential risks of not innovating and the ultimate benefits of any investment.

Another issue the Australian market faces is despondency around whether a solution like ASX’s real-time STP feed can work. Nelson says that there are strongly divided opinions between those who have used the ASX feed and those that haven’t. The skeptics believe “It’s not that broken, it’s alright, we can manage”, he says, but those that have tried and tested it have seen a major reduction in inefficiencies.

“They say it has triggered an increase of 80% in their STP, and it’s letting them restructure their data models. It’s weird, this general despondency around the ability to change, but when people have made the change, the size of the change is incredible,” he says.

This feeling of despondency is not unique to Australia. The inefficiencies around corporate actions processing are a global problem that has existed for more than 30 years, Nelson says, and there is no silver bullet.

“There’s a lot of manual work, so it’s more a case of peeling away the problem rather than solving it in one fast go. So, people must buy into the journey,” he adds.

Karen Webb, senior manager for issuer services, securities, and payments at the ASX, says another reason why participants are more reluctant to change is the reliance on corporate actions experts.

Yet, this could change if the pool of corporate action talent continues to shrink. Research from Firebrand Research suggests corporate action specialists are leaving the space, with older specialists moving on to more exciting roles in the industry. And it’s becoming harder to attract younger people to fill these roles. [wt](https://www.waters.com)

This is a condensed version of the online story. Read the full version at [WatersTechnology.com/7947146](https://WatersTechnology.com/7947146)

# How Russia's war on Ukraine impacts the global IT industry

Businesses with staff based in Ukraine reckon with an unprecedented juggling act. By [Rebecca Natale](#)

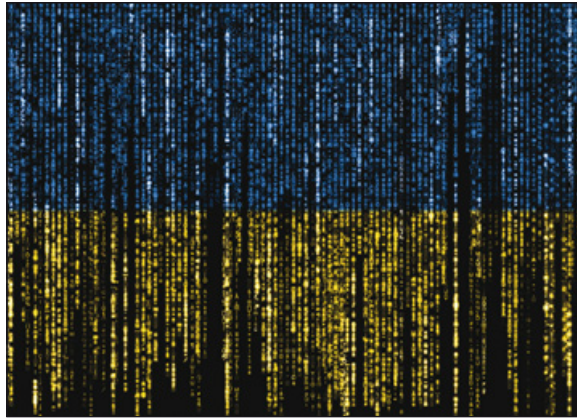
In Western Ukraine, Konstantin Vasyuk joins a Zoom call—a meeting rescheduled from the day before, when the region had temporarily lost internet connection, an occurrence not exactly rare, even during “normal times.”

More than most, though, Vasyuk knows he's not living in normal times. At the time we speak, it has been 65 days since Russia initiated military attacks on greater Ukraine, outside of the eastern Donbas region, which has seen regular conflict since Russia's annexation of Crimea in 2014.

As executive director of the IT Ukraine Association, Vasyuk is responsible for managing operations for the organization, which is meant to further the IT sector in Ukraine through government relations and collaboration with state officials, implementing educational and social projects, providing public relations and legal support for members and partners, and helping firms secure business contracts in broader Europe and the US.

And one day, in perhaps the largest expansion of its roles to date, the network Vasyuk helps operate became one filled with safe passage coordinators, humanitarians, refugees, and even some military soldiers and aides.

“This is a complex issue because we are highly motivated to be alive, to be safe. And it means for us also to keep our obligations and commitments to our customers,” Vasyuk says. “Now we see, more or less, it's safe. We have a good infrastructure, more or less. We have a high level of motivation and efficiency, so why don't we work as we work? It's very simple and complicated at the same time.”



The war in Ukraine has highlighted the challenges of firms with satellite offices in financial hubs outside of New York, London, and Hong Kong; the need to expand their global footprint to fill vital engineering and programming roles, and avoid disruption. As firms look to do more with a growing deluge of data, it is becoming increasingly difficult to find affordable software developers—and Eastern Europe has proven a fertile region for tech talent.

Ukraine is home to about 250,000 to 300,000 IT professionals, and the industry is integral to the country. For its part, the Ukraine IT Association represents 77,000 individuals across 113 companies, 10 of whom joined in April alone. Many of them—60% to 70%, Vasyuk says—were relocated abroad shortly before the war began, as part of business continuity plans. Others moved to shelters when the air sirens sounded and continued their work.

“We have been living in this state of danger and war since 2014. And this is why our business needed to be ready for scenario A [or] scenario B, and these crisis plans were implemented,”

Vasyuk says. “The answer lies in that we were ready for some unexpected, or expectable but very risky, changes in the environment.”

By mid-April, the company had processed more than 150 inquiries from members, requesting assistance with mobilization, relocation of specialists and border crossing, and corporate social responsibility initiatives, such as lending support to the Ukrainian army and refugees, according to its Q1 2022 report. It had also created a landing page for relocation, having analyzed 10 countries for their quality of life and supplied a calculator for entrepreneurs, a service for comparing the conditions of relocation, and a help directory. Forty percent of the inquiries received through the landing page were about business and team relocation.

IT Ukraine Association had also received verification among Ukrainian volunteer organizations and begun providing the technical support for [ukraine-helpers.com](#), an information hub of verified aid collection centers and donation centers.

## Lessons and extraordinary measures

IT Ukraine Association has several verticals, the largest of which is fintech. One member is DataArt, a global software engineering firm that has crafted systems for the likes of Nasdaq and European online trading provider Monex. In addition to its offices in New York, Bulgaria, Poland, and Argentina, it has six Ukrainian offices located in Kyiv, Lviv, Kharkiv, Dnipro, Odessa, and Kherson. DataArt employs roughly 2,500 people across the country. While it has avoided government contracts in

Russia, DataArt has ceased all investment, hiring and business development activities there, too.

“It’s just incredible to see how people mobilize in difficult times,” says DataArt managing director Alexei Miller. “You see people who are in the IT business all of the sudden transform themselves into logistical experts or deliver medicine to those in need. It’s a shared humanity that has nothing to do with capital markets IT, but these extraordinary times have shown me some extraordinary things in people.”

Miller is based in New York. He joined the company in 1997 and has never left. In his 23 years, he has overseen business development, sales, and management of key accounts. But this year, he also became responsible for helping move his Ukrainian colleagues across or out of the country.

Recently, he has found himself oscillating between a sense of helplessness—being stationed nearly 5,000 miles away from Ukraine and those suffering on the ground—and the recognition that despite the distance, his company has financial resources, communication channels, and a captive Western audience through the client base, all of which can provide aid.

“It remains stressful for sure. Difficult. Some of us are doing work we never imagined doing, but part of my job is reminding myself and others that in the medium to long term, the best help we can provide to Ukraine and to Ukrainians is continuing to provide jobs and income,” Miller says.

Some of DataArt’s clients agreed to pay for its services while many members of its staff were unable to work, seeking safer destinations and routes. Others have offered financial assistance to those who now have to set up new lives, whether temporary or not, in foreign countries. Many of the company’s Ukraine-based female employees went abroad. Many of the men moved from the East to Western or Central Ukraine, after the government banned those aged 18 to 60 from leaving the country.

The cost of the war has been great thus far for DataArt and companies like it. And Miller expects the Eastern European IT landscape to look different when the conflict ends. While it’s difficult to guess how many Russian engineers will leave the country and pursue opportunities free of sanctions abroad, he anticipates an outflow of Ukrainian engineers. He says countries that open visa and immigration programs allowing Ukrainians and Russians to settle there will receive an influx of IT talent, which will come with tax revenues and support for local IT ecosystems.

“We would like our clients to continue working with our teams in Ukraine [and] imagine a future in which Ukraine continues to be part of their global IT supply chain even though, right now, some parts of the country are outright war zones. That is our mission; that is our challenge. We have to do it,” Miller says.

“You see people who are in the IT business all of the sudden transform themselves into logistical experts or deliver medicine to those in need.”

**Alexei Miller, DataArt**

He adds that the war brings lessons for banks’ and asset managers’ emerging market plays, especially those who have staked their bets on singular or concentrated locations. DataArt, for its part, is making large investments into Latin America by opening new facilities and “hiring people by the hundreds,” Miller says.

“When you’re dealing with emerging markets, we just got a demonstration, and in the most tragic way, of how risky that strategy is. ... I think the focus on this risk-vs.-efficiency equation will change quite significantly,” he says.

Other Ukrainian or Ukraine-linked companies woven into the capital markets IT ecosystem include names

like Luxoft, development shop EPAM Systems, and Exactpro, all of which have issued public statements condemning the war, while announcing monetary, humanitarian, and logistical support to Ukraine-based employees.

Iosif Itkin, co-CEO and co-founder of Exactpro, said that while no amount of salary can help someone in a bomb shelter or move them to safety, the company is continuing to pay all its Ukrainian specialists regardless of whether or not they’re currently able to work, and it is helping those who have fled the region with settling into its other locations, which include Armenia, Georgia, Lithuania, Sri Lanka and the UK.

“We expect a rapid growth of the IT community in Armenia and Georgia and their evolution into strong IT hubs. Some companies even mentioned that Tbilisi, Georgia, is already overcrowded with software specialists. Regardless of the outcome of the current horrible events, Russia is unlikely to be a sustainable location to deliver the service to clients for years. Hundreds of thousands of their best specialists are leaving the country, and a large portion of them will not come back. On the other hand, once the war is over, we expect a long queue of companies willing to build their delivery capabilities in Ukraine,” Itkin said in an email to *WatersTechnology*.

Like DataArt’s new investments into Latin America, Exactpro is increasing its attention to and efforts in Sri Lanka, having recently signed an agreement with the country’s Board of Investment.

“We are quadrupling our office space to relocate and hire hundreds of specialists in [Sri Lankan capital] Colombo. Although the economic situation in the country is difficult at the moment, the nation has so much talent and potential,” Itkin said. “We are confident in our bid on Sri Lanka. Having said so, Ukraine is the forefront of freedom. There will be no safe places on the planet if it will fall.” [wft](#)



# Goldman, DTCC execs eye implications of SEC's 'ambitious' settlement timeline

Conflicting time zones, potential re-papering, and weak standards are some of the hurdles to be overcome to move trade settlement times to T+1 or even to T+0—all potentially before Q1 2024. By [Rebecca Natale](#)

In a few weeks, the US Securities and Exchange Commission (SEC) will close its comment period seeking industry input on its proposed rule that would shorten the standard settlement cycle for most broker-dealer transactions from two business days after the trade date, T+2, to one business day after the trade date, T+1, no later than the end of March 2024. In the same document, the SEC is seeking comment on how best to advance even beyond to T+1 to T+0, or end-of-day settlement.

The question is whether a mandated rule with a hard timeline is the best way to achieve faster settlement, said Brian Steele, global head of market solutions for Goldman Sachs, during Isite's annual Securities Operations Summit, held in Boston on Monday.

"I like the ambition. I'm not sure everyone shares that ambition," he said, getting a laugh from attendees.

Today's longer settlement times allow for several matches—of order execution, allocation, affirmation, and confirmation numbers—to be done on both sides of a trade before a security's ownership changes hands and capital is transferred. While Steele and fellow speaker Michele Hillery, managing director of equities clearing at the Depository Trust and Clearing Corp. (DTCC), agree that decreased settlement time presents new and exciting technological and operational possibilities for the industry, many questions around technical implications and implementations remain unanswered and could carry downsides.

Whether the industry settles on T+1 or T+0 as its desired goal, the shift would require some heavy lifting by



Many questions remain around speeding up settlement

broker-dealers, investment managers, fund administrators, clearinghouses, and other stakeholders—as it also did in 2017, when asset classes such as stocks, bonds, and municipal securities moved from a T+3 structure to T+2.

The current rule introduces a contractual relationship between broker-dealers and investment managers, Steele said. And in some cases, if investment firms are in execution-only relationships with their broker-dealers, there likely aren't contracts in place that can simply be added to or amended.

"What does that mean? It means we have to then go out and create contracts with thousands of clients potentially that don't otherwise have a robust contractual agreement that warrants appending this language to—which could be a significant re-papering exercise," Steele said.

If the faster settlement rule is not adopted, there are other ways the industry could see it come to fruition. For example, the SEC could eliminate instituting a rule altogether and let the industry make its way there on its own time. There would still be financial incentives to move toward faster times, as the slower-to-adopt firms would see increased margin and higher costs to settle transactions, Steele said.

DTCC's Hillery noted that the implications of T+1 (which is DTCC's stated goal, according to a December 2021 whitepaper it authored alongside Sifma, ICI, and Deloitte), and T+0 to an even greater extent, are heavily dependent on time zones. The US was the last major market to adopt T+2 in 2017, but that was the easiest outcome; the rest of the world's exchanges are always hours ahead of New York's. If

the US becomes the first to move to T+1, that dynamic inverts, she said.

That could lead to foreign clients having to make additional investments in new technologies, platforms and human capital to continue trading during US business hours. An Asia-based client 12 hours ahead of the US, for example, may need to create or invest in a system that can "follow the sun" in order to make and settle trades during US business hours.

Steele and Hillery agreed that more industry-wide standards are sorely needed in settlement, particularly around reference data, where terminology that doesn't match—such as opposing entity or instrument identifiers—can create trade fails. There is also no industry-wide standard for settlement instructions, which are party-specific instructions that have been agreed in advance and used every time a trade is made—an area that Steele called a continuing "struggle."

The trade settlement lifecycle feels "incredibly antiquated" for what's supposed to be an electronically traded market, he said. One outstanding question is whether these operations processes can be responsibly sped up to a single day or less, or whether settlement should be approached with a new lens.

"This offers up the opportunity to think about how we should be operating as an industry. What are the right steps and processes that we need to be able to support these particular asset classes? And what's the infrastructure that needs to be either enhanced or deployed or, in some cases, actually created that will help us facilitate this industry for decades into the future?" Steele said. [WI](#)

# Bloomberg's Aim-Port integration highlights industry interop push

The data giant is creating tighter back-end interoperability between its buy-side platforms and using APIs to connect with other third-party providers. By [Melissa Fleur Afshar](#)

**W**hile interoperability has become the North Star for many tech projects across the capital markets, it's often easier said than done, especially when it comes to legacy systems.

Bloomberg's Asset and Investment Manager (Aim) buy-side order management system (OMS) was officially launched in 2008, but its roots can be traced back to the early 1990s with the Platform Trading System. Bloomberg's Portfolio & Risk Analytics (Port) offering—its portfolio management system (PMS)—is more than a decade old, but has been made more robust (and complex) after the acquisition and integration of a competing platform, Barclays' Risk Analytics and Index Solutions, or Brails.

Matthew York, global head of buy-side OMS and compliance at Bloomberg, says in the past, the vendor community would talk about OMSs, PMSs, and execution management systems separately. But since the credit crisis of 2008—and subsequent regulatory rollouts, market structure changes, and liquidity fragmentation—buy-side firms have sought better front-to-back and platform-to-platform interoperability.

"In the past, we were very much focused on best-of-breed solutions for a given function, hence a PMS allowed you to look at your portfolio and assess the risk characteristics in the portfolio and construct new models that allow you to work out better portfolio constructs," says York.

"That was very isolated from an order management system that would take that new portfolio construct and suggest trades. Previously separate



**Buy-side firms want better front-to-back and platform-to-platform interoperability**

between Bloomberg Port and Aim, we now have tools that we have been bringing together into a combined portfolio and order management system. You will see that throughout the industry, there has been similar evolution and combination of these products," he says.

Interoperability between Aim and Port—and all buy-side products, including post-trade and compliance—means one codebase is used, where analytics between the solutions can be shared. Users can construct, implement and manage their portfolio using the same pricing, data, and analytics that flow through the ubiquitous Terminal, which has over 330,000 users.

Users can also integrate real-time data and analytics from other applications, such as axe data—"wish-lists" of securities that other firms are interested in buying or selling, and which are provided through trading counterparts and aggregators—from Bloomberg's inventory management system.

"In the past, clients would separately buy a post-trade solution, and an execution management or order management solution, potentially bringing many different solutions together as part of their trading technology stack," York says. "That best-of-breed approach had a cost to it, and the cost was how you joined these things together."

## Skimming the surface

In addition to making integrations with competing venues in the electronic trading space, such as MarketAxess, Tradeweb and FXall, Bloomberg is also using its API development to expand into new asset classes, such as crypto.

Earlier this year, Bloomberg announced it was integrating with

Elwood Technologies, which provides a cryptocurrency trading platform. Through it, the platform can connect directly into Aim.

"In the past, solutions providers could get away with working within their own sphere, with their own solutions. Because clients need to lower costs and support full end-to-end workflows, providers like Bloomberg must recognize partnership plays and work with our friends who are also our competitors. This is pushing us to evolve our solutions and our technology offerings to be more open, interoperable, and supportive of full end-to-end workflows for clients," York says.

"We are also seeing that happening within the OMS world. We recognize that certain clients will use us for a piece of the portfolio process, the [portfolio, order and execution management system] sphere, but they may choose to use a different source of execution management system or portfolio construction and risk. We focus on how we can offer standardized integrations from third parties with our underlying order management and compliance system, and we expect to see more of that in future years," he says.

For York, this interop push is just the beginning, even if it is at the center of tech projects across the industry: "We are only skimming the surface of where interoperability will go. The most important part of it is creating more standardized API architecture. The challenge is how you do that with both new and legacy technology." 

**This is a condensed version of the online story.** Read the full version at [WatersTechnology.com/7947161](https://WatersTechnology.com/7947161)

# UBS turns to containerization for cloud dev ops, security strategies

As the bank moves a third of workloads to both public and private clouds, UBS spent the past 12 months building out its enterprise security controls as part of its containerization efforts. By [Josephine Gallagher](#)

In the world of tech, there's a school of thought that believes every application is a piece of art—unique and beautiful in its own right. UBS has spent the last three years pivoting away from this belief system as the bank has put more workloads into the cloud and beefed up its security guidelines.

Paul McEwen, global head of technology services at UBS, has been in banking for more than three decades, and for much of that time, developers have built their applications in closed-off silos, coded and configured in bespoke ways, and ran them separately in different corners of the business. But for UBS, the cloud and container applications have changed that.

"I used to call it: 'every bit of tech is a piece of art,'" says McEwen.

UBS has learned a lot on its journey to the cloud. One key lesson is the importance of building a strong security foundation that can be deployed widely across various solutions and parts of the business—in short, building once and using many.

"Those features and functions are available for [all the developers], so you're not reinventing the wheel every single time you develop an application," McEwen says.

With the help of Microsoft Azure, the bank spent a year building its enterprise security controls and data plan for the cloud, well before it started shifting any workloads to the cloud. Functions like event logging, security monitoring, and authentication have been built into containers and then packaged with a growing percentage of its about 1,000 cloud-based applications.

UBS containers are underpinned by a strict set of security parameters and



UBS focused on security controls before cloud migration work began

can be spun up if and when services are needed. Events like security threats or unusual activity are housed in Azure's Event Hub. As part of its enterprise security framework, the bank has built a standardized alert system that works across the different containers. Behind those alerts, the bank has built AI and machine learning capabilities for identifying and logging event correlations.

James Fox, director at Protiviti, a California-headquartered consultancy, says using standardized security controls has become an essential part of heavily-regulated entities' journeys to the cloud.

Pre-cloud, UBS used .Net Core, an open-source computer framework, for monitoring events. The old monitoring system would take in an event, someone would look at it and go through a long, drawn-out process to try and fix it.

"When moving to the cloud and modernizing your tech, one of the hardest bits of the process is to refactor your applications," Fox says.

Now, UBS's events engine is standardized, and the underlying AI can detect, in real-time, things like behavioral changes across an application's security—such as unauthorized access to its cloud-based user account, or an issue with the technology's performance—and then instantly update it, fix the problem, or redeploy the container.

"Rather than waiting for the weekend or overnight [to make updates], I can do real-time releases into the environment, which you can imagine—from an efficiency standpoint—is huge for us," says McEwen.

In a real-life scenario, if an unauthorized user tried to break into its Azure service account via the internet,

the AI in the security system would automatically block access and the events log would be fed back into the AI. The security container is designed to analyze various fields such as geolocation, meaning it can identify users trying to access its cloud systems from unrecognized locations and IP addresses. As opposed to password accounts of the past, UBS's Azure service accounts are also secured by individual encrypted keys assigned to each user.

He says the security groundwork UBS has done, in addition to the scalability of the cloud, has completely changed the way the bank develops tech solutions and has helped speed up its modernization efforts. In the past, when a part of the business requested a tech solution, it could take the better part of a year to build and put into production. Now, containers can be deployed in hours, McEwen says.

