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trading technologies for financial-market professionals

Sell-Side Technology Awards 2017

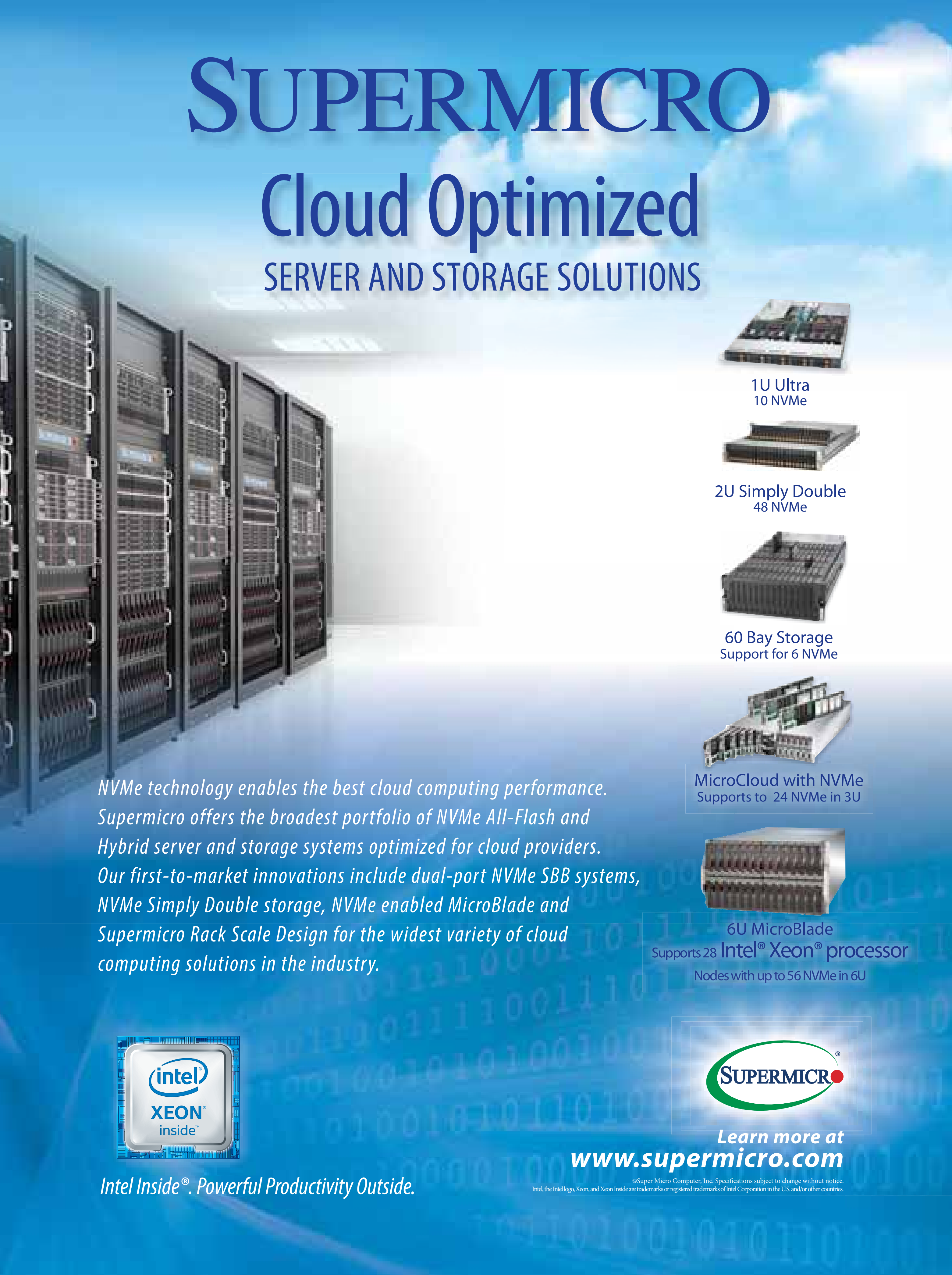
Buy Side Calls for Order-Routing Transparency

FOCUS ON SPEED BUMPS

Systematic Internalizers Raise Doubts

BORN TO BE A BANKER

US Bank's Jodi Richard draws on regulatory experience—and family tradition



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Reasons to Be Cheerful

From a technology perspective, capital markets firms have never been better served than they are right now. That statement might sound trite, but it warrants closer inspection. When I first started writing about the fintech industry 16 years ago, off-the-shelf software was pretty thin on the ground. Sure, firms like Macgregor, Charles River, Advent, Algorithmics, Barra, Sophis and Monis had already been founded and were well on their way to building impressive pipelines, but financial services firms that wanted really special functionality pretty much had to build it themselves—hence the reliance on home-grown, proprietary applications, and, of course, Microsoft Excel. Where would the capital markets be without trusty old Excel, I wonder?

