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trading technologies for financial-market professionals

Market Surveillance

Special Report

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Editor-in-Chief Victor Anderson
victor.anderson@incisivemedia.com
tel: +44 (0) 20 7316 9090
US Editor Anthony Malakian
anthony.malakian@incisivemedia.com
Deputy Editor, Sell Side James Rundle
james.rundle@incisivemedia.com
US Staff Writer Jake Thomases
jacob.thomases@incisivemedia.com
US Staff Writer Tim Bourgaize Murray
timothy.murray@incisivemedia.com
European Staff Writer Marina Daras
marina.daras@incisivemedia.com
Head of Editorial Operations Elina Patler
elina.patler@incisivemedia.com

Contributors
Max Bowie, Editor, Inside Market Data
Michael Shashoua, Editor, Inside Reference Data

Global Commercial Director Jo Webb
jo.webb@incisivemedia.com
tel: +44 (0) 20 7316 9474
Business Development Executive Joseph Donato
joseph.donato@incisivemedia.com
Business Development Executive Shayna Hersh
shayna.hersh@incisivemedia.com
Account Manager Tom Riley
tom.riley@incisivemedia.com
Senior Marketing Manager Claire Light
claire.light@incisivemedia.com
Design Lisa Ling
lisa.ling@incisivemedia.com

Multiple Subscriptions/Site Licences
Monazer Rashid tel: +44 (0)20 7316 9606 (UK)

Subscription Sales
Tony Pedra tel: +44 (0)20 7316 9175 (UK)
waters.subscriptions@incisivemedia.com

Publisher Alan Loader
Group Publishing Director Lee Hartt
Managing Director John Barnes
Chief Executive Tim Weller

Incisive Media Head Office
Haymarket House
28–29 Haymarket
London SW1Y 4RX
tel: +44 (0)20 7316 9000
fax: +44 (0)20 7930 2238

Incisive Media US
55 Broad Street, 22nd Floor
New York, NY 10004
tel: +1 646 736 1888

Incisive Media Asia
14th Floor (Unit 1401-3)
Devon House, Taikoo Place
979 King's Road Quarry Bay
Hong Kong
tel: +852 3411 4888

Incisive Media Customer Services
tel (UK): +44 0870 240 8859 (UK)
tel: +44 (0)1858 438421 (International)

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Keeping Tabs

Financial markets simply can't function without effective oversight. It's a lesson that's been learned time and time again over the years, a history littered with scandals, trading errors, large-scale collapses and small-scale tragedies. Competent firms encourage a culture of compliance, yes, but the truly responsible encourage a culture of oversight, checks and balances, too.

While most firms have a view into what their activity is in the markets, some asset classes have started to wake up to the need for overseers. Foreign exchange (FX), traditionally a so-called "unregulated" market, has been battered by its fair share of problems lately, but one benefit of these has been to focus the minds of the largest banks on how to adequately perform a surveillance function in a decentralized environment. The resulting collaboration has been exciting, and in many ways it's been encouraging to witness as a real example of how working together can empower the market.

What's clear more than ever, though, is the central role that technology now plays in any effective regime. The move to electronic trading in many instruments has brought with it the ability to put in automated functionality for monitoring activity, yes, but with the same benefit comes an imperative to ensure that a sophisticated infrastructure exists to handle electronic flow. Using complex-event processing (CEP) engines is just the start, and a wider rollout of advanced tools, adaptive rule sets, and wider mechanics for case investigation and other areas, are rapidly becoming obligatory for many trading operations.