By design, Fox says, containerization and well-designed enterprise security controls have helped accelerate banks' journey to the cloud. "They can move much quicker and with less risk to the organization," he says.

The shift to standardized tech builds has also given UBS developers more freedom and flexibility as to how and where they code solutions.

"Before, a developer would say, 'I want these five boxes in this datacenter, I want SQL and I want this and that.' They don't do that anymore. The application developer doesn't need to know where the application is anymore," McEwen says. [WT](#)

This is a condensed version of the online story. Read the full version at [WatersTechnology.com/7946141](https://WatersTechnology.com/7946141)



# Finos project seeks fully open-source FDC3 implementations

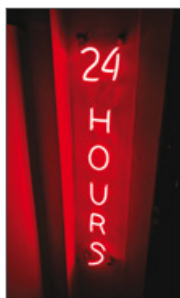
New initiative aims to provide a free, open-source Electron-based reference implementation of the FDC3 standard. By [Rebecca Natale](#)

A new project contributed to the Fintech Open Source Foundation (Finos) seeks to build on the success of its most widely adopted project, the FDC3 standard, a set of codified specifications for writing APIs and for messaging that enables traders' desktop applications to interoperate and share information.

The latest initiative, Electron FDC3, seeks to establish an open-source piece of code at the center of the standard—a “core” in developer lingo—based on Electron, an open-source software framework maintained by the OpenJS Foundation, a sister to Finos as members of the Linux Foundation.

Since the standard's conception nearly five years ago, end-users implementing FDC3 have relied primarily on three main proprietary vendors—OpenFin, which is not a member of Finos, Cosaic, and Glue42, both of which are Finos members—for these implementations. The new project will offer developers and adopters a neutral reference point and the full stack of FDC3 implementation, including a desktop agent, a locally installed container that exposes the API, in Electron and an application directory. Finos hopes the project will lead not only to increased adoption by sell-side and buy-side firms, but participation and interaction from engineers and web developers in and outside of finance.

“Buy side and sell side want to collaborate more often and more directly. We have a standard that allows that—but having an actual piece of code that supports that standard and allows a faster adoption of [it] seems in the best interest of the industry,” says Gabriele Columbro, Finos's executive director.



The buy and sell sides want to collaborate “more often and more directly”

The new project was conceived and contributed to Finos by Nicholas Kolba, co-founder of the FDC3 standard, former chair of the FDC3 working group, and the current global head of product engineering at Dun & Bradstreet. Kolba says that having an Electron core in FDC3 will allow for developers to test and trial their applications inside the container without needing to employ a vendor's services.

Despite the potential limits the project may bring to the vendors' roles as desktop agents, he thinks they also may find an increased ability to build more tools and services—such as workspace management, windowing, and native integrations—on top of and around the open-source FDC3 ecosystem.

“This allows vendors and applications owners to participate in open source in a way they couldn't before,” Kolba says. “We expect to see a lot more engagement around this than we've been able to get in the standards group. We're speaking with some of the major vendors in the financial content space, and they see this as a positive development because it allows them to enter this space and participate without having to align around a proprietary vendor that's going to ship their applications.”

## Growing influence

As the number of project contributions, particularly by end-user firms, to Finos has grown over the past year, so, too, has its membership. Columbro says that in 2021, Finos added 19 members to its roster—a 34% increase—and has gained five more so far in 2022. Other big-name contributions include Goldman Sachs's Legend, an open-source data management and government platform

based on the bank's internally developed data modeling language Pure, and JP Morgan's Perspective, an open-source data visualization engine that has racked up more than 4,000 stars on GitHub—an achievement Columbro describes as having reached the “Nirvana” of attractive global open-source projects.

“The reality is it's true—I'm an open-source guy, and I know how open-source projects can exponentially take off more easily than a standard. A standard is a very powerful, but relatively bureaucratic, way of building consensus. I would think that especially when there is a new project coming from an individual contributor, hosted from the get-go in a neutral foundation like us, that may have the potential to attract a different audience, which is the developers themselves,” he says.

While FDC3 may never quite reach the level of popularity that Perspective enjoys, the latest project invites the wider Electron community into the financial realm and opens the door for cross-collaboration and outside-the-box problem-solving. The world of Electron is massive, with most modern desktop applications running on top of it, such as Microsoft Teams and Slack.

“We hope to start the conversation with our friends at the OpenJS Foundation and the Electron maintainers to understand what of [our work at Finos] should be in the main Electron project. What of these requirements are generic enough and desirable enough, from an open-source standpoint, to be upstreamed?” Columbro says. [wt](#)

This is a condensed version of the online story. Read the full version at [WatersTechnology.com/7947021](https://WatersTechnology.com/7947021)

# Goodbye datacenters, hello cloud: Fidelity goes all in on AWS

The firm has migrated nearly 99% of its trading applications to the cloud and is on track to sunset all on-premises datacenters. By [Rebecca Natale](#)

**F**idelity Investments' asset management unit is sunsetting its datacenters, so the firm will be supported fully by cloud technology. It has shut down most of them already.

As of this year, the Boston-based investment manager has migrated 98.8% of its applications exclusively to Amazon Web Services (AWS) and plans to stop using physical datacenters soon, said Girish Maraliga, senior vice president of architecture and platforms at Fidelity Investments, who gave a talk about the migration process at the AWS Financial Services Cloud Symposium in Manhattan on May 24.

What began as a migration of Fidelity's internal trading system in November 2019 culminated in 1,520 applications migrated, 12,000 containers, 4,700 serverless functions, 6,700 Amazon S3 buckets, and 10 petabytes of S3 storage—comprising, Maraliga said, a robust multi-region architecture and a business ready to ingest, store, and use more data than ever before.

"We basically asked [our brokers] to meet us in the cloud, and that was a good pivot point," Maraliga said. "And frankly, it's been great."

The tech transformation impacted the full spectrum of Fidelity's equity trading staff, including research analysts who provide information to the portfolio management team, which then sends orders to Fidelity's three trading desks located in Boston, London, and Hong Kong, said John Kerin, the firm's head of asset management and equity technology engineering, who detailed the technicalities of what went into the three-year process.

"The overarching architectural pattern of the trading system is a command



Fidelity is waving goodbye to physical datacenters

query pattern. Based on the orders and instructions received from portfolio managers through to traders, the traders will initiate a set of commands through our public APIs," Kerin said.

Fidelity's equity trading system works with the orders provided by portfolio managers to find the best deals and optimal liquidity in the marketplace to engage with external broker-dealers. With \$1.5 trillion in assets under management, the system receives 4.25 million indications of interest (IoIs) from brokers every day, which provides the critical liquidity information for Fidelity's traders.

The investment manager's original preferred service was Amazon EC2, a cloud computing service that allows users to rent virtual computers to run their own applications. At the migration's start, Fidelity became a pilot adopter of EKS, Amazon's managed Kubernetes container service, which—along with AWS Kafka, which is primarily used to build real-time streaming data pipelines—now underpins the division's system architecture.

While Fidelity's decision to be free of any datacenters is pioneering in the

data-dense, regulated sector of institutional finance, an executive at a large vendor who listened to the talk was impressed, but mildly skeptical of the idea's practicality.

"My fear is that we're putting too much data into one enterprise," they tell *WatersTechnology*, though they were not authorized to speak on the record. "In financial services, saying that we will not have datacenters—I don't see that happening for at least one or two more decades. ... Every organization is different, but financial data is the new commodity, so it's imperative that we give data the utmost security. I'm not saying cloud is not secure, but it's the data of people so we have to be really, really critical about it."

The equity trading system was one of 80 products in three product lines across Fidelity Asset Management, which have nearly all been migrated. Speaking to *WatersTechnology*, Maraliga said the small sliver of on-premises applications that remain will also soon be running on AWS exclusively.

He leaves the door open regarding the potential to utilize other cloud providers for future capabilities the firm may want down the line. For now, though, Maraliga is unconcerned with creating vendor lock-in, as Fidelity Investments, as an enterprise, has a diversified cloud strategy employing the services, to some degree, of AWS competitors.

As for what's next, Maraliga says the company is focused on leveraging its cloud technology to enable new business capabilities, such as engineering, developing new quantitative strategies, and developing sustainability- and ESG-centric initiatives. [wt](#)

# NEWSDESK

*WatersTechnology's* roundup of headlines that hit the wire this quarter from around the industry

## State Street, Paxos partner for settlement



Paxos allows State Street to test T+0 functionality

Blockchain infrastructure platform Paxos has partnered with State Street, a provider of financial services for institutional investors, on a pilot project integrating State

Street's custodial services into the Paxos Settlement Service.

Paxos Settlement Service is a clearing platform, built to address the structural problems of opaque margin, slow settlement, and high costs impacting today's market participants. The private, permissioned blockchain solution is designed to allow two parties to settle securities trades through a modern clearing agency.

As part of the pilot, State Street was able to simulate the settlement and custody of shares on the Paxos platform and asset movements with Credit Suisse more efficiently. In addition, State Street was able to send settlement instructions to Paxos for cost-effective settlement while still delivering the required messaging to interface with existing settlement systems.

State Street, through its Digital and Alpha divisions, along with Credit Suisse, delivered the workflow and system adjustments to test the functionality of same-day (T+0) settlement.

## SmartStream launches Eligibility API



API aims to help firms with new margin rules

Transaction lifecycle management solutions provider SmartStream Technologies has launched a new offering.

SmartStream's Eligibility API intends to provide collateral management optimization,

which would be a more efficient way to source eligibility information contained within collateral agreements. The new solution has been designed to work for both pre- and post-trade collateral optimization.

SmartStream's latest offering launches in anticipation of the impending Uncleared Margin Rules Phase 6 regulatory regime, which is due to be implemented in September and could create a squeeze on assets being pledged as collateral.

SmartStream's new solution intends to provide firms with an alternative way of publishing eligible collateral for each legal agreement, which could then be consumed by their optimization engines.

## AllianceBernstein taps Glue42 to boost workflow



Traders can monitor apps via one workspace

Investment firm AllianceBernstein has enlisted the services of Glue42, a desktop application interoperability provider, to help traders gain insights more efficiently,

improve the trading experience, and optimize productivity.

The firm engaged Glue42 to support and organize its trader interface into a collection of micro-applications that form a cohesive workflow.

As part of this approach, AllianceBernstein's engineers will be able to construct a framework that integrates and delivers applications in a timely manner and pushes new features to its traders on a daily basis. Traders will have access to one workspace, reducing the number of screens needed to monitor apps and review orders.

So far, the firm's traders in its Nashville and New York offices are using Glue42 and have access to a workspace in which important information is pushed to traders in real-time without them having to load or monitor the systems directly.

## Goldman completes NN acquisition for ESG data

Goldman Sachs has completed its acquisition of Netherlands-based asset manager NN Investment Partners for \$1.7 billion. The deal aims to provide Goldman's European business with a grounding in the Netherlands. The bank has been vocal in its desire to scale its European business and leverage NNIP's capabilities in providing environmental, social, and governance data. NNIP will be integrated into Goldman Sachs Asset Management.

## Instinet to acquire 'Fox River'

Instinet Holdings has agreed to acquire FIS's Execution Services business, which was formerly known as Fox River, which was added to FIS after it acquired SunGard in 2015. The agency broker, which was established in 2000, provides execution algorithms and tools, including direct market access and sales trading. Terms of the deal were not announced.

## SocGen taps FIS for derivatives

In separate news, Societe Generale signed an agreement with FIS to incorporate its derivatives clearing and settlement technology. As part of the agreement, the investment bank and financial services group will transition their existing derivatives clearing and settlement IT environment to FIS Cleared Derivatives Suite.

## Nasdaq to acquire Metrio

Nasdaq is acquiring Metrio, a provider of environmental, social and governance (ESG) data collection, analytics and reporting. The vendor is based out of Montreal and was founded in 2009. Nasdaq plans to integrate Metrio's software as a service platform into its suite of ESG solutions. Financial terms have not been disclosed.



# OPEN OUTCRY

“It’s a secret that most people don’t know, but when market data vendors give market data to regular order or execution management systems, most of the time there’s a lot of conflation that happens. Market data changes 100 times a second, but that doesn’t mean the vendors send you all the 100 changes. No human eye can consume more than that.”  
Source with knowledge of LSEG-MayStreet deal  
» see page 24 for full feature...



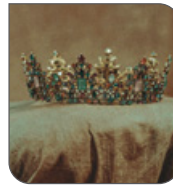
“If there are 1,500 names added to sanctions lists across the world, that could mean 15,000 people and entities associated with that. On the surface, AML looks straightforward, but when you begin to unravel it, it’s a complex web of people and companies.” Charles Minutella, Refinitiv  
» see page 42 for full feature...



“Just because a regulator accepts your reports doesn’t mean they’re accurate. If you under-report, you get fined. If you over-report, you get fined. If you don’t report accurately, you get fined.” Michelle Zak, Qomply  
» see page 58 for full feature...



“Data’s still the fuel in the tank, but context is what gets you where you want to go. Without context, you’re making decisions in a vacuum.” Bruce Fador, Fador Global Consulting Group  
» see page 28 for full feature...



“Many emerging stock market regulators have made it a case to disclose the pledged share information by the companies in their corporate filing on a corporate or annual basis. Still, the data is not accessible to many.” Kunal Sawhney, Kalkine Group  
» see page 46 for full feature...



“It seems that new data provider entrants see data commercialization strategies as binary—charge or don’t charge—but the reality is there are myriad permutations of licensing and subscription models.” Mark Schaedel, DataBP  
» see page 50 for full feature...



“Advisers did not appear to consistently implement their policies and procedures related to alternative data providers. For example, advisers did not apply their due diligence process to all sources of alternative data. In addition, staff observed advisers that had an onboarding process for alternative data service providers, but did not have a system for determining when due diligence needed to be re-performed based on passage of time or changes in data collection practices.” April SEC alert  
» see page 4 for full story...



“There’s a lot of talk about whether an EMS would have to register as an ATS, for instance, and I think that caught the industry off guard. I suspect there will be a lot of debate around this in the coming weeks and months as they look to pass the final rule.” Kevin McPartland, Coalition Greenwich  
» see page 34 for full feature...



“Let’s have an industry-led solution to an industry-wide problem. That is the approach we are taking, and from that, we’ll look to build an infrastructure that makes sense, and build it with partners we’ve involved in the Design Council.” Neil Ryan, Finbourne  
» see page 54 for full feature...



“Aggregating such widely distributed data and presenting it in a form that the investor can rely upon is complex. This only serves as a dampener for a section of investors that may want to warm up to this asset class, but cloudy data deters them.” Kunal Sawhney, Kalkine Group  
» see page 38 for full feature...



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# Spotlight: LSEG buys MayStreet

The acquisition of the 10-year-old vendor will give the exchange group high-quality market data, low-latency direct feeds, and packet-capture capabilities, experts say. By **Max Bowie, Joanna Wright, Wei-Shen Wong and Anthony Malakian**

**T**he London Stock Exchange Group's (LSEG's) acquisition of market data provider MayStreet, announced on May 18, will enable the exchange's Refinitiv data vendor business to update the legacy infrastructure technologies of its Refinitiv direct feeds (previously known as the Reuters Data Feed Direct, or RDFD), and gain access to high-quality market data, packet-capture capabilities, and quant tools that it did not have before, industry insiders say.

Some say the deal is a way for Refinitiv to replace and enrich struggling legacy infrastructure components, while others point to the additional capabilities MayStreet will bring to the group, potentially opening the door to new and under-served markets for the exchange.

"For the LSE, this completes their portfolio of the data and content and markets they're in. They had the consolidated feed, [with the acquisition] they've got real-time, they've got historical, they've got referential. So they have all the data now. And although they had the RDFD, that low-latency capability, they weren't in all the markets," says Steve Roe, CEO of market data consultancy and real-time systems support provider West Highland Support Services.

"You look at MayStreet, and you see they are in more markets, and the technology is superior. MayStreet comes with things like packet-capture (PCAP) ability, so they can do all the capturing and playback and gap-filling of events in that low- and ultra-low latency space that Refinitiv didn't have," Roe adds.

Whatever its motive—to update its infrastructure, bring new capabilities, or snap up a potential competitor—LSEG clearly sees MayStreet as a valuable asset. The exchange is not disclosing terms of the deal, which is expected to close this quarter. However, estimates of the value are substantial enough to eat up a sizable chunk of the \$200 million that the exchange announced

it would invest in Refinitiv, following its acquisition in 2021—most of which would be spent on upgrading the vendor's legacy technology.

Since buying Refinitiv, LSEG has been beset by reports that integrating the vendor's technology was proving more costly than anticipated, although an LSEG spokesperson tells *WatersTechnology* that the Refinitiv integration is on track, citing the company's 2021 annual report, in which LSEG CEO David Schwimmer says the group is "making

**“We’ve never really played in the low-latency or ultra-low-latency space. In direct feeds, MayStreet offers much more breadth and depth of direct feeds and technology.”**  
**Stuart Brown, LSEG**

excellent progress on the integration in order to deliver the strategic and financial benefits of this transaction.”

After paying \$27 billion for Refinitiv, another \$200 million—including whatever the MayStreet price tag turns out to be—is a drop in the ocean to achieve those financial benefits. So, what exactly is LSEG getting for its money?

First, it's getting a foot in the door of low-latency market data distribution and feed handlers.

"[MayStreet] significantly enhances our LSEG data solutions business, allowing us to provide our customers with data and technology across the low-latency spectrum all the way through to historical data. We now service from low-latency, intraday, end-of-day, and historical data," says Stuart Brown, group head of enterprise data solutions at LSEG, adding that MayStreet will bolster Refinitiv's direct feeds with true low-latency capabilities, for which it is experiencing global demand.

"Our enterprise data business and the real-time franchise has been around real-time data, consolidated feeds, and the technology to distribute that. That's what we've been doing for 30, 40 years. We've never really played in the low-latency or ultra-low-latency space. In direct feeds, MayStreet offers much more breadth and depth of direct feeds and technology," Brown says.

Buying MayStreet and its technology is a sound investment in modernizing the Refinitiv direct feeds, market data industry sources say.

These feeds were first launched in 2005 by then-Reuters as the RDFD, later rebadged as the Elektron Direct Feed, and are now known as Refinitiv Real-Time Direct. Over recent years, Refinitiv began licensing MayStreet's Bellport feed handler to support this feed, rather than building handlers in-house.

Brown says LSEG initially investigated building its own feeds or partnering with other vendors, which is how its relationship with MayStreet began. If nothing else, the deal solidifies that relationship and brings it in-house, rather than Refinitiv being dependent on an external third party for any critical technology. But it also accelerates Refinitiv's potential upgrades.

"This can majorly upgrade [Refinitiv's] own internal technology, which is all archaic at this point," says an outside source familiar with the deal. "It's a really good acquisition, to my mind. Instead of Refinitiv having to upgrade their technology over years, they can literally take MayStreet and upgrade in a much shorter period."

## Capturing every tick

But it's not just about feed handlers and direct feeds. The source agrees that the acquisition will give Refinitiv access to highly granular, high-quality market data.

"It's a secret that most people don't know, but when market data vendors give

market data to regular order or execution management systems, most of the time there's a lot of conflation that happens. Market data changes 100 times a second, but that doesn't mean the vendors send you all the 100 changes. No human eye can consume more than that," they say.

But MayStreet has this granular data, the source adds. "Every print with the right timestamp in the right format—MayStreet has that. So, one, it has speedy data; two, it has the best quality data; and three, it has cloud delivery. From Refinitiv's standpoint, it extends what kind of data they can sell to their massive client base, and it allows them to upgrade their own internal infrastructure," they say.

Part of the challenge of upgrading legacy technology, says West Highland's Roe, is that Refinitiv is a data provider and aggregator that requires technology, but is "not really a technology company," adding that continued mergers and acquisitions over the years have diluted the vendor's technology expertise.

"MayStreet has a very good engineering team. The guys they have are very good and are going to add value in this vertical space, as well as the tools they're bringing with them—in particular, Bellport and the packet capture," which support low-latency trading strategies and historical analysis, and would have been especially enticing to LSEG, Roe adds.

Indeed, LSEG's Brown says MayStreet's existing network of more than 300 cross-asset venues will expand LSEG's historical market data product portfolio.

MayStreet's PCAP service provides nanosecond time-stamped data across asset classes. Packet capture is the act of intercepting a data packet within a network so that it can be analyzed. Roe says this is a great capability that Refinitiv is now acquiring for the first time.