Even though the sum total of fintech firms today has fallen significantly compared to the high watermark of, say, a decade ago, due primarily to mergers and acquisitions, capital markets firms are now spoiled for choice. Tech firms come and go—that's a sign of a maturing marketplace—but if, as a CIO, you can't find what you're looking for from the third-party vendor community, you're not looking hard enough.

But before we get all misty-eyed about how caring the fintech community is about their clients, we should also acknowledge that altruism is not a service that any of them specialize in. It tends not to pay the bills. They are, first and foremost, commercial entities.

One area that might have been underserved 18 months ago but is now chock-full of services and reasons to be cheerful is the Fundamental Review of the Trading Book (FRTB), introduced back in 2013 by the Basel Committee on Banking Supervision to ensure that firms' "standardized and internal model approaches to market risk deliver credible capital outcomes and promote consistent implementation of the standards across [its] jurisdiction."

Firms like IHS Markit and FIS, both of which won categories at this year's Sell-Side Technology Awards on the back of their FRTB offerings, clearly identified a need from their clients early on and are now servicing that need, although they obviously also detected dollar signs.

The FRTB story is set to run for some time—that is until its implementation date in January 2019. Between now and then, however, we're likely to see more consolidation if our industry's track record is anything to go by. And while on the topic of contraction and consolidation of the fintech industry over the last decade, it's interesting to note that of the seven firms I mentioned at the top of the column, only one—Charles River—is still operating under the same name as it was all those years ago. The rest might still be around in one form or another, if not necessarily in name … in the wake of their acquisition. W

Victor Anderson
Editor-in-Chief

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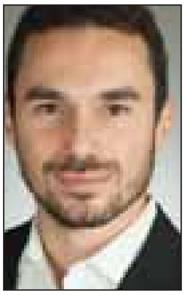
AI: Job Killer or Human Augmenter?

At the North American Trading Architecture Summit, industry experts discussed the merits of AI and whether it might improve human traders' capabilities, or replace them altogether. By Anthony Malakian

Elon Musk is worried that with artificial intelligence (AI), "we are summoning the demon" that could destroy mankind. Stephen Hawking is concerned that AI could prove to be "the best or worst thing to happen to humanity." Larry Page, on the other hand, is constantly trying to push the limits of machine learning, while Mark Zuckerberg is building AI to run his home. When it comes to the intersection of human and robot, there's both pessimism and optimism. This is a debate that will be fought in every job sector and it's one that is increasingly playing out in the capital markets. Could a machine trade better than a human? Could it learn faster than a CEO? Could it manage risk better than a chief risk officer?



Henry Kravchenko
Marshall Wace

Reason to Believe

At this year's North American Trading Architecture Summit, panelists sparred over the merits of a world run by algorithms. Henry Kravchenko, head of information technology at Marshall Wace, said AI won't replace humans; rather, it will be used to augment humans. There will be jobs available for people even in the face of rapid automation. The problem will be finding workers with the right skillsets to fill those positions. "If you really want to drive a truck, you may not have a job; if you really want to take calls at a call center, you may not have a job. But we have to distinguish between job scarcity and skill scarcity," Kravchenko said.

The result of this is that the skillset needed to be a trader will evolve to better make use of technology in the decision-making process. "There are things that will happen that AI can't predict, such as Donald Trump being elected. You still need people to guide those algorithms and tune them. Those jobs are not going away, but they're becoming much more technology-focused and much broader," Kravchenko said. "Your execution trader—who gets an order and trades it—is going to be augmented by technology wherein they have to route it to the proper execution algorithms and use judgment and information from the market that the algorithms can't possibly obtain to make that decision."