Technology is a central part, then, but it is only one aspect of surveillance. Education, as always, becomes critical to prevent compliance failures, and a skilled workforce that understands and implements the rules they have to abide by in their day-to-day lives is one that will be able to navigate markets safely and profitably. You only need to look at the startling transcripts of FX multi-dealer chat rooms to understand that, while some bad eggs with questionable attitudes do exist, on the whole many are simply behaving as if their rigging of the market is business as usual. Banning environments such as these chat rooms is a knee-jerk response and is akin to shutting the stable door after the horse has bolted. Proper surveillance programs—technological and educational—to detect and handle these problems before they can affect the wider firm are the real answer. ■

James Rundle
Deputy Editor, Sell Side

Asia Pacific Stock Exchange to Employ Nasdaq OMX Tech

Nasdaq OMX will deliver its trading technology, X-stream, as well as Genium FIX, to the Asia Pacific Stock Exchange to power its APeX trading platform, which is expected to go live in late 2014.

"APX is revolutionizing the way Asian capital, especially China, is accessed," says George Wang, deputy chairman of APX. "By tapping Nasdaq OMX to provide our trading technology, we are selecting a platform with proven capabilities to offer multi-asset classes, indexes, high capacity, and the FIX infrastructure that offers local and overseas participants standardized, reliable, stable and fast communication. We are proud to be offering our customers an industry-leading trading platform that matches our growth ambitions, making our operational capabilities limitless."

APX is seeking to differentiate itself from other exchanges in a number of ways. These include attracting a large number of investors from Asia—specifically in Greater China—to trade on the APX market, targeting growth companies, and adopting a multilingual approach in the trading and information platform.

Nasdaq OMX's exchange technology, including trading, clearing, central securities depository (CSD) and market surveillance systems, is in operation in over 100 marketplaces.

Trapets Introduces Outsourced Market Surveillance

Trapets AB has announced the launch of Outsourced Market Surveillance, its new, fully out-of-house program for handling surveillance requirements at trading firms.

Trapets is offering the program in two flavors—full or basic. Both include a full surveillance regime in which Trapets employees install the InstantWatch Market system and monitor transactions, reporting back to the firm periodically and immediately when necessary. The full version, however, will involve Trapets submitting suspicious transaction reports (STRs) directly to regulators, whereas in the basic version, STRs are referred back to the firm.

"The obligations for firms to monitor and keep track of their trading have increased over recent years and that trend will more than likely continue over the coming years," says Gunnar Wexell, chairman at Trapets AB. "We are convinced that Trapets Outsourced Market Surveillance is the easiest, most reliable and most cost-efficient way for firms to be fully compliant regarding their responsibilities to carry out surveillance and submit STRs to the regulator."

Athens Exchange Selects Cinnober for Surveillance

The Athens Stock Exchange (Athex) has selected Cinnober's Scila Surveillance suite to handle a multi-asset monitoring environment. Scila is also in use at Deutsche Börse, Eurex and the Stock Exchange of Thailand. Athex handles equities and derivatives, and provides technical capabilities to the Cyprus Stock Exchange. The system will be implemented across Athex's entire trading platform, and can be accessed by regulators.

"The selection of Cinnober provides unique opportunities when it comes to implementing a strong surveillance methodology to multiple financial-trading actors," says Dimitris Karaiskakis, COO at Hellenic Exchanges Group, which owns Athex. "Following the integration of our cash and derivatives markets into a single trading engine, our ambition is to use advanced surveillance capabilities that will allow efficient real-time monitoring of all traded instruments, including equities, bonds, exchange-traded funds, warrants, futures and options on the same or correlated underlyings."

LSE Signs Partnership with Casablanca Exchange

The London Stock Exchange (LSE) has entered into a partnership with the Casablanca Stock Exchange. This move will see the LSE supply expertise on the exchange business cycle. Its technology arm, MillenniumIT, will also provide the venue with systems for trading and market surveillance.

"I am honored to sign this partnership that strengthens the cooperation already established between Casablanca Finance City and the City of London in 2012, which will allow Casablanca Stock Exchange to develop the financial market liquidity while strengthening its position as a regional financial hub," says Karim Hajji, CEO at the Casablanca Stock Exchange.