"When you stream data in these low-latency platforms, you have to be able to record data at the packet level. You're getting it 'from the wire,' as it's called. And then if there's some disruption and a packet or series of packets is dropped or lost, you have to be able to identify that," Roe says. "The old way of doing that was to connect the two



endpoints of the gap together and draw a straight line. But what can be done now is to take the actual elements that were missing and backfill them so that you don't miss anything for historical purposes."

This is a useful capability for certain types of users, such as quantitative traders, who might want to, for example, analyze multicast quote feeds in Python. MayStreet also has tools within its Analytics Workbench with which users can do so, like preconfigured Jupyter notebooks.

"MayStreet has a lot of software tools for consumers: Jupyter notebooks and toolkits like that—stuff that Refinitiv has not been in the business of providing to the quant community," says the anonymous source.

### **New tech + old data = new opportunities**

MayStreet will now become part of the enterprise data solutions business, which falls under LSEG's data and analytics division, and MayStreet CEO and co-founder Patrick Flannery will report to Brown. As such, not only is MayStreet bringing its own feed handlers and market coverage to the deal; Refinitiv is bringing its existing wealth of non-exchange-traded data assets, which MayStreet's technology can now be applied to.

"We will have access to a tremendous amount of content, especially in Treasury bonds and emerging markets, and we can apply our technology and methodology to new content and new customers," Flannery says.

For example, says Keiren Harris, founder of Hong Kong-based market data strategy consultancy DataCompliance, MayStreet could give LSEG an edge if combined with the group's other electronic markets. As part of the Refinitiv deal, LSEG also now owns a majority stake in fixed-income venue Tradeweb and fixed-income trading platform FXall.

"Let's take the Refinitiv FX business. It's worth about \$200 million. If you compare that to [Deutsche Börse's FX trading platform] 360T or Euronext FX, those are worth about \$50 million and \$20 million, respectively," Harris says. "So they have a much bigger business there. But it's under a lot of pressure and low latency in that market is really important. It's also becoming more important in some of the more liquid fixed-income markets. So adding something like MayStreet could open up a lot of new electronic asset classes in over-the-counter (OTC) markets."

Flannery says the broader datasets that being part of Refinitiv will expose MayStreet to will help to accelerate MayStreet's growth faster than it could have managed on its own. Data has always informed the vendor's technology direction, and MayStreet continues to emphasize the modularity of the components it sells—whether feed handlers, its Analytics Workbench tools, or its data lake—to facilitate on-demand access for customers, Flannery says.

"[Michael Lehr, MayStreet's co-founder and CTO] and I started at our kitchen table, and we were kind of resource-light. We had to generate revenue, so we built

and licensed the components. And the data came about because it made the software better, and the software was better because we had the data. We've thought about the business in terms of collecting data, storing data, indexing and transforming data. So whether we are delivering to the cloud or on-premises, users can almost mix and match: They have a consistent set of tools, regardless of where they consume the data," he says.

In terms of delivering via the cloud—one of the key technology capabilities highlighted earlier by the source familiar with the deal—Flannery says most of MayStreet's targeted customer base is still in its early days of migration, and that the cloud represents a big opportunity for the future.

"That dovetails with the idea of on-demand access, where the cloud supports consumption models that are totally different from on-premises models," Flannery says. "For example, as we move all our data to the cloud, customers can access a single repository of that in Amazon, which is something we're going to be rolling out with the LSEG. These dynamics allow us to offer firms the ability to pull the relevant portions of the data they need out of this large repository."

### To Refinitiv and beyond!

LSEG can also leverage MayStreet's technology beyond existing data assets, and can potentially apply it to new areas.

For example, Brown says LSEG intends to grow MayStreet globally. "We have our own direct feeds that MayStreet has helped us build. But we see the opportunity to use our global network of sales teams and account managers and customers to take MayStreet global, particularly in Europe, the Middle East, and Africa," Brown says.

Brown particularly sees opportunities in Asia, he adds. "I spent 14 years in Asia running businesses for Refinitiv. And there's always been a huge demand in that region for low-latency data. We are now in a position through this acquisition to meet the demand for that speed and quality," Brown says.

Indeed, following the announcement, Refinitiv's head of Asia enterprise data solution sales, Chris Young, said in a

post on LinkedIn that with MayStreet, LSEG can now offer low-latency feeds across 200-plus venues "in single-digit microseconds," and is now "building out a dedicated team in Asia focused on the direct feeds business."

Another possible area of expansion is the potential to offer regulatory solutions to Refinitiv's clients among regulators and central banks around the world.

**“Whether we are delivering to the cloud or on-premises, users can almost mix and match: They have a consistent set of tools, regardless of where they consume the data.”**  
**Patrick Flannery, MayStreet**

Since 2019, MayStreet has operated the US Securities and Exchange Commission's (SEC's) Market Information Data Analytics System (Midas), the US regulator's system for monitoring capital markets. As part of that process, MayStreet acquired part of the previous Midas administrator, Thesys Technologies. LSEG's Brown says this relationship with the SEC was another attraction for the exchange because of the potential for expansion.

"Clearly, the SEC values the Midas solution," Brown says. "We see this as an opportunity to engage other regulators around the world for that type of solution, given the fact that we have a global footprint, and relationships with regulators and central banks around the world."

### For better or worse

Most observers agree the deal is a good one for Refinitiv. For example, it presents upsell opportunities to the combined vendors at firms on the buy side and sell side where Refinitiv's infrastructure is tightly integrated into their businesses.

"If a client is taking in their data on one side, Refinitiv can offer different types of contract structures to bring in their low-latency capabilities with these enhanced analytic tools," Roe says. "And it may be appetizing to a client if they have a good relationship with Refinitiv or a good experience with them."

However, he questions whether the deal benefits the industry as a whole, or whether it simply contributes to greater consolidation and contraction among vendors and greater centralization of pricing power among the largest providers.

Certainly, M&A activity among data vendors has whittled down what was once a crowded space, as smaller firms have realized they can better fend off rivals and take on bigger competitors by joining forces. This year and 2021 saw a number of deals in this space. Data and execution technology provider Vela and low-latency solutions provider Exegy merged; infrastructure and managed services provider Options Technology bought enterprise data platform provider Activ Financial; and data and analytics provider Pico bought Redline Trading Solutions.

Flannery and Lehr founded MayStreet in 2012. In 2020, the vendor closed a \$21 million Series A financing round led by Credit Suisse Asset Management's Next Investors, a private equity firm that invests in businesses that interact with the financial services industry. MayStreet said at the time that the investment would be used to accelerate the company's growth through the full globalization of its platform.

From that point, a deal was in the cards as Next looked for ways to capitalize on its investment, observers say. "They received that funding from Credit Suisse Next—they were meant to be acquired," says Vinod Jain, a strategic advisor in the capital markets team at research firm Aite-Novarica.

The source close to the deal declined to say what MayStreet cost LSEG, but says that at the time of the Series A funding the vendor was valued at \$76 million, and had been experiencing "phenomenal" revenue growth of between 50% and 60% year on year. That, together with an excellent engineering team and tech assets, led to a sale price of multiple times revenue, the source says. "Vela, Activ, Redline—they were sold at two, three, or four times revenue. ... This deal is multiple times that," they say, adding that "Credit Suisse is walking away as a very happy investor." **wt**





# Context is king

For years, the mantra of the market data world has been ‘content is king.’ But with trading strategies now more dependent on being able to see the big picture, the value of context could quickly overtake the data itself. By **Max Bowie**

**T**hey say a picture is worth a thousand words. For example, JMW Turner’s 1838 painting *The Fighting Temeraire, tugged to her last berth to be broken up, 1838*—which depicts the last voyage of the HMS Temeraire, a British warship that fought at the Battle of Trafalgar, to a berth in Rotherhithe to be scrapped—does just that. However, each component of the painting, taken individually, requires the others to complete the scene. Taken alone, each element would be a masterpiece, but would not tell the story of the ship’s last journey. Each requires the context that all the other elements, when taken together, provide—plus the painting’s title.

But at best, every picture, like a single frame of film, is still merely a snapshot of a specific moment in time. If a picture is worth a thousand words, the additional context that turns that snapshot into a story is worth a thousand more. So to then place that story into a broader historical context and to understand its significance, we need additional contextual information from other sources.

Context isn’t new. It’s something that traders and asset managers have instinctively added from their own experience or sought out to enrich decision-making processes. But whereas in the past it was a nice-to-have, now it’s essential. Because if you want to tell how the market is moving or what’s going to happen next, a data point is basically a “You are here” arrow on a blank page. For it to have value, you need more data, and to be able to connect that data. You need the whole street map.

“Data’s still the fuel in the tank, but context is what gets you where you want to go. Without context, you’re making decisions in a vacuum,” says Bruce Fador, CEO of data and fintech management

and sales consultancy firm Fador Global Consulting Group. “It’s always been that way, but it’s becoming more mainstream ... especially now in uncertain times. Markets don’t like uncertainty, so asset managers are saying, ‘What do I do?’”

## Don’t just give me data. Tell me a story

It’s a sentiment that resonates with Saad Hussain, founder and CEO of California-based Vesica Technologies, which provides a tool called Shift Search that displays open-interest and volume data, broken down by put and call activity, along with relevant news.

“Data alone is less valuable than data in context,” he says. “There’s a big difference between data, information, and knowledge. Data is just that—bits and bytes: trade data, tick data, or earnings data—an event. If you take data and add value—if you transform it—it becomes information.”

**Barry Star, Wall Street Horizon**

Last year, the Miami International Securities Exchange (Miax) adopted Shift Search as a central component of its Virtual Trading Floor information portal. Hussain realized there was more value beyond the data itself, and that by combining datasets, he could provide valuable contextual information.

Before founding Vesica, Hussain worked as an oil options broker for almost a decade at PVM Oil Associates (now owned by TP Icap), and clients would constantly call him, asking for his summary of the market. That was part of a broker’s role—to weave together all relevant information and context to

give clients everything they needed to make a decision. The clients could have looked the data up themselves, but they wanted more insight than they could achieve alone. That’s when he realized that “people want context, not just a data point. You have to tell people a story. The challenge is, how do you allow people to see that story without being too complex about it?”

For example, headline put and call information provides a snapshot in time of options activity, but Shift Search also allows users to look at historical put and call activity. “So, for example, if you see a bunch of call option buying, you can see that ‘story’ being formed,” Hussain says. “How open-interest, volatility, and money flows behave all tell a story.”

Fador’s previous employer, corporate earnings data analytics provider Wall Street Horizon (WSH), where he served as chief commercial officer between 2014 and 2017 and remains an adviser, understands the value of using data to tell a story, rather than just presenting raw data points.

“Context helps develop a narrative about a company. So for buy-side investors, it’s all about context,” says WSH CEO Barry Star. For example, understanding why a company does something, and what that something means, is potentially more valuable than simply knowing that a company has done something in the first place.

“Data alone is less valuable than data in context,” he says. “There’s a big difference between data, information, and knowledge. Data is just that—bits and bytes: trade data, tick data, or earnings data—an event. If you take data and add value—if you transform it—it becomes information. So, if an earnings date is data, then when an earnings event changes its date, that’s information.





Putting data in context adds value. So, if you take information and add value, it becomes knowledge.”

WSH’s business is all about providing context: not just confirming the date on which a company will announce results, but whether that date is earlier or later than usual, and whether that indicates good or bad news. For example, a date is a date. But if a company schedules a corporate event such as an earnings announcement in a way that’s completely different from its past behavior, and if an observer has the historical information to understand the historical significance of that schedule or date change, “that’s context—that’s knowledge,” Star says.

Other examples could include if electric car manufacturer Tesla starts running a new ad campaign, or if the CEO of a company buys 10,000 shares in company stock. That context is knowing that, for example, Tesla famously doesn’t spend money on advertisements or endorsements, or that the company CEO has never previously bought shares on the open market.

WSH’s data is a well-known example of alternative data that adds context. But context comes in all shapes and sizes, and can be derived from many types of sources.

Aside from the much-hyped and highly valuable alternative data industry—typically information from other

industries that can serve as an additional input to trading decisions in financial markets—one source of context is sentiment data, assessing investor (both retail and institutional) sentiment on a company or stock based on analysis of how news, research, blogs, social media posts and other market activity historically impacts share prices. Sentiment is pretty well established, but now some are taking it a step further.

One of these is Buck Andrews, an industry veteran who has been a hedge fund manager, founded Omniquant, and served as president of data company AT Financial, which was sold to Thomson Corp. in 1997. Now, he has co-founded a new company, In4m (pronounced “Inform”), developed with a former executive of now-defunct hedge fund Pequot Capital Management and an artificial intelligence (AI) expert at the University of Sydney, which uses AI to categorize and add context to news articles.

“Everyone has content. There’s so much that it’s hard to process. We want to contextualize information and make it easy to consume,” Andrews says.

In its most basic form, In4m’s product uses AI to categorize news items—serving as a productivity tool that could save research analysts hours each day over manually digging up news items relating to a portfolio company—and

assess the impact that each item could have on stock prices. A second iteration of the product, expected in Q3 this year, will incorporate third-party macroeconomic and sector research to provide more context around the impact of news items on prices.

“We’re providing the news items, but also layering in context to the data that will help people—probably not high-end hedge funds, even though it partly came out of a hedge fund, but potentially anyone investing in individual stocks or individual sectors—invest in the right sectors and recognize the economic cycle they’re in,” Andrews says.

### Oldies but goodies

But those providing new ways of adding context aren’t necessarily just new startups or alternative data vendors. In fact, in some cases—depending on the type of data—established, traditional data vendors and exchanges are best placed to add context, because they have access to the underlying market data and fundamentals to which context adds value.

For example, another company making the most of opportunities to add value to news is MT Newswires, founded in 1999 by CEO Brooks McFeely.

“Context is probably one of our most significant differentiators. Our mission is to provide not just pricing coverage, but context and perspective,” McFeely



says. “For example, we provide coverage of earnings, but we also provide information on past earnings, and historical coverage of how the market prices earnings news into a company’s stock price. So, we look at context as an essential part of what we do. We have to tell the market what’s happening, when it’s happening, and why it’s happening ... and provide a historical perspective so the market can make well-informed decisions.”

But, McFeely adds, providing the most valuable context isn’t always about adding extra information. Sometimes the best way to provide context is to eliminate information that’s just noise to give a clearer view of the information that’s genuinely useful.

“We’re not deciding what information investors should know or not know; we’re just filtering it for relevance,” he says. For example, insider trading activity is something investors deem useful, but is hard to correlate against price action. “Is it really interesting to know that someone has sold \$5,000 of Google stock for tax purposes?” he says. So instead of just reporting on insider trades, MT Newswires also reports on aggregate transactions in a company and across industry sectors, to identify trends and show how one company’s insider activity compares to that of its peers.

Arizona-based data terminal and data-feed vendor QuoteMedia takes a similar approach to insider transactions, not just flagging when a company executive buys or sells stock, but also showing how their holdings have changed over time, and trying to ascertain why insiders might be, say, buying a lot of stock in their company at a certain time. The vendor also compares this activity to other companies in a user’s portfolio to determine whether this is unusual activity, so the user can decide whether they want to adjust their holding in that stock.

But for QuoteMedia, one of the keys to adding value through context is by providing “data on the data,” and highlighting where the most value exists, says CEO Dave Shworan. Based on its historical data, the vendor computes confidence scores that predict how profitable a user’s chosen options trading strategy will be, or to highlight stocks that have potential for movement. The

vendor computes “running scores” in real time, and also provides up to 10 years of historical scores so users can analyze trends in the scores, sub-scores, and underlying data metrics. These include hundreds of individual metrics—items such as capital efficiency, debt vs. assets, net debt, and return on equity.

“So, if someone is looking at their portfolio or researching stocks, they can get computer-generated information that tells them what they should be looking at,” Shworan says.

### Go with the flows

A recent report from consultancy Aite-Novarica Group, titled *New edges: How to make the most of trading flow data*, highlights some examples of what types of contextual data can add value, where firms can find it internally, and the challenges of gaining access to it.

“The hard part about market data is that it’s mission-critical and relentless in nature. Most clients don’t want to have to worry about that; they just want to be able to plug it in and have it work. Mastering the data science, understanding market structure, and creating context that adds value is much harder than just writing feed handlers.” **David Taylor, Exegy**

For example, the report cites how a firm’s municipal bonds trading desk could benefit from information from a retail mortgage lending division: An increase in mortgages for new home purchases in specific zip codes would result in higher tax revenues for the local municipality, which might result in a higher credit rating. Conversely, being aware early of defaults on mortgage payments by multiple borrowers in a zip code could be used as a risk alert to adjust the firm’s strategies.

Aite-Novarica’s report identifies similar synergies between fixed income and equities trading desks, corporate actions processing functions and equities desks, and client onboarding across different parts of an organization. In short, a

firm’s own existing data flows have the potential to enrich trading activities in other parts of the same firm and generate alpha. In addition, because the data is internally derived, it doesn’t result in increased data license fees.

However, that doesn’t mean it doesn’t come with a cost. The research notes that getting access to the right data—even data that already exists and is available within their own firm—can pose significant challenges. Sometimes these challenges are technical and revolve around the internal infrastructure and data platforms required to extract data from one business line and make it available to another in a manner timely enough to take full advantage of the data, with all of the associated controls and permissioning.

“A division may be trying to get access to what they don’t have today, to open up possibilities around what they can do with the data. But opening up those opportunities requires investment, and for that, you need to make a business case,” says Vinod Jain, senior analyst for capital markets at Aite-Novarica, who authored the report. “But the ‘data owner’ doesn’t want to create an expensive, long-term project—they just want the data. So, they want solutions that integrate with their existing technology platforms.”

To ease the technical challenges, many firms have built—or are building—central risk books (CRBs) that allow different parts of a firm to see exposures and activity in other areas, says Ishaan Nerurkar, CEO of LeapYear Technologies, whose platform enables secure and compliant data sharing across organizations. But the challenges can also be compliance-related. Using the raw data generated by one part of a large bank in other areas of the same firm or externally can create conflicts of interest and risks related to sharing individual customer data.

“There are concerns on the buy side that banks’ CRBs are essentially enabling prop trading. To mitigate these concerns, many market-makers have created information barriers, so that, for example, the CRB can’t see agency flows, but can only see what’s trading on its internal desks,” Nerurkar says. “Our technology ensures

that all the quants building models inside the CRB can't learn anything about an individual client's activity, but can still use aggregated data to make predictions at the individual security level. So, for example, they could see how overall trading activity is expected to change over the coming days, but they can't see that the bank has a specific client trying to place a specific trade."

Once that privacy layer is in place, it opens the door to other potentially profitable ways that banks seeking to monetize proprietary data can add context for buy-side clients without violating their obligations.

"Many large banks have big retail businesses as well as their capital markets operations. And the retail side has, for example, credit card data and mortgage pre-payment data, while the institutional side has payments information. Together, that's a lot of information that would be useful to the buy side for understanding sales of product categories, macro trends, or even as competitive information for merchants themselves," Nerurkar says. "So, we've been working on use cases to surface information from outside of the trading organization and make it available to clients—for example, being able to provide company data to the buy side in a way that protects cardholders and merchants by not disclosing personally identifiable information or information about a merchant who is banking with the firm."

LeapYear's examples center around bank-owned datasets. But banks aren't the only ones looking for ways to extract more value from—and add context to—data within their organizations. In some cases, that necessitates owning the data in the first place to be able to use it for the purpose you want.

Having access to the data that's needed was one of the drivers behind the decision of low-latency feed handler and ticker plant appliance vendor Exegy to buy Vela, which provided aggregated datafeeds and a market data platform, among other things. The vendor has since integrated its product lines and uses the Exegy appliances to collect low-latency data at source to create the Vela consolidated feeds. These then become the low-latency data input for

Exegy's Signum product suite—a service that generates predictive signals of price movements, and which can trigger automated execution of trading strategies.

Exegy CTO David Taylor says the additional context that services like Signum provides is one of the most exciting areas of development at the moment because of the potential to unlock information about hidden institutional orders and drive trading strategies, but warns that some firms need some initial hand-holding to get the most out of the data.

"There was a segment of our clients who immediately 'got' it and had already identified use cases of how they would use it—and they comprised our early adopter sales—then there was a segment who 'got' it but hadn't identified how they would use it on day one, and who asked us to come back with examples of how to use Signum for their business," Taylor says. So, the vendor hired an expert to help convert the predictive signals into execution algorithms—essentially taking over the heavy lifting associated with understanding the meaning of context from clients.