While futurist Thomas Frey predicts that by 2030, 2 billion jobs that exist today will have vanished, Duke University professor Cathy Davidson estimates that 65 percent of children who entered grade school in 2015 will end up in jobs that don't yet exist today.

Impossible to Predict

Philippe Burke, chief investment officer at Apache Capital Management, sided with Kravchenko, saying that it's impossible to predict what the jobs of the future will be—but there will be jobs. When it comes to AI, it's a story of augmentation, not replacement.

"If you put a hundred different options traders in a room, you're going to have a hundred different ways to manage your delta hedge position," often called gamma risk, Burke said. "There are a lot of different ways to do that and there's judgment involved. That element—that ultimate decision of should I hedge now, or in five minutes, or after a bigger move, or at the end of the day?—that's a very human decision. There's no evidence, to me, that a computer would do that better than a human. I see AI as augmenting traders."

To that point, Li Yang, head of credit algorithmic trading technology and core services at Citi, said that while AI will help with the pricing and grouping of, say, illiquid bonds, there will always be the need for a human to oversee those algorithms to help guide them and to provide context when a market event happens. "When we see things not going well because the market has changed and our AI is not responding correctly, this is where the human can jump in to set strategies," Yang said.

A Bleaker View

Others did not agree. Sonny Saksena, principal at Maihar Capital, was even less enthusiastic, pointing to the US Midwest and the farming sector as evidence of what lies ahead for finance. "As someone who grew up outside of the financial industry, the way that I look at the finance industry today is the same way as when John Deere showed up in the farming industry," he said. "I understand your point, but the reality is that whenever automation has met an industry, it didn't like the people in those industries. I don't think you've been to the middle of America," he said to a panelist. "Kansas to Ohio to West Virginia—the whole place is being decimated by the migration of jobs. The finance industry looks similar to the farming industry as I see it." W

THE BOTTOM LINE

- While it's true that in some instances AI will be a job killer, it will also give life to new sectors. It's impossible to foresee exactly what that will mean for future generations, but in the near term, AI is already expanding what a trader was previously capable of and that evolution will continue to bring positive returns over the next few years. Check back in a decade or do to see if this optimism still exists. Hopefully, journalists haven't been replaced by then and we can continue to report on this evolution.

Mirabaud Securities Focuses on Mifid II Execution, Liquidity Management

Jason Rand, global head of trading at Mirabaud Securities, talks to WatersTechnology about the agency-broker's new trading and outsourcing platform. By John Brazier

For all the talk of Mifid II's emphasis on transparency and investor protection, the effects on liquidity and execution management can sometimes get lost among the weeds. For Mirabaud Securities, the agency-broker arm of the Switzerland-based Mirabaud banking group, the issue is front and center of its newly launched Mirabaud Execution Solutions (MES) platform, a combined offering of outsourcing services and an electronic trading platform, says Jason Rand, the firm's global head of trading.

The MES platform is based on an unbiased routing infrastructure that allows the firm to offer non-conflicted execution options according to price, liquidity and best-execution factors. In this area, Rand highlights the platform's liquidity-seeking algorithms, designed to provide users with a diverse set of options across dark and lit, dark-only, and block-sized liquidity.

"The idea behind this is for us to enable our clients to interact with new trading technologies and liquidity destinations introduced by the systematic internalizer regime," says Rand, pointing to new entrants that have come to market as alternatives to trading under the reference price and negotiated trade waivers, such as Turquoise Block Discovery, Bats LIS, and Euronext's upcoming dark-pool MTF. "In terms of opportunity, greater market complexities will increase demand for exposure to new products and is likely to be a major sticking point for many firms moving forward."

The platform will also leverage Mirabaud's Portfolio Tracker, a proprietary tool that provides clients with information for relevant fund holdings, watchlists or historical trading activity, which Rand says has been a result of increasing demand from buy-side firms where resources are retrenched or market experience is a luxury some can no longer afford.

Outsourcing Options

Alongside the trading aspect of the MES platform, Mirabaud has also bolstered its outsourcing services, a key part of its offering that is becoming more consultative. Rand says outsourcing will continue to be an attractive option for many small to mid-sized asset managers where overhead execution costs for trading desks or limited access to new technologies present obstacles to compliance and operational efficiencies as market complexity continue to grow.