Liquidnet Expands Market Surveillance Team in Europe

Institutional trading network Liquidnet has expanded its market surveillance team in Europe with the appointment of Christopher Wall as head of market surveillance in Europe and David Stockwell as market surveillance specialist.

Based in London, Wall will be responsible for ensuring compliance with European regulations and for maintaining Liquidity Watch, Liquidnet's surveillance system. He will report directly to Anna-Maria De La Roche, European head of compliance and regulation.

Wall joins Liquidnet from Newedge, where he was senior compliance officer, prior to which he worked as a business analyst for the Royal Bank of Scotland.

Stockwell will be in charge of monitoring participants' trading activity on the network, investigating and alerting regulators to cases of potential market abuse.

Prior to joining Liquidnet, Stockwell was an equities trader at Société Générale and before that he served stints at Wood Street Capital and ABN Amro.

Nasdaq Debuts FX Markets Surveillance Module

Nasdaq OMX has announced the release of Smarts FX Trade Surveillance, a surveillance platform specifically designed to monitor trading activity in foreign-exchange (FX) markets. Developed as a module for its Smarts monitoring platform, Smarts FX gives compliance officers the ability to react to potential scenarios of market abuse and fraud, such as rate fixing, insider trading, unusual pricing away from the market average, and other areas. At the heart of the offering is the ability to visualize trading activity in currency pairs, and view that in the context of wider market activity at the time.

Trade surveillance has become a pressing topic in FX trading of late, following scandals around alleged manipulation of benchmarks such as the London Interbank Offered Rate (Libor), and issues around potential market abuse at the 4 p.m. closing fix. However, while advanced surveillance technologies are available in other asset classes, particularly those that trade on-exchange, the peculiarities of the FX market have made it difficult to develop rich solutions for consistent monitoring.

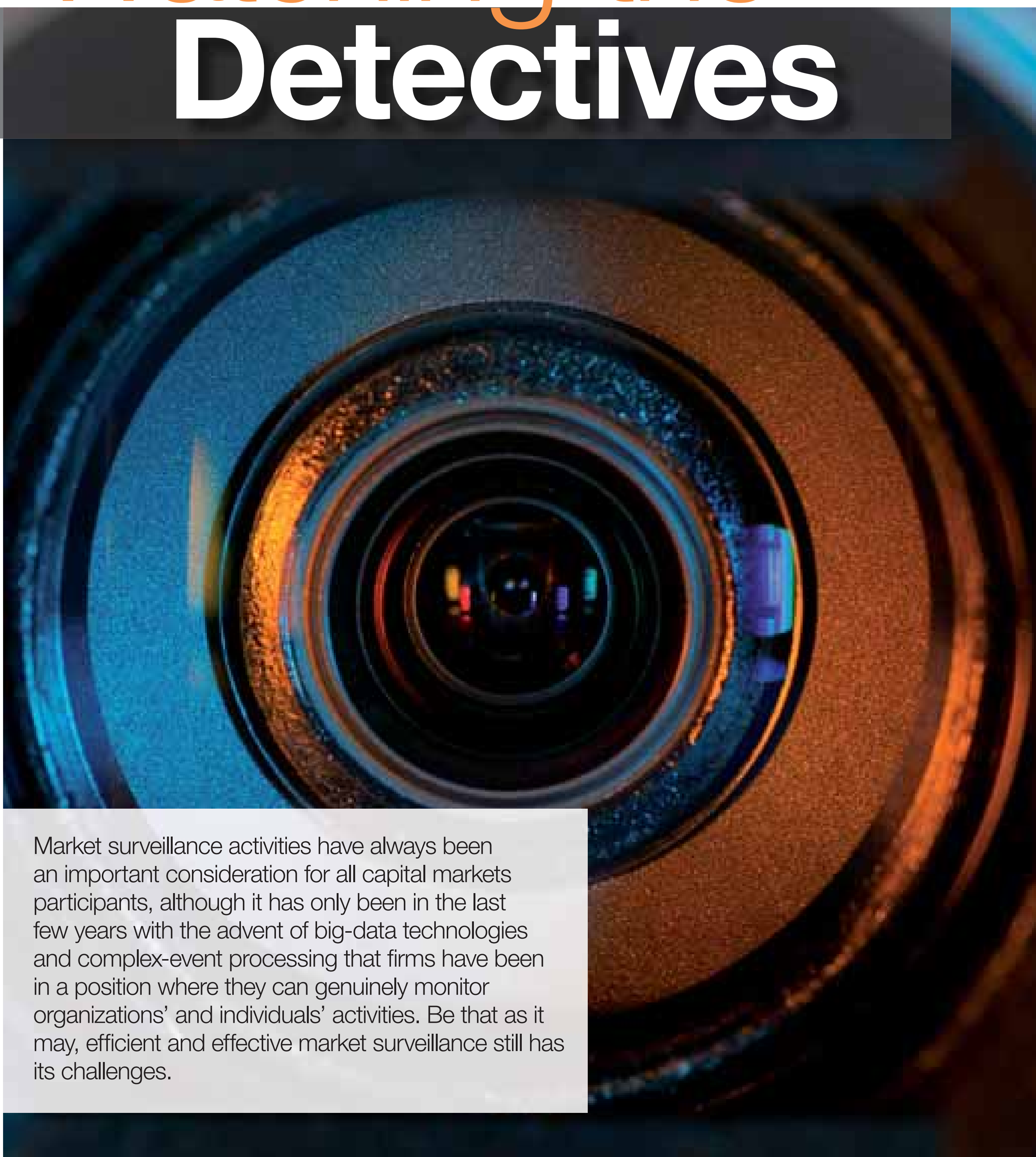
Part of this is down to FX being a decentralized market, with no particular "exchanges" per se, but also the unusual data models resulting from that. Market replay, for instance, a standard function in most surveillance systems and a regulatory pseudo-requirement, is difficult in FX due to the lack of a central data store, and functionalities common in other asset classes are similarly impaired.