"The hard part about market data is that it's mission-critical and relentless in nature. Most clients don't want to have to worry about that; they just want to be able to plug it in and have it work," Taylor says. "Mastering the data science, understanding market structure, and creating context that adds value is much harder than just writing feed handlers."

But not only does this potentially make Exegy's combined offering more valuable and "sticky" to end-user clients, it also differentiates the vendor from its traditional low-latency technology rivals because the company can deliver both context and price data synchronously, he adds.

### Tools of the trade

Differentiation is also a key motivator for exchanges to wade into this space, especially since they are perhaps in the best position to provide context around market data, because they are generally the original source where market data is generated—at least, in exchange-traded markets—and thus the point where context could be added earliest in the data lifecycle, potentially under-



cutting those seeking to add value later in the data's journey.

For Cboe Global Markets, recently integrated acquisitions such as Hanweck and Trade Alert are helping the exchange to add valuable context around its prices, such as how markets have historically priced in volatility in a stock or option based on the issuer's corporate events.

"Aside from providing prices, we also calculate implied volatility. We put that in context by not just providing what's implied from an earnings announcement, but we also provide how it has historically behaved—is the market pricing in more or less risk?" says Kevin Nichols, head of derived data and analytics at Cboe. "Also interesting is the order flow into options around an event—are they in or out of the money? Trade Alert does a good job of providing that."

Another way to add context to the total exchange-traded volumes is to break them down by investor type, so users can see how different segments of the market are behaving. Cboe has an open/close activity dataset that provides this, and has been upgraded in recent years to include order flow data that wasn't previously available. The data is available as a file download, but Nichols hopes to make it available via other Cboe platforms and via an API, subject to client demand.



Why is this data useful? “With the growth of the retail trader, you have to pay attention to that segment. I’ve never seen anything like the GameStop [short squeeze] incident. They’re a decent force in the marketplace now,” Nichols says. Clients can also use the dataset to watch for increases in open interest that signify someone taking larger positions, or for increased activity around market close, which would indicate traders winding down positions.

“My role is focused on bringing out data from our exchanges that doesn’t currently exist—and there’s still a lot of opportunity to do that,” he says.

Canadian exchange group TMX also sees plenty of opportunity to add value at the exchange level.

“We have our core content—data—and we’re trying to move up the value chain to knowledge and insight, which gives our clients the ability to generate alpha and manage risk,” says Michelle Tran, president of TMX Datalinx, the exchange’s data business.

For example, TMX has recently soft-launched new data products, including investor flows data, which uses AI and machine learning to provide insights into aggregate retail trading activity and equity market momentum, and liquidity ratings, which provide security-level

indicators of the cost to trade based on bid-ask spreads, market depth, and quote resiliency. In addition, TMX plans an Enriched FIPS fixed income pricing service incorporating analytics such as yield-to-maturity, duration, relative-value spread, and evaluated price.

“Tools are helping people be smarter about the data they’re looking at, and context broadens the capabilities of all of us.”  
**Bruce Fador, Fador Global Consulting Group**

“We believe it is important to provide the financial data and the associated metadata (which is the information about the data) so that our clients can better connect these datasets and derive new insights to inform their investment and trading processes,” Tran says.

The ability to access and connect disparate datasets to generate knowledge and insight is one of the drivers behind the exchange’s increased adoption of cloud computing in its data operations. Yes, the cloud offers a modern way to acquire and onboard clients and allow them to connect to exchange data without expensive legacy infrastructure

technologies. But it also represents an important tool that makes it easier for the exchange and others to link unrelated datasets.

“We view the cloud as helping to enable seamless access to data for our clients and partners. We are launching our core pricing, index, and reference data into the cloud, as well as the contextual data such as investor flows, liquidity ratings, enhanced fixed income and others so that our clients can easily access this data and connect these datasets to enable new sources of investment edge,” Tran says.

“Delivering our market data to established cloud service providers (CSPs) provides TMX with the opportunity to approach and acquire new clients that we’re otherwise unable to directly reach today—digital-native companies that operate with an entirely agile and cloud-first go-to-market strategy. Importantly, the public cloud also allows clients to integrate TMX content with toolsets that can conflate, overlay, and analyze TMX data with a multitude of third-party content sets,” Tran says.

Cloud may indeed prove key to context because cloud is also an important enabler of the AI and ML tools used by TMX, and other technologies. Ultimately, all these contribute to developing new sources of contextual data that provide better insights for all data consumers.

“Relevant information comes from having context. And to get that context, you need tools,” such as AI that enriches raw data with context in real time to provide immediate access to useful insights that a professional would have otherwise needed to piece together themselves and gather information from their own sources, Fador says. “Tools are helping people be smarter about the data they’re looking at, and context broadens the capabilities of all of us.”

Ultimately, those adapting their businesses from providing raw data to providing value-added context around that data are making the smart move toward preserving and even growing data revenues as traditional, basic price data becomes commoditized.

As Vesica’s Hussain says: “I believe the value of data will go down, but the value of context will go higher.” **WT**





# Is an EMS an exchange?

Some industry participants are worried that proposed amendments to Regulation ATS could see the trading perimeter expanded to include a wide array of messaging systems. By **Jo Wright**

**G**overnments walk a tricky line when regulating tech: Come down too hard and stifle the very innovation that brings savings to consumers; regulate too lightly and consumers bear unintended consequences.

The fixed-income industry has electrified patchily over the past 20 years compared to other, more fungible asset classes. But innovation in protocols and platforms is rapid enough that it has long worried the US Securities and Exchange Commission (SEC), which earlier this year put out a proposal to bring some big changes to the regulation of trading venues in Treasuries and beyond.

Market participants, however, feel the regulator has tipped too far toward the stricter end of the regulatory continuum with this proposal, which contemplates amendments to Regulation Alternative Trading Systems (Reg ATS). These amendments, if finalized as proposed, would impose heavier compliance and disclosure obligations on platforms that trade Treasuries. And they would also touch on equity venues, cryptocurrency platforms, and incumbent fixed-income venues that are already heavily regulated.

The proposal was published at the end of January and the deadline for comment closed on April 18. However, the SEC bowed to public pressure in May and reopened the Reg ATS amendments, along with two other proposals. So the industry was given another 30 days to submit comments.

So far, most of the comments on the SEC's website are from crypto enthusiasts concerned that heavy regulation could stifle the infant asset class. The other commenters tend to be established market operators like MarketAxess, Tradeweb, and Bloomberg, large non-operator vendors like Broadridge, and trade associations. There are few from smaller fintechs, providers of tools such as execution management systems (EMSs),

order-routing technologies, communications and messaging systems, workflow tools and so on. But this is a community that could take arguably the heaviest blow from these amendments.

As written, the proposal contemplates sweeping them into the scope of Reg ATS, which would subject them for the first time to enhanced disclosures and other obligations. Virtually any third party supporting a transaction in a security, even tangentially, will have to register with the SEC if these amendments are finalized.

**“There’s a lot of talk about whether an EMS would have to register as an ATS, for instance, and I think that caught the industry off guard. I suspect there will be a lot of debate around this in the coming weeks and months as they look to pass the final rule.”**  
**Kevin McPartland, Coalition Greenwich**

While few commenters deny that the SEC is right to look more closely at updating the regulation around Treasuries, this dramatic expansion of the trading perimeter has caused deep concern within the vendor community.

“Most major venues are already regulated in some way, but this is a more all-encompassing approach to oversee the market, which has evolved tremendously over the last 10 years. The proposal did go a few steps further than folks expected in terms of what would be included,” says Kevin McPartland, head of market structure and technology research at consultancy Coalition Greenwich.

“There’s a lot of talk about whether an EMS would have to register as an ATS, for instance, and I think that caught the industry off guard. I suspect there will be

a lot of debate around this in the coming weeks and months as they look to pass the final rule,” says McPartland.

Among other measures, the proposal removes the carve-out from Reg ATS that Treasuries ATSs currently enjoy, and expands Regulation Systems Compliance and Integrity (Reg SCI, the SEC's operational resilience regulation) to cover these systems, expanding their disclosure obligations.

The proposal also tries to lower the threshold for what constitutes an ATS by expanding the definition of “exchange” to include so-called communication protocol systems (CPSs). The SEC never explicitly defines CPSs, but says they are systems that “offer the use of protocols and non-firm trading interest to bring together buyers and sellers of securities,” systems where buyers and sellers can communicate, negotiate, and agree to the terms of a trade.

The SEC also gives some non-exhaustive examples of what a CPS might do. It could provide request-for-quote (RFQ) protocols, stream axes, or be a conditional order system, for instance.

Industry participants say they are worried about the amendments to the exchange definition and the vagueness around what a CPS is, as it seems to draw in a broad range of messaging systems. Many letters, including those from Broadridge, Symphony, and Virtu Financial, called for clarity about what exactly a CPS is.

Even without knowing the precise definition, others say, it's unlikely that regulation is appropriate for these systems. These are not liquidity centers whose failure would take offline liquidity in significant markets. EMSs and other comparable trading tools do not perform the functions of an exchange, but merely offer workflow or tools with the aim of bringing efficiencies to market infrastructure.

Bloomberg's global head of regulatory affairs, Gregory Babyak, and its regulatory analyst and market structure strategist, Gary Stone, wrote the vendor's comment letter submitted under the first round of notice and comment on this proposal. They say that even were the SEC to explicitly define a CPS, that still would not explain why these systems should be treated like exchanges. "They do not hold firm liquidity. They do not match or cross orders," their submission says.

### Shifting sands

To understand how the definition changes under the new amendments, consider the example of an EMS. Under the Exchange Act as it is now—SEC Rule 3b-16(a), to be exact—an EMS would fail the exchange litmus test and would therefore not have to register with the SEC.

Currently, under 3b-16(a), a business is considered an exchange if it brings together the orders of multiple buyers and sellers, and if it uses "established, non-discretionary methods"—setting rules for how orders interact or how they provide a trading facility. If a business counts as an exchange, it must register as such under the Exchange Act, or as a broker-dealer under Reg ATS. The latter comes with a lighter compliance burden, with exchange regulation reserved for the likes of systemically important trading venues and clearinghouses, and self-regulatory organizations (SROs) like the New York Stock Exchange (Nyse). EMSs do not bring together multiple buyers and sellers, nor do they make available established, non-discretionary methods for orders to interact.

The proposal, however, amends the wording of 3b-16(a) to define an exchange as something that no longer must set rules, but merely has to make available some kind of service for trading, the parameters of which the user can define for itself. It also deletes "multiple" buyers and sellers, replacing it with the concept that an exchange brings together "trading interest." That could be firm or non-firm trading interest—really any interest submitted to a system.

"When the SEC proposed to change the definition of 'exchange,' the commission deleted the concept of 'multiple'

and changed the interpretation of 'makes available non-discretionary interactions.' And suddenly, the regulatory perimeter, which was targeted—just the exchanges and those providing exchange-like functions that were deemed ATSs—now was no longer targeted but rather included more entities," says a source at a vendor that would be affected by this proposal.

**"When the SEC proposed to change the definition of 'exchange,' the commission deleted the concept of 'multiple' and changed the interpretation of 'makes available non-discretionary interactions.' And suddenly, the regulatory perimeter, which was targeted—just the exchanges and those providing exchange-like functions that were deemed ATSs—now was no longer targeted but rather included more entities." Source at a vendor that would be affected by this proposal**

These amended definitions would certainly draw in EMSs by expanding the trading perimeter and deleting the word "multiple."

Greenwich's McPartland says an EMS could be caught because a buy-side user would use it to aggregate streaming prices.

"If you're a hedge fund or an asset manager, and you have direct connections with your major brokers who are streaming you constant prices, you are using your EMS as an aggregator. The SEC has written this proposal as if to say, 'OK, well now you effectively have a liquidity venue because you are using this platform to pull these prices together,'" McPartland says.

But this is a fundamentally different function to those performed by regulated fixed-income trading platforms like Bloomberg, MarketAxess, and Tradeweb, he adds.

"The EMSs, especially in fixed income, are not acting as counterparties to trades; they're just pulling data into a single user interface that allows the trading desk to interact with that liquidity. That doesn't fit the definitions of what exchanges or

ATSs are, and a lot of industry responses are saying that this goes beyond the spirit of the rule," McPartland says.

If the amendments are finalized as proposed, scores of previously unregistered businesses would get swept up into the definition of exchange and would have to register with the SEC. (The commission says that, due to the lighter burden under Reg ATS, it would expect them to register as broker-dealers rather than exchanges.) Indeed, some comment letters speculate that the SEC did not realize that these amendments would affect quite so many vendor businesses: The proposal estimates the number of CPSs at only 22.

"The SEC says they anticipate the changes will only create 22 communication protocol systems, so we don't think the commission intended to scoop them up. There is a mismatch in expectations," the vendor source says. "We don't know where the number comes from, because the way the commission wrote the rule, EMSs and other trading and investing solutions appear to be in scope."

Commenters say that there is no need to regulate CPSs: As third parties that provide software and services to heavily regulated financial institutions, they are already under scrutiny during vendor due diligence processes and operational resilience standards.

Large exchanges, too, already play a role in policing vendors, says Kelvin To, president of DataBoiler Technologies. The SROs can exert authority through their contracts with any party, including CPSs that subscribe to their market data.

"There is no necessity for the SEC to directly manage ATSs or CPSs when SROs have substantially more resources, including surveillance systems and other tools to guard against misbehaviors," To says.

Some commenters, including Virtu Financial, said in their letters that the definition of an exchange is a keystone of regulation and market structure in the US, and by changing it, the commission is coming dangerously close to exceeding its statutory authority.

The vendor source agrees. "The definition of 'exchange' is a settled, foundational aspect of regulation. It should be left alone. The RFQ systems, which are sending requests, and the order rout-



ing systems, which are sending orders against firm or semi-firm quotes, are just communications. The SEC should not regulate communications as if they were risky exchange functions,” they say.

## Wide net

Messaging systems vendor Symphony is worried that it could be drawn into the scope of Reg ATS. Symphony’s general counsel, Corinna Mitchell, wrote in the company’s submission about the comment period that it wants clarity around whether it would have to register with the SEC.

“Symphony believes that a technology provider that does not establish any protocols with respect to securities transactions, but rather provides modular and open software architecture whereby financial industry participants can communicate with each other should not be deemed to be acting as an ‘exchange,’” Mitchell writes.

Symphony CEO Brad Levy tells *WatersTechnology* that the SEC should more specifically define CPSs, and that regulating companies like his would not be appropriate.

“There’s enough ambiguity [in the proposal] that loads of technologies that are innovative and good, including ours, will be drawn in. Would that make sense? Probably not. It will limit the ability to leverage a lot of these technologies, whether it’s the phone, the collaboration and communication stack, or an EMS platform,” Levy says. “We’re not a broker, we just get things from here to there.”

In 2021, Symphony had to suspend Sparc, a workflow tool for interest rate and cross-currency swaps, in which traders could use a single platform for RFQ negotiations. Swaps regulator the Commodity Futures Trading Commission (CFTC) ruled that Sparc should have been registered as a swaps execution facility (Sef), and fined Symphony \$100,000.

EMS vendor FlexTrade did not respond to requests for comment, nor has it submitted a comment letter on the most recent Reg ATS amendment proposal. However, it did respond to a 2020 proposal that heavily informed the 2022 one.

In that letter, FlexTrade CEO Vijay Kedia wrote that third-party software

vendors do not act in the capacity of an exchange or an ATS, citing Rule 3b-16 (a): FlexTrade’s EMS does not bring together orders for securities of multiple buyers and sellers.

“As a technology platform, we are enabling the buy-side user to access bilateral liquidity, but there is no anonymity. Every dealer knows the identity of each buy-side firm, so that when a user sends an RFQ via the EMS, this occurs on a fully disclosed basis,” he wrote. “By contrast, when a buy-side firm uses a fixed-income venue/ATS such as MarketAxess or Tradeweb to send an RFQ to five dealers, the ATS knows who the buy-side firm is, and it will hide the firm’s identity.”

MarketAxess general counsel Scott Pintoff reiterated this contradiction in his firm’s filing to the 2022 proposal. Pintoff wrote that the CPS caught in Reg ATS would include those that, like FlexTrade, offer fully disclosed trading protocols like RFQ. But these new ATSs would also have to comply with SEC rules that require broker-dealers to implement risk management controls. These can’t be properly applied by platforms operating on a disclosed basis, Pintoff said.

“To implement the financial risk management controls required by [the risk management control rules], CPSs operating on a disclosed basis would have to interpose their perspective on appropriate credit limits between a dealer and its clients despite the fact that it is not a party to the trade and will have no financial exposure to the customer,” Pintoff wrote, asking for clarification of how these rules would work alongside the proposal.

## Walking the line

But there are those that say the SEC’s proposal is a well-thought-out and appropriate response to automation of markets, in fixed income and in other asset classes. These commenters also note that there is a “regulatory gap”—an unfair emphasis on heavily regulating exchanges and ATSs, while other kinds of systems that perform similar functions have escaped these obligations.

The current rules were written when the trading landscape looked very different, and are based on an equities paradigm, these commenters say.

“I do sympathize with what the SEC is trying to do here. They want to put a better regulatory framework around how fixed income is traded and where it is traded. This is not like the equity markets 20 years ago, when we were trading on exchanges and order books. In hindsight, that feels straightforward compared to the diverse nature of the US bond markets,” Greenwich’s McPartland says.

McPartland adds that Greenwich’s own data shows that about 40% of investment-grade corporate bonds are traded electronically now. “That’s a sizable part of the market,” he says.

Other regulators are also clarifying their stance on these rapidly digitizing markets. The European Securities Markets Authority (Esma) published a draft opinion within two days of the Reg ATS proposal clarifying its own stance on the trading perimeter in the EU, with similar concerns expressed by tech providers and market participants in the bloc.

Nasdaq’s Reg ATS comment letter says that ATSs and other market centers have been able to “capitalize on regulatory flexibility and flourish in ways that exchanges cannot regulate.” And since market activity is shifting increasingly toward these non-ATS market centers, the time is ripe to put them under more scrutiny.

Nasdaq agrees with the commission that CPS perform similar functions as exchanges and ATSs, and that they should be regulated to promote safe and competitive markets.

Non-partisan think tank Better Markets says the proposal is “appropriate and necessary” and drawing CPSs—especially RFQ systems—into regulatory scope will help the SEC’s framework keep pace with electrifying markets.

“Communication protocol systems are clearly performing the same core market functions that exchanges and ATSs perform, notwithstanding the variations in platform design—they bring together buyers and sellers of securities on their platforms,” the letter says. “It is within the commission’s administrative discretion, and indeed its duty, to ensure entities operating as exchanges, regardless of their variations, by connecting buyers and sellers of securities are subject to the requirements of the Exchange Act.” [WT](#)

This article was published on May 23, 2022, so some information may be out of date by the time you read this.

# Spot the difference: Why crypto data can't be treated like traditional market data

As institutional participation in cryptocurrency markets increases, traditional data vendors and new specialist crypto data providers are taking different approaches to supplying necessary data to financial firms. By [Nyela Graham](#)





**A**mbre Soubiran took a personal interest in blockchain technology before she made a career move into the space.

Soubiran, who worked in equity derivatives for 10 years at HSBC, describes her former industry of traditional finance as “highly standardized,” but she was often frustrated by manual processes in the middle and back offices that were still not automated. “The way traditional finance operates today is pretty much a digitized version of the old paper trading way,” Soubiran says. “There had not been a deep reshape of how we actually execute financial contracts.”

When Soubiran discovered blockchains like Ethereum, she says the notion of executing code in a decentralized fashion was the alternative she had been looking for. “I saw the opportunity instead of the threats,” she says.

Her attempts to get HSBC to utilize the technology were unsuccessful, and she now leads up Kaiko, a Paris-based cryptocurrency market data provider for institutions that is working directly with blockchain technology. Soubiran’s long-term vision for the company is to become the data provider for a blockchain-driven financial industry, an expansion of its early play to provide market data for enterprises and institutions looking to trade cryptocurrency.

The crypto data space is quickly filling up, both with upstarts like Kaiko, and major data providers.

Institutional interest in cryptocurrency markets continues to grow. *The Wall Street Journal* reported in February that institutions had traded \$1.14 trillion worth of cryptocurrencies on the Coinbase exchange in 2021, up from \$120 billion in 2020 and significantly higher than the \$535 billion traded by the retail realm. Because cryptocurrency largely arose from the retail trading market, approaches to collecting and disseminating market data for the highly volatile asset class differ.