"The key is control," he says. "It is about showing clients that with the right monitoring and analytical frameworks, whether they are outsourcing part of their execution or all of it, that they can still maintain control over the process."

While most outsourcing services tailored to asset managers focus on back-office functions or Mifid II's reporting obligations, Mirabaud's execution outsourcing aims to introduce clarity to execution, particularly in light of upcoming requirements for asset managers to display best execution.

"The primary issue for a lot of investment managers is that historically the execution process has not been considered independently," Rand says. "The increased scrutiny from regulators is putting a lot of responsibility on them to understand best-execution factors in markets that are growing more complex."

One of the most contentious elements of Mifid II is the proliferation of systematic internalizers (SIs), whereby entities that are trading bilaterally in a specific security will be required to provide both pre- and post-trade transparency on trades below a certain size specific to that particular instrument.

"We anticipate—perhaps as an unintended consequence in order to make markets more transparent—that European market liquidity will further fragment as the number of destinations to source liquidity could double," says Rand.

As a result, Mirabaud has focused on building out its technology offering in order to most effectively interact with the new liquidity destinations, particularly in the areas of smart order routing and trading algorithms to interact with liquidity in a bilateral arrangement.

"We are of the opinion that SIs can reduce explicit trading costs, be it via price improvement or trading impact, and that they will be an integral part of our clients' liquidity strategies as they move forward," says Rand. "However, what we also recognize is that it's going to require the deployment of new technologies to dynamically monitor market performance and information leakage, as well as a fundamental shift in how orders are routed." W

THE BOTTOM LINE

- Mirabaud Securities has placed liquidity and execution management at the forefront of its MES platform offering, combining liquidity-seeking algorithmic trading with outsourcing services to enhance execution processes in preparation for the arrival of Mifid II.

Rising to the Intraday Challenge

New requirements for intraday cash and liquidity management reporting introduced by Basel III have resulted in a growing number of firms revamping existing treasury systems, and SmartStream's Corona Cash & Liquidity solution is on the crest of the wave of change.

After treasurers in Europe have finished their workday, dollar transactions are in full flow and payment positions in other currencies continue to change. In reality, liquidity may run low at any time. The global financial services industry never sleeps, and for regulators the financial crisis of 2007–2008 was the wake-up call.

Since then, one of the areas that has been under close scrutiny by regulators is the movement of cash and flawed liquidity management processes. Although payments normally run smoothly, the financial crisis highlighted how quickly liquidity can dry up and the potential liquidity risk introduced by stressed market conditions. For regulators the focus has therefore been on ensuring banks manage liquidity risk and meet capital adequacy requirements, which have been set out by the Basel Committee on Banking Supervision (BCBS).

As early as 2008, BCBS mentioned the importance of banks to "actively manage intraday liquidity positions and risks" in *Principles for Sound Liquidity Risk Management and Supervision*. In 2010 BCBS included a footnote in its *Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring*, stating that BCBS was "reviewing if and how intraday liquidity risk should be addressed." The details on how banks should handle management of intraday liquidity risk followed three years later in the *Monitoring Tools for Intraday Liquidity Management* (BCBS 248), which set out the expectations and example templates for intraday reporting on liquidity positions.

The new reporting requirements were initially scheduled to be introduced in January 2017, but deadlines have been pushed back to 2018 and 2019 in many countries. From a technology perspective, however, and, on the basis of events in pioneering countries, the trend firms are seeing is Basel III driving change in treasury departments. The new regulation has resulted in firms being able to justify a complete overhaul of cash and liquidity management systems, improving capabilities for both reporting and monitoring.

Software vendor SmartStream, one of the firms helping banks comply with the new regulation, has developed a new offering—an addition to its existing reconciliation system Corona. SmartStream's well-established reconciliation system has a rich exception management system on top of it, and because of the data requirements for the reconciliation system it covers a wide range of instruments. With the Basel III-relevant cash and liquidity data already in the system, Christian Schiebl, executive vice president of the Corona Business Unit at SmartStream, says it became clear it was the right time to enhance Corona's assisting customers' compliance with the new regulation—and Corona Cash & Liquidity is the result.

Raiffeisen Bank Inter-national has taken a proactive approach to Basel III, going live with SmartStream Corona Cash & Liquidity reporting solution throughout Raiffeisen Banking Group Austria last year, following a close collaboration between SmartStream's product development team in Vienna and the bank's treasury domain experts.