As such, Nasdaq engaged with its investment bank customers on a co-development project for Smarts FX, seeking to identify what areas the institutions themselves wanted a focus on, and what the strategic direction for any surveillance solution would be.

"The approach we took for this particular service was that we spoke to six of our investment bank customers, which comprise, effectively, the largest bank traders of FX, and we asked if they would like to participate in our co-development project, where we would work with them in building out the surveillance module," says Rob Lang, vice president and global head of Smarts at Nasdaq OMX. "We had a series of one-on-one meetings with these banks, but also four or five meetings where we had all six in the room in London, basically thrashing out the priorities, the risks in the FX market, what kind of alerts we should be focusing on providing, and what the data model would be and so on."

The result, say Lang and Michael O'Brien, head of Smarts Broker at Nasdaq OMX, has been a "resounding success," with four banks now feeding their data into the system. Smarts FX will initially offer coverage for spot and forward instruments, with plans for further extensions for non-deliverable forwards and FX options. In terms of the surveillance priorities that have come out of the co-development project with the banks, the clear focus has apparently been around the 4 p.m. fix, and a series of alerts are already integrated with the solution, tailored to the idiosyncrasies of the FX market.

Watching the Detectives

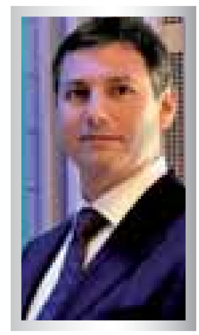


Market surveillance activities have always been an important consideration for all capital markets participants, although it has only been in the last few years with the advent of big-data technologies and complex-event processing that firms have been in a position where they can genuinely monitor organizations' and individuals' activities. Be that as it may, efficient and effective market surveillance still has its challenges.

Q Typically, what are the operational and technology challenges facing capital markets firms when it comes to monitoring the behavior of their own employees or organizations they are obliged to monitor from a regulatory perspective?