In some cases, traditional market data vendors are still examining how they will approach the challenge. In an email to *Waters Technology*, a spokesperson for FactSet said the company is still determining its digital asset strategy, in addition to helping clients craft their own, and

declined to comment further. Refinitiv also declined to comment for this story.

Bloomberg, for its part, has been considering its crypto data strategy since 2013. Alex Wenham, product manager for cryptocurrencies at the data giant, says the company’s first move into crypto markets was publishing bitcoin prices. “It was very important at that juncture—as it was an emerging asset class—to inform our clients around the price of bitcoin,” he says. As clients expressed interest in the market, Bloomberg added more crypto pricing services, with price transparency in mind. In 2018, it began covering the top 10 crypto assets, including bitcoin and Ethereum.

The company currently ranks the top 25 digital assets—the list will soon expand to 50—and uses a variety of filters to vet the thousands of available cryptocurrencies.

“The way traditional finance operates today is pretty much a digitized version of the old paper trading way. There had not been a deep reshape of how we actually execute financial contracts.”  
**Ambre Soubiran, Kaiko**

“The first part of our vetting process is only incorporating cryptos that have institutional custody,” Wenham says. Institutional crypto custody solutions and providers seek to safeguard crypto assets by preventing lost keys and hacks, primarily by enlisting the trust of a third party, as is done in traditional finance. But as the technology behind custody solutions becomes more sophisticated, they may offer a sense of security to institutions that have been hesitant to join the wilder, decentralized crypto fray.

The second filter looks at where assets are traded. Market structure in crypto includes both exchanges and OTC brokers, but in ranking trading venues, Bloomberg considers only exchanges due to their higher transparency standards. The exchanges are ranked, then categorized into three buckets: vetted, watchlist, and rest of market.

The third filter looks for assets traded on at least two exchanges. “That takes a universe of thousands of assets and gets it down to around 200 assets,” he says. “We then rank those 200 by market cap and turnover consistency.”

## Exchanges, not created equally

Going deeper into crypto market structure, exchanges can be broken into two categories: centralized and decentralized. A centralized exchange uses a third party to help conduct transactions, while a decentralized exchange acts as a peer-to-peer network, uses a liquidity pool, and has no middleman. Notable centralized exchanges include the likes of Coinbase, Kraken, Gemini, and FTX, while decentralized exchanges include names like Uniswap, SushiSwap, and PancakeSwap.

Anton Katz, CEO of institutional crypto technology provider Talos, says both exchange types serve the same purpose of trading, though their tech differs. Centralized exchanges, like FTX or Kraken, utilize a matching engine that runs on dedicated servers belonging to the exchange operator, he says. Registered users access services through APIs or user interfaces and are typically required to pre-fund their transactions, meaning they must post funds before a trade is executed.

“All the users are known to the exchange, and all the funds are controlled by the exchange operator,” Katz says.

Decentralized exchanges operate using a different model. In most cases, users connect using their non-custodial wallets and are able to trade on the exchange immediately without the need to register with any central operator, he says. The user interfaces are different, and the API-level connectivity is done with a direct interaction with the applicable blockchain, resulting in a lack of identifying information about users and lack of control over funds. While the method is a purer and more progressive form of decentralized finance, it also means that regulated institutions could potentially trade with someone on a sanctions list.

It’s for this reason that data providers such as Bloomberg have chosen not to source market data from decentralized exchanges at this time.



### Missions in extraction

Part of Soubiran's vision for Kaiko is utilizing blockchain technology to provide crypto data, both from centralized and decentralized entities, through traditional financial pipelines, as well as deliver it on-chain. But she says that extracting information from decentralized exchanges requires a different, more complex skillset.

"We have to run nodes, we have to understand the data, [and] we have to contextualize the data as it's being published in blocks, and then transform that into traditional market data outputs," Soubiran says. "For decentralized exchanges like UniSwap, there are no centralized order books. There's no datacenter. Everything is in the blockchain."

**“Aggregating such widely distributed data and presenting it in a form that the investor can rely upon is complex. This only serves as a dampener for a section of investors that may want to warm up to this asset class, but cloudy data deters them. In the near- to medium-term, the space is likely to reel from these issues.”**

**Kunal Sawhney, Kalkine Group**

Data is not standardized on the blockchain, in contrast to traditional market data. What might appear on the blockchain is that a user received one ETH, but to determine that this was the consequence of a trade, modeling and reverse-engineering the protocol are required. If done and formatted correctly, this data can appear similar to what is displayed on Coinbase or a traditional centralized marketplace like the New York Stock Exchange or Nasdaq.

Kaiko is not alone in wanting to extract information from the blockchain. Inca, a crypto market data provider, sees three data types as the keys to understanding what happens inside the cryptocurrency world: market data, technical and blockchain data, and natural language data.

Adam Zarazinski, co-founder and CEO of Inca, says technical and blockchain data can be important for analyzing projects in development and determining how decentralized a coin is.

"A lot of the projects being released, like a new blockchain or a fork of Ethereum [a process in which a copy of the blockchain's state at a certain block is copied to make one's own set of changes], that work is all being done publicly on GitHub. You can watch as people are coding on that project in real time," he says. Inca collects and then analyzes that data.

Such data can prove helpful for regulators. In crypto, regulators have to consider whether a coin is an unregistered security offering. Public information like the number of exchanges a coin appears on, the number of hosted wallets that contain it, and GitHub metrics about a coin's creators can be helpful to authorities.

Lastly, natural language and sentiment data from sources like social media is a mecca of information, from Inca's perspective. "Twitter and crypto are interconnected," Zarazinski says.

### Growing pains

With any emerging asset class, there's room and need for maturity. S&P Dow Jones Indices rolled out its crypto indexing capabilities in December 2020 with Lukka, a crypto asset software and data company. S&P has also taken a minority stake in the company, in addition to using the provider's proprietary crypto asset pricing data.

The first three indices came in May 2021 with the S&P Bitcoin Index, S&P Ethereum Index, and a mega cap index that is a weighted blend of the two. In the development of launching those three, Sharon Liebowitz, interim head of innovation at S&P Dow Jones Indices, says requirements were for only serious cryptos to be considered. "We set it up with minimum liquidity requirements, minimum market capitalization requirements," she says. "We screened out, because of the nature of the market, anything that might be subject to sanctions or legal difficulties in the US or abroad." Additional factors also included whether the coin had at least one whitepaper written about it.

Working with Lukka, S&P added a custodian screen to their indices and worked to define custodians who met minimum security and technology standards. Lukka did not respond to requests for comment.

Unlike traditional markets, crypto trades 24/7, and S&P currently provides indices from Monday through Friday with end of day timestamped at 5:45 pm. Liebowitz says there are aspirations to provide real-time indices.

As activity picks up, some on the buy side, such as crypto hedge fund ANB Investments, say that data is not a main focus right now.

"Even though we have algorithmic trading strategies running, and we do need data to feed the algorithms and to analyze the market—I would not consider our firm currently as extremely data-dependent," says Jaime Baeza, CEO of ANB. Baeza, a former trader at Credit Suisse, says there can be challenges in building the tech to integrate with third-party providers.

Others like Kunal Sawhney, CEO of equity research firm Kalkine Group, see pertinent challenges in getting data to investors that need it.

"Aggregating such widely distributed data and presenting it in a form that the investor can rely upon is complex. This only serves as a dampener for a section of investors that may want to warm up to this asset class, but cloudy data deters them," he says. "In the near- to medium-term, the space is likely to reel from these issues, especially when the crypto market has entered a deeply bearish phase. In the long term, and in the wake of obligations eventually imposed by regulators, we might see some improvements in how data of crypto assets is tracked and presented to make it comparable with data of listed stocks."

It's still early days in the world of crypto—both as an asset class and in terms of generating market data. Because of this, data vendors both big and small are trying to figure out how they play in this unclaimed territory. As has been true of most everything when it comes to data in the capital markets, how the crypto market data space is terraformed will be decided by institutional players. **WT**

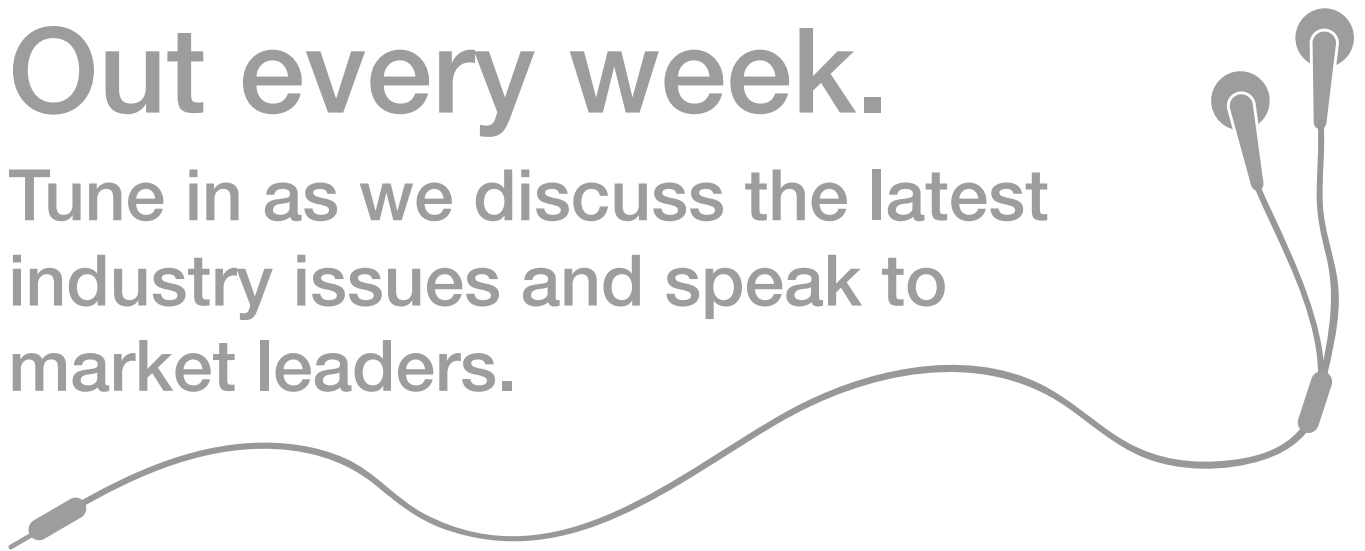
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# As sanctions increase, banks struggle with growing compliance burden

Firms must get data management and compliance culture right if they really want to keep their books clean of crooks and sanctions-dodgers, and keep their reputations and bottom lines clean of regulatory fines. By **Jo Wright**

**A**fter Russian tanks rolled into Ukraine in February, the West responded by imposing a stranglehold of sanctions on Russian President Vladimir Putin and his inner circle. Even Switzerland—a byword for both neutrality and secretive banking practices—said it would freeze the assets of 367 Russian officials, including those of Putin and his prime minister.

Sanctions lists are issued and updated by global government agencies like the US Treasury's Office of Foreign Assets Control (OFAC) and international bodies like Interpol or the United Nations. These lists identify sanctioned individuals, organizations, or businesses suspected of involvement in fraud, drug trafficking, terrorism, and dictatorships.

For banks that operate in these jurisdictions, screening new and existing customers against sanctions lists is an integral part of onboarding and compliance processes, formalized under a range of know-your-customer, anti-money laundering, and counter-terrorism financing regulations and standards. Firms that don't get this right run the risk of regulatory fines and reputational damage.

But banks don't always do a great job of keeping dirty money off their books. In recent years, the work of the International Consortium of Investigative Journalists—the non-profit that published the Panama Papers, the Paradise Papers, and other massive document leaks—has laid bare how wealthy people hide their shady dealings in secretive offshore companies, laundering money, dodging sanctions, and avoiding tax, all with the complicity of banks.

The Fincen Files, a leaked trove of regulatory filings called suspicious activity reports made to the US Treasury's Financial Crimes Enforcement Network (Fincen), showed how the world's largest

banks, including JP Morgan, HSBC, and Barclays, allowed criminals to launder money and Russian oligarchs to dodge sanctions.

The regulators do levy fines—\$10.4 billion in 2020, according to an annual report by client lifecycle management software provider Fenergo. However, a cynic might say that considering 2020 was a bumper year for fines (thanks to

**“If there are 1,500 names added to sanctions lists across the world, that could mean 15,000 people and entities associated with that. On the surface, AML looks straightforward, but when you begin to unravel it, it's a complex web of people and companies.” Charles Minutella, Refinitiv**

penalties related to the massive 1MDB scandal) and that the annual revenue of a large global bank is multiple billion dollars, it benefits banks to turn a blind eye. Under-resourced governments don't turn up most compliance breaches, and if they do, the resulting fines are peanuts in the grand scheme of things—just the cost of doing business, like a kind of tax.

Those who have worked in compliance roles at banks, however, say that to be fair to banks, KYC/AML are difficult and still largely manual processes, and smart criminals and oligarchs don't make it easy to track their accounts.

Rachel Woolley is global director of financial crime at Fenergo. But Woolley spent years of her career in various compliance roles at firms including Citi and fund administrator Citco. She says banks' records are still manual, with account

holders' information often found in PDF documents scattered across silos and geographies. Banks haven't had the capacity until recently to collect this information in a standardized format, drawing it from multiple systems into a central database, where a compliance officer can access the data quickly and identify risks within it or assess exposures to, say, Russian sanctions.

Bad actors don't make themselves easy to find, either, covering the tracks of dirty money by sending it through shell companies or offshore accounts in jurisdictions that allow anonymous banking. They could employ “layering”: sending money through a series of transactions, often done between shell companies, to create layers between the money and its criminal source.

“A smart criminal isn't going to use the same methods all the time to launder their proceeds. They're going to hedge their bets, and use multiple financial institutions, maybe multiple jurisdictions, to evade detection,” Woolley says.

Charles Minutella is global head of customer and third-party risk intelligence at Refinitiv, now a business belonging to the London Stock Exchange Group. Minutella is responsible for Refinitiv's Due Diligence business, and the World-Check risk intelligence database. World-Check is about 20 years old and has around 10,000 customers. It is essentially a database of high-risk individuals that companies, including financial institutions, can use to understand the risks associated with them, to prevent financial crime and money laundering.

“The problem is that you run into a lot of complexity when you start unpacking those entities and individuals because it's not just them: It's their associates as individuals, their business interests as entities, it's all their subsidiaries and



affiliates—anything they own 50% or more of an interest in,” Minutella says.

World-Check employs teams of hundreds of researchers who find the links between individuals and their networks of associates or companies in which they have ownership.

“If there are 1,500 names added to sanctions lists across the world, that could mean 15,000 people and entities associated with that. On the surface, AML looks straightforward, but when you begin to unravel it, it’s a complex web of people and companies. We use publicly available information in a variety of languages to be able to stitch that together so that there’s consistency, and so that banks know how to actually apply the data,” Minutella says.

He adds that World-Check saw a 600% increase in initial searches just after the West announced sanctions against Russia, suggesting that financial institutions were checking whether they had associations with any sensitive individuals. The unusual activity has continued with logins increasing by 20% as users log in more frequently to check if the lists are being updated.

### Coming earthquake

Meredith Moss, senior director of product solutions at investment solutions provider SEI, says that globally, authorities are going to get stricter on AML.

“This is not just a check-the-box regulation or sets of requirements on the industry. This is about enabling

democracies to thrive and preventing autocracies from gaining power,” she says. “The financial services industry is one of the strongest tools to support democracy and to limit the power of authoritarian governments.”

Moss founded client lifecycle management software provider Finomial in 2010. Finomial’s anchor clients were fund administrators, and it looked to automate investor onboarding, including the AML/KYC and due diligence process. Moss sold Finomial to SEI last year.

Moss says no investment manager or bank wants to have kleptocrats on board, and firms work hard to make sure they don’t. “But if you don’t have the technology, if you don’t have the data, and you don’t have context for the data, it’s really hard to prevent bad actors from creating accounts and funneling their assets to you,” she says.

Moss says the US is beefing up its AML laws, while global initiatives like the Automatic Exchange of Information—which shares tax information across borders—are signs that a new era of crackdowns is coming.

“These [initiatives] have really started this shift of the tectonic plates, and the earthquake hasn’t quite made it to the surface. But it’s coming, and firms that aren’t ready to be the masters of their data, and particularly the masters of their most sensitive data, their investor data, will be seen to be part of the problem,” Moss says.

Right now, if anything, enforcement seems to have slackened. In 2021, fines dropped almost by half, according to Fenergo’s latest report, which will be published in April. Admittedly, the year before was exceptional due to 1MDB-related fines. Also, the Covid-19 pandemic meant that authorities couldn’t conduct their usual on-site visits to compliance departments, which may account for why 2021 was quieter.

But, Minutella says, the general trend of fines seems to be downward. OFAC, which is particularly aggressive when it comes to enforcement, brought 20 public enforcement actions across 13 different sanctions regimes for a total of about \$21 million in penalties in 2021. Compare this to the era of record fines about 10 years ago: in 2012, when

HSBC was fined a record \$1.9 billion for allowing drug cartels to launder massive sums; or in 2014, when BNP Paribas pled guilty to large-scale violations of US sanctions and settled with the Justice Department to the tune of \$8.9 billion.

“Have they taken their foot off the pedal with enforcement? I think the numbers would suggest yes. The industry hasn’t gotten better at this. I think we are at a crossroads: The criminals have gotten really good at concealing their identity, and using crypto payments to move money outside of the traditional financial system. The regulation needs to catch up,” Minutella says.

However, it’s true that global authorities are beefing up anti-money laundering defenses, especially in the US.

The bedrock of US AML regulation was laid down by the Bank Secrecy Act (BSA) of 1970. The BSA requires banks to develop an AML program—identifying its unique risks, establishing policies, and allowing for regular third-party audits. Banks must detect potential money-laundering activities and report them to the government as suspicious activity reports (the reports that made up most of the Fincen Files document trove). The Patriot Act extended the purview of the BSA to include terror financing.

There had long been bipartisan efforts to modernize these rules, and after the Fincen Files scandal showed their limitations, lawmakers were able to sign into law in early 2021 one of the biggest changes to the US AML regime in two decades with the Corporate Transparency Act.

The act cracks down on anonymous shell companies, creating a registry within the US Treasury to which companies will have to submit beneficial ownership information—similar to the UK’s Companies House registry.

“It’s a mammoth task to overhaul or introduce anything new in the US, so that has been underway for some time,” Woolley says. “But it has certainly accelerated in the last couple of years. The US is overhauling its approach to financial crime, which in some respects was behind the EU and UK.”

The EU has also been looking to overhaul its AML/CTF regime with

a package of proposals released in mid-2021. The measures include a harmonized rulebook, and a proposed EU-level body called the Anti-Money Laundering Authority to create a more consistent approach to prosecuting money laundering and terror financing.

In the UK, regulators are starting a slow process of reviewing Companies House, which has little oversight. Perhaps somewhat more convincingly,

**“This is not just a check-the-box regulation or sets of requirements on the industry. This is about enabling democracies to thrive and preventing autocracies from gaining power. The financial services industry is one of the strongest tools to support democracy and to limit the power of authoritarian governments.” Meredith Moss, SEI**

the FCA is looking to use criminal—as opposed to regulatory—prosecution powers against financial institutions in AML investigations. The FCA was granted these powers in 2007 but only used them for the first time in 2021, in a money-laundering case against NatWest. The bank pled guilty and was fined £265 million (\$347.5 million).

### Compliance culture

But even without regulatory and reputational incentives to be better at KYC, banks should also embrace the altruistic reasons, Woolley says.

“Financial institutions are sitting on a goldmine of transaction information that could help detect illicit activity, even in some of the most horrific crimes like human trafficking. We need people involved that are determined to identify and act on this activity. And the only way to do that is by having all the information held in a consistent and standardized way so that they can extract that information,” she says.

Getting better at KYC means getting better at data management, she adds.

Fenergo provides client lifecycle tech that enables financial institutions to digitize management of accounts, from prospecting to onboarding, ongoing due diligence, and offboarding. As a result of acquisitions and by setting up overseas subsidiaries, most banks have grown into

tech estates of disconnected systems, siloed in product lines. This is a major problem from a KYC perspective, as important client data could be found in spreadsheets or legacy applications that can’t communicate with each other. So what Fenergo partly aims to do is help institutions understand where the most relevant client information is stored, and how that can be consolidated into a single source of customer data.