The Corona Cash & Liquidity reporting offering is designed to enable efficient regulatory reporting as defined in the BCBS 248 specifications and help banks monitor and manage cash positions on an intraday basis. The comprehensive system delivers one central tool to monitor and control all aspects of cash and liquidity management, and can be used to generate complete Basel III reports, incorporating, for example, central bank reserves, total credit lines available, balances with other banks and data on intraday throughput. The system provides real-time data from external sources and can help firms feed data into reports, enabling banks to comply with the regulation.

For Raiffeisen, the access to external data was a key selling point. The bank had previously built intraday cash and liquidity management tools internally, as intraday management has been an ongoing priority, but Basel III introduced the need to source external data and gain enhanced visibility into cash positions. "The driver to get something new was that we needed to produce Basel reporting with external data," says Wolfgang Pollak, senior asset liability manager at Raiffeisen.

The external data that firms now need for Basel III includes timestamps and credit and debit information from counterparties, and the addition of this data means a bank can be certain they are looking at the same data as the counterparty sees on its screen. "With Corona Cash & Liquidity Management we have data we can trust, and we're no longer relying on what we think the counterparty sees," says Pollak.

Riding the Basel III Wave

Other banks have taken the same approach as Raiffeissen, and SmartStream's Schiebl says Basel III and cash and liquidity monitoring have become the most important market drivers for SmartStream's Corona business. As firms gear up to meet Basel III deadlines, the vendor has started seeing increased traction for product upgrades and implementations of Corona Cash & Liquidity. After releasing news on the Raiffeissen project, SmartStream also announced that Banque Saudi Fransi—a leading provider of banking products and services headquartered in Saudi Arabia—had selected its Corona Cash & Liquidity solution, as had Bank Mendes Gans in the Netherlands, part of the ING Group.

The roll-out of the regulation this year and next is driving firms to assess how to best meet the new reporting requirements. The overall goal is to not only produce the reports, but also gain an improved overview of intraday liquidity. Commenting on the Bank Mendes Gans implementation, Edzer Dirksen, manager client services, executive vice president at the bank, says: "We will be able to manage our risk on an intraday liquidity basis, which enables us to react faster and with more flexibility."

There are three aspects to the Corona Cash & Liquidity system: reporting, monitoring and management. "The Basel III reporting function is the most compelling reason for clients to take Corona Cash & Liquidity right now, as they have to make sure they're compliant with the regulation, but firms that take the full solution have full cash and liquidity management," says Schiebl, who explains that efficient intraday reporting alone, which is needed under Basel III, is not sufficient to solve liquidity problems. Setting up for intraday reporting means looking back in time—collecting data on what has already occurred. However, the aim, explains Schiebl, is to deploy systems and processes for cash and liquidity management to predict future cashflow, inputting data on contracts that are already in place and future transaction dates that have been agreed with counterparties.

The Corona Cash & Liquidity system acts as a central depository for this information, which in smaller firms might have been collated in spreadsheets. With the aid of the new system, firms can take an overview at the push of a button and identify areas that need to be looked into. Schiebl says this could, for example, be a need to move capital from one account to another to prepare for a significant payment. To streamline this whole process, Corona Cash & Liquidity enables users to trigger a payment, further improving automation in cash and liquidity management.

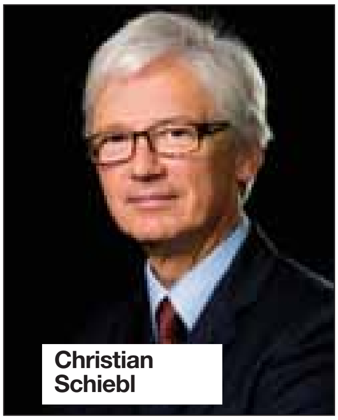
A Winning Game

Efficient liquidity management can enhance performance of the treasury function, with firms continuously striving to hold the right amount of liquidity at any point in time. "The top benefit of Corona Cash & Liquidity is the potential for firms to improve the quality of their decision-making," says Schiebl, explaining that, unless the bank has a complete picture of funds available for investment, the funds are sitting there and not generating returns for the business.