Yaron Morgenstern, general manager, financial markets compliance, NICE Actimize: Monitoring is a growing challenge with shorter times to provide information to regulators, coupled with increased numbers of investigations. Firms have to capture their trade data, market news, record who their counterparties are, as well as capture all of their inbound and outbound communications. To monitor all of this noise, firms need to start looking at new monitoring options. The ability to review and automatically analyze data, cross reference actions taken around transactions against market events, and then review that information against all forms of communications around the subject, offers firms levels of understanding that revolutionize monitoring and surveillance programs.

This approach is key for firms, especially around communications, as regulators remove limitations around communication monitoring and increase their demands around what a firm should be able to prove and produce. Communications, especially voice, provide unique challenges, and the ability to search and understand the discussions is at present hugely time consuming for firms. The communication does not just finish with the management of voice, but also the need to reconstruct complete communication threads to provide all relevant communications. These combined challenges push firms to look at consolidated, intelligent surveillance solutions to manage and understand the full interaction cycle of each and every transaction. When this is achieved, the ability to monitor and investigate situations in a fast and intelligent manner will transform the monitoring options available to firms today.



Bill Nosal

Global Head of Strategic ProductManagement, SMARTS
Nasdaq OMX
Email: SMARTS@nasdaqomx.com

Bill Nosal, global head of strategic product management, SMARTS, Nasdaq OMX: Data privacy restrictions are a key challenge. First, certain jurisdictions limit access to private trading information. If firms can legally access the details, the next hurdle is ensuring they have the right data to make informed decisions on the entities/people being monitored. Lastly, getting complete data in an electronic format can be challenging.

Regardless of privacy challenges, trading firms—both sell-side firms and increasingly buy-side firms, now not as dependent on the sell side as they once were—remain responsible for monitoring employees' and customers' trading activities. Adequate access to customer account and trading information is important to monitor for manipulative behaviors like wash trading, spoofing/layering, intra-day ramping, and marking the close. Having adequate account/trader information enables firms to minimize false-positives that can result from this data. To demonstrate this, consider an exchange monitoring activity absent of client identifiers. Without complete details, false-positives can occur, causing extra dialogue between parties to determine who was involved even before the abusive pattern can be identified.

"As data volumes grow exponentially, smarter methods of data processing become critical. Data aggregation of meaningful, calculated metrics is required for long-term analysis, as it is becoming increasingly time-consuming and costly to process months and years of order and trade data, especially with increased message rates." **Bill Nosal, Nasdaq OMX**

Also data-related is the ability to efficiently store and organize large amounts of data, which remains challenging. As data volumes grow exponentially, smarter methods of data processing become critical. Data aggregation of meaningful, calculated metrics is required for long-term analysis, as it is becoming increasingly time-consuming and costly to process months and years of order and trade data, especially with increased message rates. The question looming for many is when migration to the cloud will become the norm.

Another challenge for monitoring the markets can be the lack of a single, global view of trading strategies. From an exchange's perspective, trading may be seen in equity shares, but not an offsetting position in a contract for difference (CFD). Lack of visibility leads to additional workload and sifting through signals received, based upon the data they have, and then deciding which to pursue.

Joseph Weisbord, managing director, technology services division, ConvergEx Group: Since the announcement of Securities and Exchange Commission (SEC) Rule 15c3-5, also known as the Market Access Rule, ConvergEx, like most brokers, has spent the last couple of years upgrading its systems to comply.

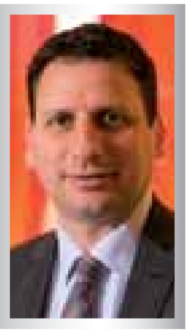
This principles-based rule calls for broker-dealers to implement systems, policies and procedures in order to limit systemic risk from affecting overall markets. ConvergEx was an early adopter of these concepts, and we have built systems that check for these types of risks throughout the trade cycle: from pre-trade (fat finger, regulatory and financial checks) to post-trade (our suite of systems designed to monitor trade flow and detect both client flow anomalies and potential compliance issues). Probably our most ambitious system is our real-time, post-trade system designed to monitor suspicious trading activity. It is called CRSS, ConvergEx's Compliance Risk Surveillance System.