To keep that data up to date, the platform can consume client information via API from screening databases like World-Check, LexisNexis Risk Solutions, and Bureau van Dijk, alongside information about rules from regulatory experts.

Fenergo was founded in 2008 and has about 90 clients, including Mizuho, State Street, and BMO Capital Markets.

Minutella agrees that banks need both technology and data. But all that is meaningless if they don’t also have the culture within their organizations to take action on that data. Many banks spend millions on KYC/AML and still fall foul of regulators.

In the case of the Fincen Files, for instance, the banks were flagging suspicious activities to Fincen, but once they had done so, had no responsibility under the BSA to take further action and so seemed to feel as if their duty was done.

“If you look at where the incidents have been, they’re typically not failings of uncovering information,” Minutella says. “If you don’t change the culture, if it’s not a board-level mandate that they are not going to engage in potentially egregious activity, you can spend all the money in the world on technology and data and provide the information [to regulators]. But if the risk decisions aren’t made in the right frame of mind, then we will continue to have these issues.” 







# The risky world of pledged securities

Until now, information around this opaque type of dataset has been hard to find, though it's becoming increasingly important to financial analysts. By **Max Bowie**

**T**he starting point for investigating any potential investment is a company's balance sheet. Good analysis of its fundamentals may prompt analysts and portfolio managers to invest in a company, or not. But a healthy-looking balance sheet can still hide liabilities—for example, cash raised by companies or investors pledging company stock as a way of capital can turn a seemingly attractive investment into a potentially risky one. As the practice grows, data vendors are building datasets to shed light on this often murky area.

The practice of pledging shares isn't uncommon—or necessarily risky—among wealthy investors, who can basically borrow money using their stakeholdings as collateral without needing to sell their shares. In fact, in some markets most listed companies do it. However, if the amounts pledged start to constitute a high percentage of a company's issued share capital, it can cause concern about the company's health.

“Pledging securities is not a new phenomenon and has now become common practice to raise funds in different parts of the world, with emerging economies having a wider prevalence of pledged shares,” says Kunal Sawhney, CEO of Sydney-based equity research firm Kalkine Group. “It allows the owner to put the pledged shares as collateral to a third party, like banks, trust firms, or security companies in exchange for cash. At the same time, it becomes a challenge for the analysts analyzing the company, and possesses great risk, as the pledged security can not only bring volatility to the stock prices, but can also impact the future valuation if anything goes wrong,” he says.

For example, if the share price of a company with pledged shares drops,

the lender may demand more shares as collateral, or even repayment, putting greater pressure on its stock price, while under common law in England and Wales, a creditor has the right to sell pledged shares if the pledgor defaults on a payment, Sawhney says.

“Many emerging stock market regulators have made it a case to disclose the pledged share information by the companies in their corporate filing on a corporate or annual basis. Still, the data is not accessible to many.” **Kunal Sawhney, Kalkine Group**

And as it becomes a more “common practice,” creating a more widespread, systemic risk, the availability of data to provide transparency into the practice becomes ever more important.

But because a pledged share agreement is a private transaction, information is often not readily available, observers say. “Many emerging stock market regulators have made it a case to disclose the pledged share information by the companies in their corporate filing on a corporate or annual basis. Still, the data is not accessible to many,” and is also often not in a transparent form, Sawhney says, adding that the growing importance of this data has prompted vendors to compile datasets and tools to bring greater transparency to pledged shares transactions.

“Pledged equity shares can expose a company to hidden risks and many advisers consider share pledging to be a poor governance practice,” says Nicole Hallas, senior research analyst at Massachusetts-based Audit

Analytics, which released its pledged securities database of US companies in December 2020.

“This information about pledged securities can be used by our clients to monitor for risks, perform due diligence, and stay informed of possible impacts to ownership, independence, and insider trading rules. As with many of our databases, it can also be used as a benchmarking tool to compare one company to the entire population of US listed companies. Audit firms, regulators, academic researchers, as well as anyone who is interested in risk, or performing due diligence, will find value in this data,” Hallas says.

Bloomberg last month released a pledged securities dataset aimed at a range of users, including equity analysts and portfolio managers, risk managers, industry analysts, bond and loan originators, bond and loan syndicators, and credit risk analysts. Bloomberg's dataset initially covers the Chinese market, with plans to expand to other major emerging markets in the future. Officials say most companies in China commonly use this practice, usually without any ill effects.

“Pledged shares provide an important insight into companies' creditworthiness and operating stability. In addition to creditworthiness, it is a form of capital raising in China and an indicator around how equities choose to raise capital,” says Vatsan Sudersan, head of Asia-Pacific global data at Bloomberg in Singapore. “It's not a niche market/method of raising funds in China. Roughly 3,000 out of 4,000 public companies in China have pledged their shares and, in general, it is not deemed a risky way of raising money. It is only really considered risky when a very large portion of a company's shares are pledged, as the downside risks



are significant if the market experiences a significant drop.”

Of course, there are exceptions. For example, according to data from Audit Analytics, US beauty products manufacturer Revlon has had more than 80% of its outstanding shares pledged in each of the past four years. Audit Analytics reports in its *Top 10 in 2021* analysis of US companies with the highest levels of pledged shares that in comparison, Partners Bancorp significantly reduced its exposure from 74% in 2020 to 41% in 2021, while cloud and enterprise software vendor Appian Corp’s amount of pledged shares jumped from less than 5% to almost 40% over the same timeframe.

### ‘Not always obvious’

Audit Analytics notes in its data, published in January, that the number of companies and individuals reporting pledged securities declined overall during the five-year period between 2016 and 2021. However, the company also warns, “Despite the significance, information about how many beneficial owners of company stock have pledged their shares, and how much, is not

always obvious,” adding that while the US Securities and Exchange Commission (SEC) requires disclosure of pledged shares by certain owners, this information is often inconsistently disclosed or is buried in footnotes and numerical tables, making it “difficult to both find and decipher, especially if multiple individuals pledged shares.”

David Trainer, CEO of New Constructs, a provider of niche research that focuses on finding insight buried in the footnotes of financial statements, says, “There’s no question that companies disclose the minimum and obfuscate the negative—and I say that based on my experience on the Financial Accounting Standards Board’s (FASB’s) Investors Advisory Committee. There’s a shift toward moving more information into the footnotes—and there’s alpha in that disconnect.”

“Weaponizing” capital via aggressive fundraising can sustain a company until it becomes profitable, Trainer adds. But it’s also important to know if the cost of that capital raising is increased risk. “The ability to raise money is a competitive advantage, and if people can raise money through pledged securities, then why

not? It’s just another way to create leverage in the system,” he says. “But you need to especially focus on companies whose stock price is more volatile.”

In some cases, the shares may be owned by the company or executives and investors and pledged on its behalf. In others, investors may pledge their holdings for their own purposes. In this case, even though the shares are not pledged by the company itself, it still creates potential risk around control of the company’s stock, and should be recognized as an important emerging dataset for use in fundamental analysis.

“There are many aspects [to consider] when one is analyzing a stock, and pledged share information is a piece of vital information that an analyst would always like to focus on. It helps in understanding the financial trouble, if any, that the company is likely to be in, apart from revealing its creditworthiness,” Sawhney says. “One crucial factor that needs to be kept in mind by analysts is that a highly pledged stock of a company trades lower than its intrinsic value and should not be construed as a value buy.”

Hallas says Audit Analytics’ database aims to make it easy for users to discover



which companies have shareholders with pledged securities, who those shareholders are, and how much they have pledged. The vendor's team of research analysts collects and analyzes the data every day, and makes it available as a datafeed or a Microsoft Excel spreadsheet download. The database currently contains data since 2016, though Hallas says the vendor plans to expand its coverage to capture disclosures dating back to 2007 to provide more data for better trend analysis and research.

Bloomberg's dataset contains information going back to June 2019 and comprises five elements: the number of open contracts for pledged shares, the number of shares outstanding for a company, the percentage rate of shares outstanding being pledged, the number of pledged shares that are restricted from trading on the open market, and the number of unrestricted pledged shares.

The vendor sources the data from Chinese exchanges, where it is publicly available. "After we acquire, clean and publish the data on the Bloomberg Terminal, it is displayed in a format that can be readily analyzed. We made it easier for users to access this type of data so that clients have an additional way of analyzing a company's risk profile on one efficient workflow," Sudersan says.

### 'Solvency becomes a concern'

The dataset has also struck a chord among market data professionals focused on vendor risk management, for whom it could provide additional insight into a potential supplier's creditworthiness and reliability.

Ron Troy, a veteran market data manager, says banks in New York State that operate under Federal Reserve supervision are subject to regulations and guidelines that require firms to understand their risk, including any risk resulting from third parties supplying critical services. Thus, a firm must understand how risky a potential supplier is.

"You have to know your risk and be able to quantify it in terms of what the to-be-purchased service does. There are all sorts of risks to consider: financial stability, cybersecurity, information

security, and things like what happens to the firm if the vendor goes down, regardless of the reason, for a short time, or a longer time, etc. What data of yours might be exposed? And once quantified and described, if substantial, management needs to sign off," Troy says.

One consultant and market data professional who has spent more than 30 years in change management and market data management roles, many of those at major banks, says the pledged securities data could be used to spot red flags at potential suppliers.

"Having worked as a change consultant on a wide range of market data related projects over the years running numerous



**"The ability to raise money is a competitive advantage, and if people can raise money through pledged securities, then why not? It's just another way to create leverage in the system. But you need to especially focus on companies whose stock price is more volatile."**

**David Trainer, New Constructs**

RFP-type processes, I can say that many organizations perform financial due diligence on potential suppliers," the consultant says. "When dealing with large multinational companies that have turnover in the range of around \$100 million, concerns like this rarely arise. However, when the potential supplier has a turnover of, say, \$5 million to \$10 million, then solvency becomes a concern when looking to implement a strategic platform."

If pledged securities data raised red flags about a potential supplier, it would require further investigation and explanation, and—if it qualified as a genuine concern—would need to be balanced by a business justification to use the supplier, the consultant says. A firm may also seek additional guarantees—such as placing rights to the supplier's product, such as its software IP, into escrow—to ensure that the product or service would still be available if the vendor went into liquidation.

For example, Troy says, "Some years ago, my then-employer was considering how to replace a badly out of date 'processing' system. We had two choices: Vendor A, great product, decent price. Vendor B,

our incumbent, nowhere near as good a product, worse price. But doing our due diligence, we found that A had a grand total of three employees. If the three got caught in a car crash together, we'd have been up the creek minus the proverbial paddle. We picked B. I'm sure we were not the only firm to be concerned that they were so small, and their product would be for a mission-critical system. Tough problem for such a firm: how do you grow when you are so small that your size is a huge risk? But it is a factor in vendor risk management."

For companies that small, pledged shares of public stock shouldn't be an issue since such small firms would most

likely be privately held. But even stock in privately held companies can be pledged and constitute a risk—though in private companies, that information would be even harder to find. And for some smaller companies without access to other fundraising sources, pledged shares may be a viable option.

Sawhney notes that pledging of shares should not be assumed to be a negative factor, and indeed "can be used to meet various operational requirements of the company." But he adds that it is "generally considered a last resort," and is "a highly risky way to secure funds." In addition, he acknowledges that companies pledging shares may not be acting transparently toward investors, and may have opted for that method of fundraising to hide potentially high debt and continued borrowing.

"The new datasets can provide an insight into a company's creditworthiness and bring transparency by providing periodic details of shares pledged to analyze the future performance and valuation of the company. However, it will depend on the market being analyzed and the availability of data," Sawhney says. [WI](#)

# Exchanges, vendors reinvent inventory management platforms

Data sources are realizing they can leverage end-user inventory management tools to streamline their side of the data sales and licensing process. By [Max Bowie](#)





**E**very penny spent on market data in the capital markets can be seen in two ways: For the end users, it's a cost, a fee, the price of doing business; for the exchanges, brokers or vendors selling the data, it's their revenue, their *raison d'être*. Same coin, different view. But just as different audiences view the same coin differently, they are now also taking a fresh look at the systems that others use to manage those costs.

Inventory management systems are almost ubiquitous among financial firms. For more than two decades, banks, brokers, and buy-side firms have used them to keep track of all the data assets they license, to monitor who's using what data—or who's *not* using data, so it can be switched off or reassigned to another user, so firms can save money. They're also used to accurately report that usage back to the source, and to reconcile invoices from those data sources against what the firm thinks its usage should cost.

However, as exchanges and other marketplaces begin to roll out self-service portals for clients to buy data services, they're realizing that these portals need to be underpinned by inventory management systems of a different ilk.

These tools can be used to monitor sales of specific services, which clients those services have been sold to, what license terms those clients have signed up to, and how much revenue the exchange expects to receive from each client. Thus, some vendors are finding a new lease on life for their inventory management systems at the very data sources those systems were originally designed to monitor. For end users, the systems help track costs; for exchanges, the same systems (with a few tweaks) help track revenues.

New York-based DataBP, which has signed up a raft of exchange clients in recent years—including CME Group, the Singapore Exchange and the Australian Securities Exchange—and recently announced that bond trading platform MarketAxess plans to roll out the vendor's self-service portal to simplify its data licensing processes with customers, has focused on client-facing sales platforms at exchanges since day one, says CEO Mark Schaedel.

Founded by former Nyse data professionals, the vendor's platform focuses

heavily on the licensing aspect of its clients' sales activities, including vendor approvals, reporting, billing and compliance, reducing or eliminating any ambiguity around what data a client is licensed to use, for what purpose, which version of a contract they are on, and synching with billing and customer-relationship management systems.

The reason these platforms are becoming important for data providers is that new data sources and different license types are creating more complexity around data sales and billing.

"It seems that new data provider entrants see data commercialization strategies as binary—charge or don't charge—but the reality is there are myriad permutations of licensing and subscription models," Schaedel says. "The varied models are

**"Instead of a conversation with a client being about whether they've ticked all the right boxes, that conversation becomes about how that client is using the data, and how many people are using it."**

**Michael Hodgson, Euronext**

meant to ensure flexibility and elasticity with use cases which can rationalize the cost ... [and] the appropriate models vary by type of data assets and use cases."

For example, he says, commercial distribution must be differentiated from reference usage, while OTC price fixings and composite prices should be treated—and licensed—differently from tradable dealer prices.

"Both types of prices are used differently and require different commercial strategies. So, the scale of license types that can be supported ensures the best possible fit for use cases," Schaedel adds. "To grow business, data providers need to manage a diverse array of licenses/use cases to penetrate the broadest market possible requiring automation and tools. That's where we come in."

### The Nyse connection

But while DataBP has grown rapidly in the space of a few years, it's not the only game in town. In 2014, around the

same time that its founders were setting up the business, their former employer was in the process of separating from the Euronext group of exchanges, following the acquisition of Nyse Euronext by Intercontinental Exchange. One upshot of that spin-out was that Euronext needed its own reporting system, having previously used a Nyse-built system.

The exchange contacted vendors about building a new system to manage client contract licensing, tailored to its data products and policies, but was approached by Dutch vendor Screen Consultants (now part of TRG Screen, after merging with rival The Roberts Group), developer of the InfoMatch inventory management platform. Euronext hadn't considered these types of vendors because they were focused on the inventory and cost management needs of end-user firms. However, the exchange gave Screen its requirements, and concluded that the vendor could deliver exactly what it needed.

"We spun off from Nyse in 2014, and were up and running on InfoMatch at the beginning of 2015," says Michael Hodgson, head of real-time data at Euronext. "That was the core. Then in 2018, we rolled out our reporting portal, then more recently we rolled out our client portal where they can manage their agreements and services. They can browse and buy data via the portal. If a client wants, they can be completely self-service."

This speeds up a client's ability to order and start using data—and, once the exchange relocates its primary collocation datacenter from Basildon, UK, to Bergamo, Italy, clients will also be able to use the portal to order and deploy all data-related services, including connectivity and physical hardware in its datacenters.

"Before this, there was a certain amount of manual administration and checks on our side ... and a lot of that has now gone away. So, instead of a conversation with a client being about whether they've ticked all the right boxes, that conversation becomes about how that client is using the data, and how many people are using it," Hodgson says.

The work completed so far has "enabled us to get a full picture of everything



a client does, and to follow all the data flows outside our organization to clients,” Hodgson says, adding that the project has benefited the exchange and user firms alike. “Clients don’t want to spend their time bogged down in billing issues. With this, we can make everything quicker for them, so they can spend their time on other things.”

Further additions planned for the platform this year include creating a usage questionnaire in the portal, based on an audit tool built with TRG Screen’s Axon Financial Systems business last year, and automating the process by which the exchange approves data vendors to provide its data to specific clients. This first effort would bring greater understanding to the audit process, allowing it to move faster, and potentially allowing clients to use that audit module to input and report their usage, Hodgson adds. The second effort would streamline and automate the

with Screen Consultants, the acquisitions of both Screen and Axon by TRG has put Hutton’s team back on familiar turf.

TRG Screen built Euronext’s platform with significant input from the exchange, which Hutton says has helped shape its product roadmap for the benefit of other clients, adding that the vendor is free to sell the technology to other exchanges. Indeed, he says data vendors also use TRG Screen’s technology to manage licenses, including Ion Group’s Fidessa business and Web Financial, while several other unnamed exchanges are already using the platform in a similar way to Euronext, for contract management and reconciling invoices.

And as use cases among exchanges and vendors grow, the vendor continuously adds more functionality to the platform. For example, as self-certification becomes more important to clients, TRG has developed a self-certification questionnaire for clients, which helps users identify the best products and license models for their needs, guided through the process by the interface itself. And for the front-end interface to simplify complex workflows, more work constantly needs to be done on the back end.

### Room for more in the pool

Any efforts by existing providers to expand their reach into new areas could create opportunities for new players to encroach on their turf, such as Vendex Solutions, whose suite of data management tools include inventory management capabilities; and startup inventory tracking and cost management platform vendor Crizit.

Ethan Shen, CEO of Crizit—which currently monitors Bloomberg enterprise data licenses and data from the vendor’s B-Pipe datafeed, and is expanding its Periscope platform to cover enterprise licenses from Refinitiv as well—says demand is not only being driven by consolidation among established providers, but also by demand for more granular details about what firms and individual business areas are spending on data.

“The starting point is often that a client has received a bill and is apportioning the percentage split of costs between different departments. But nowadays, people no longer accept that—business units

are pushing back on being allocated flat overhead costs,” and are instead insisting that data departments clearly demonstrate exactly what costs they incurred, and what they are responsible for paying, Shen says.

With fee compression, margin pressure and other factors impacting all business divisions, departments are in constant competition for resources, and can’t afford to subsidize the data costs of other business lines. It’s not just a matter of slicing the pie differently, but slicing it fairly, he adds.

Shen says Periscope delivers much more granular monitoring and reporting than traditional inventory management systems, to help clients determine what assets they’re capturing data for, and whether they are capturing that data in the most efficient way, from the best source, and at the most efficient frequency. And it does this in real time in a “minimally intrusive” manner—passively monitoring Secure FTP “choke points” at 30-minute intervals, rather than waiting days or weeks, by which time an errant charge or instance of unauthorized usage can grow and be both harder to spot and harder to correct.

“With enterprise data, consumption should be relatively constant. So we help identify all uses and all jobs, so when a job strays outside of its usual behavior patterns—or if someone requests a dataset that costs an enormous amount—the firm gets an alert,” Shen says.

For example, when teams roll out new features, there’s often a burst of testing that generates an unusual volume of data calls, he says, adding that these alerts can be configured to be sent not only to data teams, but also to end users and heads of desks who would be held responsible for the charges, to help “shorten the feedback loop,” and allow firms to dispute and correct any errors within hours.

In addition to passive alerts, Periscope can also be configured to intercept and block unusual requests for data, and to automate the processes by which exceptions are handled. “We want to shift our clients’ responsibilities from being reactive to being proactive, by suggesting strategies and establishing rules,” Shen says. “Because we have installations across about a dozen clients, we’ve seen a wide



currently manual processes of requesting access to data and receiving approval to distribute data to clients.

Chris Hutton, head of content and exchanges at TRG Screen (formerly CEO of Axon prior to its acquisition by TRG), says this makes data administration functions easier for both the exchange and its data subscribers.

Ironically, Euronext’s ownership change isn’t the only Nyse connection: Hutton and his Axon co-founders Aaron Garforth and Steve Cowler all previously worked at Nyse in data management, policies and licensing, and reporting. So even though the original deal was signed

array of uses, so our system bakes them into a rules engine that we run on every account.”