Raiffeisens's Pollak says one of the main benefits of going live with Corona Cash & Liquidity has been better knowledge of the intraday liquidity profile, which puts treasury in a good position to draw the right conclusions and possibly reduce the bank's liquidity buffers to improve returns.

For Raiffeisen, the most important areas to cover have been nostro accounts—the accounts used by banks for maintaining cash in markets operated in to avoid currency risk on transactions—including USD accounts. Pollak says the bank now has real-time data on external account bookings in nostro accounts, and treasury can monitor what is already executed, what is in the pipeline and what is going to be paid out today. "This overview and the data quality was not available to us previously," he says.

Another benefit to Raiffeisen has been the improved management of USD accounts. Pollak explains that, although EUR is the bank's main currency, EUR accounts were easier to track due to Target2 in Europe. With Corona Cash & Liquidity, however, he says it has been particularly useful to improve monitoring of USD accounts because it is the second most important currency for the bank and the time difference means many transactions are happening late in the day.


Christian Schiebl

The Finishing Line

The next step after implementing the software is to ensure good communication with counterparties to get the data quality right. "We're dependent on our external counterparty for data quality. It needs to deliver the data we deliver to the regulator," Pollak says. "I need to get all credit and debit information from the banks that run our nostro accounts, for example."

Data quality may still be a question of communication with counterparties, but the key for banks gearing up for Basel III is to get their houses in order to compile the information coming in and make sense of the data collected. By establishing a central data repository and implementing tools for monitoring intraday liquidity, banks can create the much-needed foundation for complying with the new requirements and ensure they are in a good position before potentially moving on to the next challenge of ensuring partner firms also step up and deliver quality data to feed the Basel III reports.

Considering the complexity of monitoring intraday liquidity and the looming Basel III deadlines, speed of implementation is now at the forefront for firms. From existing Corona users, the new Cash & Liquidity system has received praise for its short go-live times. Bank Mendes, which has a very high straight-through processing rate of at least 95%, took only five days to implement the IT, and the fast time to market was equally important to Raiffeisen Bank, which had also previously installed Corona in its live environment. "It seems that for clients who use Corona already it's relatively smooth to add the cash and liquidity monitor on top of the existing installation," says SmartStream's Schiebl.

With the new software in place, banks are not only ready to fulfill the requirements of Basel III—such as filling in time-specific data on payment positions—but will also have a full overview of the intraday payment profile and be in a good position to manage intraday liquidity risk and settle transactions on time. "Being completely compliant is also important for ensuring the bank has a good reputation in the market," says Pollak.

The reporting needs may be driving the transformation right now, but the monitoring and improved data on intraday payment profiles is the real benefit – the benefit that can result in a banking sector more prepared for stressed market conditions. W

Modernizing Governance, Risk and Compliance Strategy

A panel of industry experts, convened by *Waters* and sponsored by MarkLogic, explores how firms can increase transparency, improve agility and respond more quickly to market and regulatory uncertainty by integrating data better, faster and cheaper. Potential shifts in regulation may affect budgets and priorities, and firms must create strategies for data collection and security.

The Panel

Christian Hunt, Global head of compliance and operational risk control for asset management and Europe, the Middle East and Africa, UBS
Ken Krupa, CTO for enterprise, MarkLogic
Robert Paolino, until recently, Chief risk officer, Bank of Tokyo-Mitsubishi UFJ Japan

Financial services organisations are under pressure to significantly transform processes related to areas of governance, risk and compliance (GRC). Managing responsiveness under a proliferation of IT systems, as well as exploding volumes and a variety of data, has become a high-stakes balancing act. In an increasingly complex landscape, addressing data management head-on helps not only create a working GRC strategy, but build a better overall business.

Q GRC consists of separate functions with different requirements and different individuals tasked with managing them. Why are people looking to address these as part of a greater whole, and what are the challenges associated with doing it that way?

Ken Krupa, MarkLogic: I am asked this question a lot internally. Each letter of GRC is interrelated. If you dial down compliance you increase risk—that's an observation most of us can agree on. It's almost like a law of conservation for risk and compliance. The fewer safety governors there are, the greater the chance of going off the rails, and we saw that in 2008.