Q With previously over-the-counter (OTC) traded instruments moving to on-exchange trading, and voice-based trading becoming more electronic in nature, to what extent should market surveillance platforms be natively multi-asset?

Joseph Lodato, chief compliance officer, Guggenheim Partners: That's a requirement we should have now, as well as going forward in the future. Market abuse can include running the options up to do something in equities, or you find a high-yield bond that has a very big correlation to equities. The only way you get that oversight is with multi-asset platforms.

Nosal: Multi-asset, multi-regional solutions are standard and imperative for survival. Exchanges, regulators and brokers generally invest in solutions that will cover present and future requirements. There are still gaps, however. While firms may have the ability to conduct surveillance on multiple assets, they may not be comparing trading across asset classes—not just within a single security type—and across regions, to find multi-market gaming. Additionally, platforms should compare phone-based and electronic platforms to link OTC and on-exchange activities, which does not always happen now.

Morgenstern: The need for multi-asset surveillance is greater than ever before. With firms using multiple asset classes to achieve specific financial results, they must be able to monitor all transactions from a single surveillance platform to ensure minimal slippage and provide the strong compliance solution required by regulators. But with growing pressure from regulators, one would argue that multi-asset trade surveillance is not enough anymore. Many firms are now monitoring communications, in conjunction with trade surveillance, providing a much greater insight to the inside noise of the market and its movements. All forms of surveillance need to follow the trend of combining all transactions with all other useful data into an "holistic surveillance" solution that can draw educated conclusions rapidly. Such practices must provide multi-asset, multi-region focus with the ability to execute central investigation or case management.



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Yaron Morgenstern
General Manager
Financial Markets Compliance
NICE Actimize
Tel: +1 212 643 4600
Web: www.niceactimize.com

Q While market surveillance technologies are particularly suited to monitor standardized asset classes such as equities, what are the challenges when it comes to implementing such platforms for non-standard instruments such as foreign exchange?

Morgenstern: In the aftermath of the financial crisis and the Libor scandal, there is now very discernible momentum among dealers to conduct risk assessments of their swaps/OTC derivatives and FX business models and to respond quickly to weaknesses and gaps within their control infrastructures. One of the obvious requirements coming out of these assessments is trade surveillance.

The first challenge with implementing such a system, as an example, is dealing with the magnitude of the FX market itself with an estimated $5.3 trillion daily turnover of which $2 trillion—or 38 percent—is the spot market. In that FX dealers operate 24x6 globally across their enterprise, it's critical that they have the right sized controls at the holistic level across the enterprise to adapt quickly to compliance risk, changing global regulations and data standards.

Firms also need to define what types of businesses they are in. Depending on whether they're "prop" or agency-only, and depending on which asset classes they deal in, the identification of controls varies. The outcome of this assessment allows for the development of specific controls, policies, and procedures to ward off other challenges. For example, firms that trade across asset classes must have a complete view of the activities of traders and their risk positions. And to review spot trading without all the corresponding forwards, NDFs and FX derivatives, would miss the forest for the trees.

The difficulty of defining controls is further compounded by the continuous trading and multi-regulatory jurisdiction nature of the FX market. Most firms will not attempt to retrofit existing systems to accommodate that complexity, but instead will focus either on building in-house or using an external vendor that contemplates the regulatory requirements, nuances, and idiosyncrasies of that market. And finite internal resources need to focus on the biggest challenge of all—sourcing and standardizing data from across the global enterprise and external sources.