The system then learns to spot exceptions—such as duplicate sourcing of the same data by different areas of the same firm—and flags them with specific details of what systems and jobs it relates to, and how often it occurs. This way, data teams know exactly what the problem is, when and where it occurs, how much it costs, and which stakeholder in the business line to address it with.

While Shen says Crizit has no plans to flip to attract exchanges or vendors as clients, and plans to focus exclusively on user firms—though it does have asset servicing firms among its clients, which use Periscope to allocate data costs between their customers—there are others in the mix with established products that could follow the lead of DataBP and TRG, and pursue exchanges as clients. And though consolidation means there’s a shrinking pool of exchange groups, there’s a burgeoning new marketplace for familiar data tools among crypto markets, which could be a potentially lucrative business line for these services.

Another potential market is banks and brokers seeking to commercialize proprietary data products and analytics, and sell them to buy-side clients. DataBP’s Schaedel says the vendor is having lots of conversations with firms about this and says DataBP is planning to launch its cloud entitlements module as a standalone product to connect to its webstore front end to serve that purpose.

### Aid for audits

Ultimately, all of these efforts—from streamlined processes between markets and customers to more granular and accurate reporting—could have the knock-on benefit of easing the pain of one of the industry’s most contentious areas: exchange audits. Certainly greater automation should help produce more accuracy, which would lessen the need for audits. And—though Euronext and TRG both say it’s not necessary for clients to use TRG software to interact with any of the functions in the exchange’s portal—using common systems like TRG’s Optimize Spend platform could yield much broader benefits.



**“If I were a client using this, it would make me reach out to other exchanges and say, ‘Hey, why aren’t you doing this?’”**

**Bernardo Santiago, S4 Market Data**

“We’d like exchange clients to do everything on this. ... We want to become a one-stop shop so that if an end-user client is dealing with an exchange, they can do everything through this portal,” Hutton says.

This could open up a new avenue where inventory management systems become the standardized tool that harmonizes end-to-end data licensing and commercial challenges.

“It makes sense,” says Bernardo Santiago, co-founder and CEO of consultancy S4 Market Data. “At some point, you get enough users on the platform, then it becomes a ‘community’ and becomes the conduit for communication between exchanges and end users. If I were a client using this, it would make me reach out to other exchanges and say, ‘Hey, why aren’t you doing this?’ And at that point, in theory, a consumer could use the inventory system to initiate a request with an exchange they don’t already have contracts in place with, so long as it’s on the platform. If I could just check a box, have that request go to an exchange, and get the approval back [all using the same system], who wouldn’t want that?”

He says inventory systems providers are “sitting on a ton of valuable data”—not because they generate or own data, but rather because they are in a position to control the access to it. However, for these systems to encompass multiple venues—rather than being built as one-off portal solutions—and interoperate in the way that would provide the greatest benefit to end users and exchanges alike, they must overcome the ontological challenge of standardizing how different parties refer differently to each dataset. “You need to make sure everyone is comparing apples to apples. That’s what VendEx is trying to solve for,” he says.

VendEx Solutions (formerly known as International Network Solutions) is a San Francisco-based startup building a suite of data management tools. Its

offerings include VSource, a catalog of data vendors and services; VReg, which maps datasets to regulatory needs; and the V-Port vendor management portal, which can be used for procurement, reporting, billing, and inventory management, among other tasks.

VendEx founder and CEO Richard Clements says that to get the full benefit from using inventory management systems on both sides of the exchange/vendor-client ecosystem—and to generate the greatest time and resources savings—those systems need to meet somewhere in the middle.

“It’s good that exchanges are starting to do this work, but a centralized solution is the way forward, because the time needed for clients to access data from all of those individually is still onerous,” Clements says. For an idea of how onerous, VendEx has identified (at time of writing) 3,777 suppliers selling data and related services into the capital markets, and has catalogued 537 of these—and 4,235 of their products—in VLink, its “vendor gateway” into its suite of tools.

“A midsize client of ours might have more than 500 vendors supplying them 7,000 products, so the idea that they could go to each supplier’s portal is unrealistic. It only makes sense if you have a centralized hub. So, we’re building an end-to-end system that will not only understand usage on both sides, but also understands the rights associated with that usage,” Clements says. “It will make managing usage rights a lot easier and makes invoice reconciliation a thing of the past.”

Not only will using the same systems on both the exchange and user side make end-user reporting more accurate and seamless; it should also help the exchanges eliminate any inaccuracy in their own assumptions about how a client is using their data.

“When it comes to auditing a subscribing customer, there are instances where exchanges can make errors. Nobody enjoys audits, but when they’re wrong, that further damages that relationship,” Hutton says. “This approach makes the client burden less but also makes reporting more accurate. So, this is all about trying to make the relationship better between clients and exchanges.” **wt**







# Dutch sandbox aims to broker EU consolidated tape

As data quality issues are a main impediment to a viable consolidated tape in Europe, Dutch regulator AFM has helped develop pilots in its Innovation Hub sandbox. By **Jo Wright**

**T**he European Commission (EC) has moved to create the legislative conditions that will foster the emergence of EU consolidated tapes (CTs) of market data. Late last year, the bloc published a proposal that looks to amend the Markets in Financial Instruments Regulation (Mifir) to allow a set of tapes to materialize.

As *WatersTechnology* reported last year, data quality issues and some regulatory uncertainty over data are giving potential consolidated tape vendors pause for thought, as a lack of standards and gaps in the data have impeded efforts to develop workable prototypes for a consolidated tape.

Dutch markets regulator the Authority for the Financial Markets (AFM) has been working with financial technology vendors to understand these data quality issues, develop viable prototype tapes, and feed its findings back to the EC, pan-European regulator the European Securities Markets Authority (Esma), and industry participants.

The AFM last year opened its tech sandbox to vendors that were interested in developing proofs of concept for a fixed-income and derivatives tape, including fixed-income connectivity provider TransFicc and investment management software vendor Finbourne.

The regulator has also set up a working group that is in the early stages of discussing obstacles standing in the way of the tape.

The AFM runs its sandbox, Innovation Hub, in conjunction with the Dutch central bank as an environment where innovators can test solutions and check that they don't infringe on Dutch regulations. Early last year, when it became clear that the EC was looking to review Mifir to create the tape, the AFM began to think about opening the

sandbox to consolidated tape hopefuls, which it did in the summer.

By November, the project consisted of five participants—TransFicc; Finbourne; analytics provider Ediphy Analytics, which has announced its own CT pilot; and two others that could not be named—focusing on fixed-income instruments.

**“We wanted to understand what the barriers were to the CTs in terms of data quality, data consistency and data formats, as well as the current barriers on the regulatory side that stand in the way of consolidated tapes emerging at some point in Europe.”**  
**Matthijs Geneste, AFM**

“[This exercise] was a very good opportunity for us to see what was already possible regarding the CTs from a technical and organizational standpoint. A number of these fintechs were existing data providers that were already working with current Mifid data to offer CT-like structures. Most of the work of the fintechs that are currently in the sandbox was based on existing solutions,” says Matthijs Geneste, a senior supervisor in the AFM's capital markets team, and the head of the consolidated tape regulatory sandbox project.

“We wanted to understand what the barriers were to the CTs in terms of data quality, data consistency and data formats, as well as the current barriers on the regulatory side that stand in the way of consolidated tapes emerging at some point in Europe,” Geneste says.

The AFM has also launched the working group—which Geneste says the regulator tried to make

representative of the various industry participants, including venues and data vendors—though he declines to say who exactly is participating. “We're working with that group now to find these barriers and these market data and data quality issues, mostly from a technical perspective, to provide useful, valuable representative feedback to the EC, and to Esma,” he says.

European politicians have been concerned that a lack of access to consolidated market data may cause Europe to lose market share to rival financial centers in the UK or US. The UK government said two weeks ago that it would be reforming capital markets regulation, including giving the Financial Conduct Authority (FCA) the tools to develop a consolidated tape. The US is pressing on with plans to improve its equity tape. Its fixed-income tape, the Trade Reporting and Compliance Engine (Trace), is a cheap source of real-time and historic data for corporate bonds.

The EU proposed to introduce a consolidated tape as part of its 2018 update to Mifir/Mifid II. Since Mifid II came into force, however, no CT provider (CTP) has emerged. EU lawmakers have pointed to several reasons for this—a lack of financial incentives, insufficient data quality, data vendor competition, and restrictive regulations. The EU's November proposals sought to address these issues and put forward the model of one CTP per asset class (derivatives, equities, fixed income, and ETFs).

Market participants say one of the challenges of building a consolidated tape under the current legislative framework is the cost of cleaning and aggregating unstandardized reported data, while ensuring the data covers enough of the



market to make it valuable for users to purchase the data.

At the root of these issues is the lack of standards from execution venues and approved publication arrangements (APAs), which publish trade reports on behalf of investment firms and must make this information publicly available for free 15 minutes after publication. Mifir doesn't mandate any particular formats or standards for how these APAs must publish the data. APAs make the trade information available as CSV or JSON files, for example; or market participants interpret post-trade reporting flags differently. A consolidator must then normalize these into one view.

Another issue is that firms trading non-equity instruments can choose to defer the publication of their post-trade data for weeks under certain scenarios, such as in large-scale trades. This leads to gaps in the reported data.

The idea of a consolidated tape, especially one that disseminates real-time data, has not found favor among all stakeholders. Trading venues see price controls on market data, or mandating their contributions to a tape, as existential threats to their businesses.

Geneste says AFM's role is to be an "honest broker," adding that the regulator steers away the working group from the most intractable topics so as to facilitate a productive dialogue. "We want to make the discussion about the tech

practical and concrete, rather than the principled, high-level discussions that we otherwise end up in. So we try to avoid politically sensitive topics around costs and fees, fee distribution, etc.," he says.

The working group began with the AFM soliciting written contributions on various issues; it is currently following up on these with individual conversations, ahead of a roundtable discussion in April.

At this meeting, "we will hopefully agree with the group on some high-level principles to achieve a corporate bond CT, and lay the foundations for a derivatives CT. We want to facilitate those technical and practical discussions, and what we agree with trading venues, sell sides, buy sides, and infrastructure firms could be the basis for these fintechs to start developing actual proofs of concept," Geneste says.

"At the same time, we can feed those insights back into the policy discussions that are currently ongoing in the Mifir review on the Level 1 text, and later in the Level 2 discussions in Esma," he says.

### Proving the concept

Geneste says the AFM's first question when opening its sandbox for the CT was a basic one: Is a consolidated tape even technically possible, and is developing one prohibitively expensive? The sandbox showed them that there weren't technical barriers to a tape, says Coen de Putter, supervision officer of trad-

ing venues at the AFM. And the costs weren't remarkable, as the vendors, while distinct in their business models, were all analytics providers already working with regulatory data.

"The discussions the AFM had in the sandbox with the tech providers showed us they had already built consolidated tapes with the data they already had. And that's the kind of feedback that we want to produce and show actual evidence for, so the Commission can understand exactly what it's going to cost. And these models would be feasible from a technical perspective," Geneste says.

Exchanges say building a tape would be too expensive, and the market would be better off with a tape of 15-minute delayed data. The Federation of European Securities Exchanges (Fese) estimates that a close-to-real-time consolidated tape would cost €77 million (\$84.5 million) to build, and €35 million (\$38.4 million) to run. The EC's CT proposal's estimates are far lower, with a total annual cost of €1.46 million to €5.4 million (\$1.6 million to \$6 million) for a bonds or derivatives tape provider, assuming a five-year payback period.

Once the AFM was satisfied that a tape was a realistic proposition, questions centered on the data quality issues.

Geneste says the output of the tapes will be shaped by market demand—it's unlikely to be hard to work out what the market will need. The inputs, however—the raw material data—are where the difficulties lie.

"That was one of the main insights we gained from working with the fintechs: that getting that data is quite difficult. The European Commission's proposals are trying to streamline that"—considering the harmonization of mandatory data reporting standards—"which makes sense. But they need to think carefully about the standards for getting the data from the data contributors into the CT, with how they're going to prescribe the preferred formats," Geneste says.

If the data inputs were cleaner and the work of consolidation easier and cheaper, vendors could use the tape to build value-added products on top of it.

"In the US, you have this whole ecosystem that has emerged around Trace, with different types of data vendors basing

their offerings on that. That is a situation that we would like to see in Europe, where we have a level playing field, an equal starting point with the data and access to the data, and various types of solutions can be developed around it, be it for transaction cost analysis, historical data, various forms of analytics—whatever you can think of,” Geneste says.

Regulators like the AFM could also use the tape for fixed-income market surveillance, de Putter adds. “If we are looking at the same picture, it’s going to make life so much easier. You will see all these use cases evolve that we haven’t thought of yet,” he says.

### Launching pilot

TransFicc said in February that it had produced a pilot for a fixed-income consolidated tape in the AFM’s sandbox. The company says its consolidated tape pilot uses “key components from TransFicc’s normalized post-trade feed,” and is inviting clients and regulators to test the pilot for performance, resilience and ease of integration.

Clients testing the pilot can access TransFicc’s client library API, which supports pre-trade data, central limit order book, request-for-quote trading, and post-trade. They will be subscribed to the pilot solution’s feed, which publishes 30 fixed-income messages per second via low-latency messaging protocol Aeron.

TransFicc’s offering that it markets to clients is a normalization service that brings together APIs from various fixed-income, currency, and commodity execution venues, and provides one point of contact for banks to interact with these venues, whether for streaming prices, execution, or post-trade.

Tim Whipman, head of business development at TransFicc, says the company started seriously considering its bid as a CT provider when it realized that it fit most of the EU’s resilience and tech attributes for a tape, as laid out in the consolidated tape proposal.

“We connect to pretty much every major venue in Europe. We don’t take in aggregated venue data, but we do take in that data with the same fields for banks individually, after they have traded. So we have the connectivity and relationships with venues in place,

and we can leverage that for a consolidated tape because it’s essentially the same thing,” Whipman says.

A CT should be able to disseminate data at high speed. “We allow banks to stream pre-trade pricing into these venues. That is a lot of data that needs to be pushed into the likes of Bloomberg and Tradeweb at high speed. We already do that today. Also, the servers we use to host these services are efficient, and the



“The discussions the Authority for the Financial Markets had in the sandbox with the tech providers showed us they had already built consolidated tapes with the data they already had. And that’s the kind of feedback that we want to produce and show actual evidence for, so the Commission can understand exactly what it’s going to cost. And these models would be feasible from a technical perspective.”

**Matthijs Geneste, AFM**

way our infrastructure is constructed makes it low cost for firms to use us for this service. And that is another reason why we believe that using this type of infrastructure could allow a consolidated tape to be built for a sensible amount of money, as opposed to the sums we’ve seen in the press over the last few months,” Whipman says.

TransFicc hosts multiple regions and availability zones in the cloud and physically in Equinix, Whipman adds, so it has no single point of failure.

TransFicc has also built an API aimed at allowing smaller investment firms and banks to contribute data should the EU and Esma decide that reporting doesn’t just have to come from the APAs. “That’s not been defined yet—who must report? Are we aggregating APAs? Are we aggregating APAs plus venues? Or are we saying that people can direct report? We think the pilot can accommodate all those groups, and that’s really important,” Whipman says.

### By design

Finbourne has been looking at how to turn its flagship data aggregation platform Lusid into a consolidated tape. The vendor also launched a forum last year that it calls its Design Council,

which brought together some 18 representatives from industry groups, buy- and sell-side firms, and consultants to discuss issues around the practical implementation of a tape. (The AFM is an advisor to the Design Council.)

The vendor also conducted research into a dataset of about 70 million transactions, where it tried to get granular detail on the inconsistencies within the transaction data that will

feed into a CT. Finbourne published a series of whitepapers on the back of this work, dealing with the consolidation, consistency and cohesion of data for the consolidated tape.

It announced late last year that it was joining the AFM’s sandbox, saying that it would share this research there also.

“We’ve gone down to trade level data to see what’s in the fields. And a lot of what’s in the fields is incomprehensible stuff, where people put prices in, and the prices are the inverse of what they mean. Or they put yields in, and you have no idea what the yields are benchmarked against,” says Neil Ryan, CTP lead at Finbourne. “We’ve asked the Design Council to pick three or four of the core fields, and identify solutions.”

The Design Council has heard concerns from members that regulators could end up imposing strict data standards on the industry, rather than leaving it to the industry to oversee data quality, Ryan adds.

“Let’s have an industry-led solution to an industry-wide problem. That is the approach we are taking, and from that, we’ll look to build an infrastructure that makes sense, and build it with partners we’ve involved in the Design Council,” he says. 



# Brokers eye regulatory info as growth dataset



For years, inter-dealer brokers have provided price data on the markets in which they broker trades. Now, they spy a new growth opportunity—providing tailored datasets of clients' trading activity to help them comply with a growing and increasingly complex regulatory burden. By **Max Bowie**

**T**he plethora of new regulations introduced over the past decade—from Mifid II to the Securities Financing Transactions Regulation (SFTR), the Market Abuse Regulation (MAR), and Basel's upcoming Fundamental Review of the Trading Book (FRTB)—has left financial firms struggling to find and report the data required for regulatory compliance.

Part of the challenge is the sheer scale of the requirements. Michelle Zak, CEO and co-founder of compliance specialist Qomply, notes that compliance is a minefield, where mistakes can be punishable with severe fines. For example, the UK's Financial Conduct Authority (FCA) has already levied fines of more than £100 million (\$131 million) just for transaction reporting

errors relating to the first iteration of the Mifid regulation.

"There are 30,000 pages of Mifid regulations ... and 28 technical regulatory standards that accompany that. There are 65 fields in a transaction report ... and roughly 250 validation rules put forward by the European Securities and Markets Authority (Esma) about what they expect for each field," Zak says. "Just because a regulator accepts your reports doesn't mean they're accurate. If you under-report, you get fined. If you over-report, you get fined. If you don't report accurately, you get fined."

The other part of the challenge is locating the right data to fill out those

report fields. And the most complete record of that data is held by the inter-dealer brokers who broker trades in over-the-counter (OTC) assets.

So, responding to this demand, inter-dealer brokers are developing new datasets to help their trading clients comply with the new regulations. Brokers are accustomed to providing feeds and files of price data for OTC asset classes generated by trading activity on their voice brokerage activities and trading platforms, but the new datasets provide tailored data on individual firms' activities that they can use to fulfill their regulatory requirements.

## The old new kid on the block

During BGC Partners' recent 2021 financial results call, chairman and CEO Howard Lutnick stated that he expects the broker's Fenics Market Data business to triple within the next couple of years. In addition to growing subscriptions—with 40 new contracts signed in the fourth quarter of last year alone—and adding new data products, such as futures data from the broker's new futures exchange, and cryptocurrencies data, BGC expects to benefit from a new business line, Regulatory Solutions. It was built in-house from scratch, after listening carefully to the needs of customers and the market at large. Indeed, one of the new contract wins in Q4 is an unnamed top 10 investment bank that signed up for the regulatory offering.

"There's a growing regulatory burden on our customers, who need our help. So, our Regulatory Solutions team will be a part of our growth," Rich Winter, global head of market data and information analytics at Fenics Market Data, tells *Waters Technology*. Winter took on the role two years ago after five years in other roles at BGC and 25 years in capital markets before that. "When I stepped in, there was already some work being done around harvesting information, but we didn't know how to best utilize it. So then it was about creating a strategy and a business plan."

Regulatory Solutions provides datasets tailored to the compliance requirements of regulations such as Mifid II, the MAR, Dodd-Frank and FRTB. The data covers government and corporate bonds, inflation products, FX options and interest rate options, and equity and commodity derivatives. Fenics combines and normalizes the data from BGC's trading platforms and its risk and analytics tools using analytics and data science techniques, then delivers them via FTP in machine-readable flat files for two main functions—Risk and Valuations, and Surveillance Insights and Recap.

The Risk and Valuations dataset provides "evidential data"—observable and executable bid-offer prices and liquidity metrics—for corroborating data to actual market activity, creating what the firm calls "real-time backtesting" for capital

calculations such as Prudent Valuation and Additional Valuation Adjustments, and for meeting the demands of FRTB and its Risk Factor Eligibility Test.

The Surveillance Insights and Recap solution combines bank-specific, daily trade and order recap data to perform market surveillance, which Fenics officials say will reduce false alerts and lead to faster alert resolution.