“Just as with trade data, don’t underestimate the difficulty of finding the right size commercial technology for capturing and monitoring all communication channels—voice, interactive media, chat, and so on—and of integrating the results with the enterprise’s trade analytics. Weigh your options, and you will have fewer challenges.” Yaron Morgenstern, NICE Actimize

Additionally, since the majority of the FX market is OTC, any holistic model that is adopted would require two levels of compliance controls. One level would address trade analytics, and the other communications surveillance. The key to success here is that these levels must be integrated and not siloed—the dots must be connected—thereby producing a more effective control framework that is an integral part of identifying and analyzing risk. But, just as with trade data, don’t underestimate the difficulty of finding the right size commercial technology for capturing and monitoring all communication channels—voice, interactive media, chat, and so on—and of integrating the results with the enterprise’s trade analytics. Weigh your options, and you will have fewer challenges.

Lodato: First, the product itself is not a challenge because even though some products have more characteristics than others, you can still capture that information. While it may not be a perfect correlation, it’s still something that you can analyze. So the second part of that, the big challenge is that no one is capturing that the same way, so there aren’t centralized data repositories. They talk about big data, they talk about centralized repositories, but a lot of firms are still behind that curve.

I had an interesting thought the other day: Wouldn’t it be great to have a business that basically centralizes all the data from the entire industry? That would become a utility.

Weisbord: Compliance is usually not segregated by asset class or instrument, but rather by client. While each asset class or instrument needs its own “special sauce,” the result needs to be consolidated within a single system, and all cases should share the same resolution workflow.

Nosal: Data. For one, surveillance capabilities are not created equal across asset classes. While systems aim to search for similar types of abusive behaviors across assets, systems must deal with radically different data sets. Alerts coded one way for a particular asset need to be re-coded to account for data absences in another and also asset-specific manipulative behaviors, like marking the fix. We have gone through this with our recently launched FX trade surveillance product. For equities, highly transparent market data for prices and volume are readily available. In FX, over 80 percent of trading is internalized, and thus little data is available. Alternate approaches, like using third-party indicative pricing, are required to conduct the same level of interrogation. In general, as you move away from standard asset classes, market data availability is scarce and there’s much more dependency on technology vendors to conduct the heavy lifting to find the necessary data.

Q How useful are big-data-related technologies where typically large data volumes are consumed and digested by complex-event processing (CEP) engines in order to identify instances of potential market abuse?

Weisbord: The core of CRSS is Streambase’s Complex Event Processing (CEP) engine. We found this technology to be the perfect answer for this type of application. With the high performance and scalability of our CEP engine, we were able to ingest the millions of messages a day that we received. It also allowed us to intelligently filter, correlate and aggregate the data. And with all these capabilities we were able to create algorithms and methodologies to reduce false positives and assess the validity of detected events.

Joseph Weisbord
ConvergEx Group

Lodato: You need to have them; there’s too much volume to detect patterns without complex-event processors and big-data technologies.

Nosal: Big-data technologies are useful and are becoming a necessary component for holistic surveillance and risk analysis. When combining billions of transactions generated in equities with even more in options and large OTC trading data sets, firms can easily generate tens of gigabytes to monitor per day. Within these gigabytes of data, we see order-to-trade ratios upticking, and the need to deeply interrogate trades and the orders leading to those trades, surrounded by the noise of billions of irrelevant orders. When adding responsibility for electronic communications monitoring (ECM)—email, chat, IM, social media—data sets grow from enormous to unwieldy.

Surveillance analysts today have more noise to sift through than ever before. While firms may have efficient processes to cut down trading noise via advanced alerting capabilities, many ECM techniques are still inefficient and either manual or tied up in multiple systems. Big-data technologies can bring together these disparate structured and unstructured data sources to reduce a number of headaches for analysts. With data growing exponentially and a stringent regulatory environment, firms should interrogate their order, trade, and communications data repositories in a manner that both identifies potential problems in trading data and helps the surveillance analyst find and review potentially related communications to validate or explain the alert. Tying together these sources for a more comprehensive investigation will almost certainly better position firms, no matter what comes next.

Q There are a number of providers offering managed (outsourced) market surveillance services, but should this be a function that is kept in-house? What are the advantages, if any, of outsourcing this function?

Nosal: Firms should take the approach that best suits their profile, risk assessment, and resourcing capabilities, both capital and headcount. While most sell-side firms have internal surveillance processes, many buy-side firms outsource and rely on vendors to conduct their trading and operational responsibilities such as compliance and trade reporting. For those firms that need to allocate resources to other areas of the business, outsourcing is a viable option. There are a number of vendors that have highly qualified personnel conducting surveillance for hundreds of firms that present a comprehensive solution that would be difficult to achieve internally at a "reasonable" cost

Regardless of who manages monitoring and surveillance, the accountability for having compliant processes in place and the responsibility for actively monitoring, identifying and taking action on an instance of abuse rests with the firm itself, not the vendor. That being said, when choosing a firm to outsource surveillance or even taking on a new surveillance solution in-house, firms must choose their partners wisely.

Joseph Lodato
Guggenheim Partners

Lodato: It's very costly and expensive to build these platforms, so it's great to have an outsourced function and have some of that cost defrayed. But the flipside of that is that you have to have people to pioneer this and to really make it work for your firm and you need to take that in-house. So the creation of it may need to be in-house, and then moved toward a utility or outsourced vendor doing it for four or five firms. I don't think that the vendors have the innovation within them to build that and then run it.

Weisbord: When we started designing our surveillance system, we wanted it to be proactive with real-time monitoring to detect and manage market abuse. We found that outsourced solutions were lacking in two main areas. The first was they were unable to keep up with the volume and velocity of our trades. The second was how they treated the resolution and investigation after an issue was found. We already had expertise using CEP technologies and were able to design and implement a system that fulfilled our needs. Building in-house not only helped us handle the volume and velocity of our trades, but we are also able to build proprietary algorithms for sophisticated pattern detection. We also built a very efficient and intuitive case management workflow system to compliment the detection software.

Q Certain market surveillance and compliance functions are currently only performed at the end of the trading day. To what extent should real-time platforms with compliance officers reacting to events as they happen become the norm?

Lodato: The question is: Does it have to be real time? I would love it to be real time, only to be able to react more quickly to things, but real time doesn't give you all the pattern recognition that you need. So you can run real time to see something happening the first time so that you can say, "Hey, don't do that," but you also want to make sure you don't lose sight of, "Who did that five times in a row in the last two months?" You want to see, through pattern recognition, these abuses and you may not get that in real time. I don't think you should build it for real time. Build it first, and then speed it up.

Weisbord: ConvergEx's surveillance system set out to change how people view compliance systems. Traditionally, compliance reviews start when the trading day is done. Reports used to be produced overnight, with review the next morning. The SEC mandate was the impetus to create something new, efficient and exciting. With the limited flexibility inherent in batch systems, the globalization of the compliance function requiring 24-hour systems, and the need to detect and investigate abusive practices as soon as they happen, the old methodology was not going to suffice in the current environment. The software allows us to whittle down the 100 million trade messages that we process each day to a manageable number of daily alerts. Our collaboration and research workflow increases the efficiency of the whole process from detection to resolution. It also significantly reduces analyst workload.

Nosal: We advocate taking both a real-time and historical view of data to conduct a more comprehensive analysis of trading activity. While we think real-time or intra-day monitoring is important to incorporate and can certainly help manage regulatory risks and their respective consequences much earlier than at the end of the day, there are certain behaviors that require a longer timeframe of analysis. Historical look-backs are imperative to identifying patterns of abuse over the course of a full trading day or multiple days. Some of largest manipulation and insider trading cases extended over long time periods, and if surveillance had been limited to real time, these abusive instances wouldn't have been as evident. ■

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