"It allows a bank to surveil its activities in a way they've never been able to do before to meet regulatory demands," Winter says.

## Winter is coming

Regulatory Solutions is one part of a broader plan to grow the broker's data business overall, which Lutnick says is "one of the biggest opportunities we have," and that he expects to see accelerating take-up of its data products in the coming years. "Our expectation is, we

**"Just because a regulator accepts your reports doesn't mean they're accurate. If you under-report, you get fined. If you over-report, you get fined. If you don't report accurately, you get fined."**

**Michelle Zak, Qomply**

could have our market data line be three times the size of what it is now," Lutnick told investors on BGC's earnings call.

"We're going to do more of everything. First, we'll be expanding our customer base and the types of customers we serve, especially the buy side, which is driving a lot of growth and is becoming more sophisticated consumers of data," as well as creating inflation-related data products, and providing exclusive access to data from the 30-odd brands within BGC for energy and commodities data, he says. Not to mention anything arising from the broker's nascent crypto business, which Lutnick says will provide a "comprehensive offering" by year-end.

But achieving threefold growth requires the right data, and also the right people. In addition to Winter—who was global head of product strategy and

sales for BGC's Fenics US Treasuries (Fenics UST) platform, before Lutnick picked him to lead its data business—the business has hired around 15 new staff over the past 12 months, including data veterans Andrew Reeve, Elliott Hann, Brandon Rumley, and Ray Bencheikh.

In addition, Richard Brunt, who has spent almost 18 years at GFI and BGC—over 15 of those in senior roles at Fenics—became global head of market data sales in January in addition to his existing role as managing director of Fenics' Kace software business.

## The client data burden

But BGC isn't the only game in town: Rival TP Icap has been providing regulation-focused datasets via its Data & Analytics business—now known as Parameta Solutions—since the introduction of Mifid II in 2018.

"We developed our Mifid Trade and Order Recap service to help customers who trade on our European and UK venues meet their regulatory requirements," says Steven Holland, head of regulatory products at Parameta. The service provides trade and order data, segmented by asset classes, depending on what a client trades, for each of the 11 venues operated by the broker. Specifically, for each client, it provides an end-of-day file of all their activity on the broker's venues, comprising all the data fields they would need to fulfill onward reporting requirements through an Approved Reporting Mechanism (Arm).

Though initiated to meet the demands of Mifid, Parameta has since expanded its activity reports to cover its global platforms, reflecting the global nature of its clients' business. What makes capturing the data difficult for end users is that regulations focus on order activity, rather than just executed trades, and the complexity of the range of data being captured.

"Most of our clients have a view of the trades they execute. But the regulatory scrutiny has focused on the order side: how they capture client orders, where they place them, and how they treat the pre-trade side. Mifid Arms offer trade reconciliation services ... but on the pre-trade side, the only place you can get that data is the venue where you placed the





order,” Holland says, adding that firms will need to approach all the brokers they use to obtain details of their order activity with each broker.

Then there’s the variety of order types and capture methods, including voice brokerage operations, electronic platforms, and hybrid models, as well as different connectivity methods, ranging

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**“A key element of FRTB is to capture ‘real price observations’—a trade or a committed quote. So firms will be sourcing these from their internal trade and order books, and by reaching out to vendors. Where this data is more scarce and OTC in nature, it may be more difficult to find a source for FRTB.”**

**Steven Holland, Parameta**

from direct order inputs to orders sent through third parties, such as Bloomberg Messenger.

“Orders then could be spread across different desks with a variety of types that make capturing them quite a complicated process,” Holland says. “Getting that data from the venue gives clients the confidence that they’re not missing anything.”

Clients can also use the broker’s data for other purposes. For example, Parameta has seen clients using the Mifid Trade and Order Recap dataset to meet market abuse monitoring requirements under MAR. “The data reported under Mifid is the same data that the FCA would use to ensure markets are operating properly from a market abuse perspective. So there is high crossover between the data needed. ... And the more data a firm has, the easier it is to meet the requirements set by regulators,” Holland says.

In addition, Parameta is now working on creating a data service to help clients meet the requirements of the upcoming FRTB regulation, which focuses on the calculation of risk to meet capital requirements, and is expected to come into force next year and be onboarded by the major jurisdictions, including Europe, in 2025.

“A key element of FRTB is to capture ‘real price observations’—a trade or a committed quote. So firms will be sourcing these from their internal trade and order books, and by reaching out to vendors. Where this data is more scarce and OTC in nature, it may be more difficult to find a source for FRTB. This is where we feel we can provide value to clients,” again making brokers one of the first ports of call for this kind of data, Holland says.

TraditionData, the information arm of Swiss-based inter-dealer broker Tradition, was unable to provide a full interview, though global head of sales James Watson says the broker does offer “data that firms can use themselves within those [regulatory] tasks,” adding that “some solution providers and clients leverage our data.”

Besides the major inter-dealer brokers, UK-based advisory firm Eose Data, which helps brokers create, license, and sell data products, is in the process of setting up a technical partnership to offer “a complete set of resources” that will allow its broker clients with more limited resources to provide similar services to their customers, without involving the same level of effort expended by the larger IDBs, says CEO Suzanne Lock, who calls the regulatory data initiatives a “win-win” to help financial firms address an area of growing demand.

“We are seeing demand from end users and appetite from our clients to offer products/datasets that are both focused on these functions and are also delivered directly to the user as tailored individual reports/datasets,” Lock says. “I think it is a great way for the brokers to start to develop those direct connections for a particular function while continuing the provision of vanilla data through the vendors.” [Wt](#)



# Big Tech's big plans

Anthony thinks the fintech community should be looking over its shoulder as the major cloud providers are set to disrupt financial markets even more than they do today. By Anthony Malakian

**“I** tell the exchanges today, the day that Google and Amazon and those big, big [cloud providers] figure out the compliance side of this business ... is the day you can kiss the exchanges goodbye. The exchanges are sitting there in their ivory towers and saying, ‘Hey we’re fine, we’re protected,’ but that ain’t gonna last much longer. It’s going to last longer than me, but it’s not going to last forever.” —Bill Lee, senior market data advisor for Interactive Brokers, who enrolled in university in 1969 (to provide context to that “last longer than me” statement).

“I speak with the Big Three and the first thing they always tell me as the cloud guy from Bloomberg is, ‘We want nothing to do with getting into your space. We don’t want to deal with the headache of consolidating market data. We don’t want to deal with the headache of managing entitlements when reporting back to exchanges.’ It’s not an easy space to be in.” —Cory Albert, global head of cloud strategy for Bloomberg’s enterprise data unit.

I think there’s a fair amount of truth in both of those statements.

Lee is looking to a future state—one that may be a decade or more away, but one that he views as inevitable if exchanges don’t make drastic changes. Albert is talking about the way things are today. One could argue that right now with Regulation ATS the US Securities and Exchange Commission (SEC) is running amok saying that almost every provider of trading technology is an “exchange.” (A bit of an overstatement on my part ... but not by much.) Microsoft Azure, Amazon Web Services (AWS), Google Cloud and IBM Cloud want no part of that ... for now.

But consider this: As my colleague Reb Natale reported from an event hosted recently by AWS, Fidelity Investment’s asset management arm has migrated 98.8% of its applications exclusively to AWS and plans to stop

using physical datacenters soon. Let that number sink in—the fourth largest asset manager in the world is done with on-premises datacenters.

And speaking of exchanges and the cloud, last year it was announced that CME Group and Nasdaq are planning to (eventually) move their entire tech stacks (including matching engines and multicasting systems) to Google Cloud and AWS, respectively.

While the vast majority of banks and asset managers are not on the level of Fidelity, I think we can agree that cloud adoption on Wall Street is a hockey stick pointing to the sky. The original reason for this push was, indeed, all about storage and cost. Trading firms have developed an insatiable appetite for more and more data. Hidden in a field of data was alpha or unforeseen risk or operational efficiencies. But it became too much data.

As a result, what trumps data content is data context. And when it comes to big data analytics, you need to tap into tools provided by—you guessed it—the major cloud providers.

I don’t think these big four companies will replace the likes of Bloomberg, S&P, Ion, SS&C, Refinitiv or even the exchanges (though I understand Bill Lee’s stance), but will they be massively disruptive? Oh, hell yeah.

The way I see it, there are five major trends that tied together the reason why some of us are so bullish on Big Tech’s takeover of the capital markets: the development of AI, and specifically machine learning and natural language processing; wider adoption of open-source tools; the embrace of new data delivery mechanisms, most notably APIs; the need for applications to be interoperable; and, finally, the scary world of cybersecurity. (There’s also the emerging sectors of low-code development and quantum computing, but I view those more on the horizon and intrinsically tied to cloud, anyway. If you want to talk Web3 and/or

distributed ledger technology ... I ain’t your huckleberry.)

If you provide a tech solution (whether you’re a vendor, exchange or a bank/AM building something for internal use), the best tech provides context, rather than simply displaying data and essentially saying, “Here’s the data ... you figure out what to do with it.”

**AI/ML/NLP:** Used to break down massive datasets and find correlations between different sources of information. Now, close your eyes: When you think of advanced AI, which companies come to mind? Palantir, Netflix, Facebook? Sure. But also Amazon, Google, Microsoft and IBM, no?

**Open source:** Even Goldman Sachs loves open source (now), but it’s BigTech companies that have been contributing for decades.

**Data delivery:** Table stakes for any cloud provider.

**Interoperability:** While we may have our issues with Microsoft Office or Google Docs/Sheets, interop, especially when it comes to retail sales, is the domain of Big Tech.

**Cybersecurity:** Billions and billions of dollars focused on cybersecurity.

Take it all together, and there is not a capital markets tech company (much less a bank, asset manager or exchange) that has the scale and breadth of services that Amazon, Google, Microsoft, and IBM have. So, as Bill Lee said, if these companies ever figure out the compliance side of the capital markets, this friendly alliance of Big Tech and Financial Tech will deteriorate.

This sea change might not happen in the next decade (if ever ... I mean, these are just opinions) but if it does, the tipping point will be jarring. So as companies are figuring out their cloud and analytics strategies, conversations about disruption should be happening today, even if the shift won’t happen tomorrow. [WT](#)

# Human Capital



## LiquidityBook hires new EMEA business operations lead

LiquidityBook, a provider of cloud-native buy- and sell-side trading solutions, has hired Jonathan Cross in London as general manager for Europe, the Middle East and Africa.

Cross will manage all aspects of LiquidityBook's EMEA business operations and will play a key role in the firm's global expansion strategy.

He was most recently head of sales and business development at Messer Financial Software, and was also chief operating officer at Broadridge Financial Services' asset management arm, having held the same role at Tradar, now part of SS&C Eze.

Cross will report directly to LiquidityBook CEO Kevin Samuel.

## Northern Trust refreshes front office, global leadership

Northern Trust has appointed John Turney as global head of front-office solutions and Marisa Kurk as head of global foreign exchange.

Turney, who was head of global FX since 2018, will report to Melanie Pickett, Americas head of asset owners. He previously served in various FX-related roles at the firm.

Kurk joined Northern Trust as chief



Jonathan Cross



Shannon Johnston

operating officer for global FX in 2019 and was named chief strategy officer in 2021. As the new head of the business, she will report to Guy Gibson, global head of capital markets. She was previously chief operating officer of Belvedere Trading and served in leadership roles at Mesirow Financial.

## Johnston joins Deutsche Börse supervisory board

Deutsche Börse shareholders have elected Shannon Johnston as a shareholder representative to the supervisory board. She succeeds Karl-Heinz Flöther, who has resigned and left the board after 10 years.

Johnston has assumed the chairmanship of the supervisory board's technology committee. She currently serves as CTO of Global Payments, where she is responsible for data, analysis, and corporate architecture.

## Clear Street names product and design chiefs, engineering VPs

Fintech prime brokerage Clear Street has bolstered its senior leadership with the hires of William Dulude as chief product officer and Prerak Sanghvi as vice president of engineering, and the promotions of Emilio Schapira to vice president of engineering and Brent Brooks to chief design officer. They will oversee the firm's product, engineering and design function.

Dulude most recently served as director of electronic trading product at Galaxy Digital, prior to which he was global head of operations at Tagomi. He will run product strategy at the enterprise level and oversee product development for all of Clear Street's business segments.

Sanghvi was most recently chief technology officer at Proof Trading. He will oversee Clear Street's product,

securities finance, risk, and electronic execution services engineering teams.

Schapira's promotion comes after serving as the firm's engineering lead for clearing, custody and infrastructure since November 2021. He will oversee the clearing, data, research and analytics, control, and infrastructure engineering teams, as well as other horizontal teams in incubation stages.

Brooks joined Clear Street last year as head of design.

## Cboe promotes execs, makes EMEA sales hires

Cboe Global Markets has announced two executive promotions as part of its global expansion strategy. Tim Lipscomb has been appointed chief technology officer, and Stephanie Renner has been named senior vice president of international finance, a newly created role.

Lipscomb, currently chief operating officer of Cboe Europe, will lead Cboe's technology strategy, innovation and integration efforts globally, including overseeing all of its exchange, data and clearing platforms. Renner, currently chief financial officer of Cboe Europe, will lead all of Cboe's non-US finance functions. Both will relocate from London to Kansas City.

Lipscomb brings more than 20 years of experience in financial markets technology. He joined Cboe Europe in 2019, having previously served as a managing director at Merrill Lynch.

Renner joined Cboe in 2013 as assistant controller based in Kansas City. She previously held roles at Bats Global Markets and H&R Block.

Cboe has also announced that Nigel Jeyakumar has joined the company's Data and Access Solutions division as director of EMEA sales. Based in London, he will lead Cboe's



sales efforts in the region for Cboe's full suite of market data, indices, and analytics offerings.

Jeyakumar joins Cboe from CME Group, where he was most recently senior manager for global data licensing and sales in its data services division.

He will report to Bo Chung, senior vice president in global sales and index licensing.

#### **J&J's Raskin to lead data at TickSmith**

Barry Raskin, former chief executive of Six Financial Information, has joined TickSmith, a Montreal-based provider of data monetization technology, as head of the data practice.

Raskin will help guide companies on their path to monetizing proprietary datasets, supporting TickSmith's sales team.

Raskin was most recently managing director at data and management consultancy Jordan & Jordan, where he spent the past six years, prior to which he was CEO for North America at Australian back-office technology vendor GBST. Before that he spent almost 20 years as president of data vendor Six Financial Information and its predecessor Telekurs Financial.

Raskin reports to Marc-Andre Hetu, chief product officer and co-founder at TickSmith.

#### **Instinet's Govoni to head TP Icap's agency execution division**

TP Icap, an electronic market infrastructure and information provider, has hired Mark Govoni as chief executive officer of its agency execution division. Govoni replaces John Ruskin, who has stepped away from the business after leading the integration of Liquidnet into the TP Icap Group.

Govoni joins from Instinet, where

## LA SALLA CHOSEN TO LEAD DTCC

The Depository Trust & Clearing Corporation's board of directors has elected Francis "Frank" La Salla as its next president and chief executive officer. Currently CEO of BNY Mellon's issuer services business and a member of the bank's executive committee, La Salla's appointment is effective August 12, following the retirement of Michael Bodson.

La Salla will also serve as president and CEO of DTCC's principal operating subsidiaries, the Depository Trust Company, Fixed Income Clearing Corporation and National Securities Clearing Corporation, and as a member of the board of directors, as well



**Francis "Frank" La Salla**

as the management committee. He will be named CEO-elect from June in order to begin the transition.

La Salla's 28-year career at BNY Mellon includes multiple senior-level positions.



**Barry Raskin**

he was most recently president of US brokerage, having previously held the role of head of US sales trading.

Govoni is based in New York and reports to TP Icap group CEO, Nicolas Breteau.

#### **Finbourne names Byrne as CTO**

Finbourne Technology, a Software-as-a-Service investment data management provider, has appointed Robert Byrne as chief technology officer. The appointment coincides with the provider's recent expansion into North America and Asia-Pacific.

Byrne will manage a team of developers, to identify viable market opportunities and build requisite functionality using SaaS technology and API-led data tools. He will be joined by new domain experts across the UK, North America and APAC, including Martin Shaw, who was recently appointed in the client engagement team, and brings product management and sales experience from SimCorp and Charles River Development.

#### **Lofthouse to lead ASX**

Helen Lofthouse has been appointed managing director and chief executive

officer of the Australian Securities Exchange (ASX), effective August 1.

Lofthouse is currently chief executive of ASX's Markets Group, the exchange's largest business by revenue, responsible for cash and derivatives trading, including equities, interest rates, commodities and energy products, the benchmarks business, and international sales. She joined ASX in September 2015 as a member of the executive leadership team.

Dominic Stevens will continue to serve as CEO until the end of July and will continue to advise and assist in the transition until the end of September, when he will retire.

#### **Liquidnet hires Americas head of execution and quants**

Agency broker Liquidnet has hired James Rubinstein as head of execution and quantitative services (EQS) for the Americas, responsible for setting the strategic direction and leading the effort for its EQS offering in the region.

Rubinstein brings more than two decades of experience to the role.

Based in New York, Rubinstein reports directly to Rob Laible, global head of equities. [wt](#)



# Capitalizing on data's migration to the cloud

Mark Hermeling, chief technology officer at Alveo, which provides market data integration, analytics and Data-as-a-Service solutions, provides a roadmap for best practice as banks, asset managers and vendors move more workloads to the cloud.



**D**ata management ecosystems in the financial sector are increasingly being transferred to the cloud. It's a trend that continues to grow and will have significant implications for the sector, with the global financial cloud market expected to reach \$90.11 billion in 2030, up from \$23.67 billion in 2020.

However, moving market and reference data to the cloud has already been taking place over the past few years. This is of little surprise when considering the benefits of cloud-based data management, which include reduced infrastructure and maintenance costs, plus increased elasticity and scalability. As provisioning requests change and data volumes fluctuate, the flexibility of a cloud-based infrastructure helps to futureproof operations. Tangible benefits in managing market data in the cloud include infrastructure that better suits dynamic business requirements, centralized licensing and easily shareable datasets.

## From SaaS to ecosystem shift

With the rapid rise of cloud platforms such as AWS, Microsoft Azure, Oracle Cloud Infrastructure and the Google Cloud Platform, cloud utilization is increasingly becoming the status quo.

It's critical that data management systems are both cloud agnostic and cloud native. This makes it possible to effectively source, integrate, quality-control and distribute market data. It's vital that while these systems need to be optimized to ensure they run effectively in the cloud environment, they also

shouldn't be reliant on a single cloud provider's proprietary service or tied to the services of one vendor.

With data providers increasingly using cloud as a distribution method, solutions need to be able to directly pick up datasets. Given the still increasing variety of datasets, effective cross-referencing and the connection of internal to externally sourced data to build a composite view will be a major differentiator. Permissions management, lineage and effective data governance can both increase data ROI but are also needed to address regulatory requirements. Finally, a comprehensive shift to cloud must be combined with effective last-mile integration to ensure aggregated data is effectively channeled into business applications, data warehouses and into the hands of end-users.

Finding new methods of moving data to the cloud and the applications within it is crucial to maintaining competitive advantage. Considerations including keeping data safe in cloud environments and ensuring information security, right through to usage monitoring, data quality and enhanced permissions management need to be considered. In the case of increased automation to place applications in the cloud, it's critical to maintain data quality, as this typically removes a manual process where mistakes could previously be picked up.

This challenge can be made easier via the partial or full utilization of vendor-managed solutions, providing a single place for the end-to-end supply of market data from vendor feeds all the

way through to client distribution. To be truly effective, these solutions need to be cloud neutral, part of which involves being capable of interacting with data on any cloud platform.

## Optimizing data ROI

While the migration of market and reference data to the cloud has been underway for some time, this process is now becoming more widespread. It's not just data management solutions and processes making the switch—data vendors are placing data on public cloud platforms upstream and application providers are doing the same downstream.

This trend means it is essential that financial service organizations place their market and reference data in the cloud as soon as possible if they want to keep pace with the competition. But they must remember the importance of choosing cloud-native solutions that can capitalize on new distribution methods and effectively link and distribute mastered data. Cloud agnosticism and neutrality are also critical to deliver the scalability they need.

Shifting the entire ecosystem to the cloud will enable those firms to access scalability and flexibility, as well as new avenues to share data within the business and with third parties. A managed services approach to data management will help to eradicate the issues associated with data processing and platform maintenance, and with such data playing a key role in both finance and risk, keeping it all in one location will allow firms to make the most of their data. [WT](#)

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