Ken Krupa

And then governance is this crosscutting, over-arching set of functions to manage the other two, whether you are heavily compliance-driven and hope managing the compliance will in turn manage the risk, or you take it from a more balanced perspective, seeing compliance as a necessary evil but choosing to be more proactive at de-risking things.

Q Where are firms' regulatory compliance strategies right now, and where can they get to in practical terms?

Christian Hunt, UBS: In an ideal world, everybody would sit at the point where they were ready for every single regulation, where they knew whether it was coming down the line, had the systems and controls in place to deal with them, and a full embedded understanding of that within the business. In an ideal world we all sit at the top. In a more realistic world, we recognise the volume of regulation—especially for those global firms dealing with a multiplicity of different jurisdictions and regulations—makes that much more challenging.

But the ask from a regulatory and a broader stakeholder perspective is to get as close to the top as possible. There is, of course, a danger in front-running regulation, especially in Europe, where regulation takes a long time to bed down and the detail takes a long time to flesh out. But I think one needs to be as on top of the game as possible.

So I would err on the side of being ready rather than not ready. Regulators sometimes introduce things and need time to work out what they mean. Sometimes they have a political imperative to make things happen, which can result in rushed regulation. We've seen this during the crisis but, equally, afterwards when politicians want to be seen to be doing things that take time and may morph in terms of substance.

So it's a very challenging topic. I think it's a well-raised question, but clearly the exam answer needs to be at the top of the chart. I recognise that, if people are being honest, they may well find themselves further down than they would like to be.

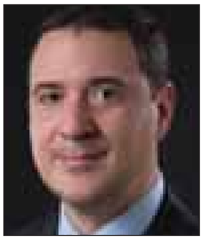
Q Do the dangers involved relate to the scope of regulation changing and invalidating work already done? Or more to sitting on a sunk cost for longer than you would like? Is it a question of compliance or cost of investment?

Christian Hunt: I think it's all of those. Typically regulations err on the side of not allowing things, but forcing you in certain directions, which typically means you stop doing things in a certain way, do it in a different way or stop doing it completely. There is a danger of putting oneself in a position where competitors aren't necessarily as far advanced; that can lose you short-term business, which is a challenge in a cost-constraint environment where everybody is chasing every single dollar they can find.

But there is also a risk that you run in the wrong direction, investing in things that go either too far in one direction or miss the point of the regulators' pivot slightly. All that said, a tremendous business imperative is to be ahead of the curve because many of the regulations nowadays are driving, especially in the conduct arena, towards what customers are going to be looking for anyway.

Therefore, and to a certain extent it will depend on the type of regulation, there is a benefit to being an early adopter when one can use that for commercial advantage.

Robert Paolino: Most individuals will respond with a wait-for-the-regulators approach or anticipate the regulatory approach. The anticipation or acting in advance of potential new regulations has its challenges. You're sinking costs in, you're spending money, but you might be putting resources in place that may take you in the wrong direction in terms of overall regulations.



Roberto Paolino

Part of the challenge is that each regulator has its own unique take; specifically, we've seen the US taking a very individualistic approach within its regulations and a very prescriptive approach. Some of the challenges within the countries that follow Basel regulations quite closely is that we see it's more principles-based. And the principles-based nature of those regulations requires, depending on the size and type of your organisation, more thought in developing data programs, practices, policies and approaches to handle the upcoming regulations.

By fostering that regulatory approach where you're working very closely with the regulatory agency, you can anticipate and foresee what will be implemented. Many regulatory bodies provide draft formats that open up commentary and discussion around regulations, but one challenge is waiting too long. You may not have time to implement or you might be overly rushed. And, in terms of anticipating it, you could be going in a slightly incorrect direction from what the regulators are expecting.

Ken Krupa: There is a balance between front-running the regulation and waiting too long, and then reacting. We live in a multi-jurisdictional world and every jurisdiction has its unique take. That said, there are some fundamental data management perspectives we can bring to regulation, whether you're looking at Dodd-Frank, the Markets in Financial Instruments Directive (MiFID) II, or very principles-based regulation such as BCBS 239.

There is a common thread around the need to be transparent, particularly when things get very complex. The easy-to-understand stuff will always be easy to understand; so let's report on very simple types of instruments where the exposure is very well understood. But that's not really the problem most regulators are facing. They're not just saying, "Hey, give us this information," or for MiFID II, "Hey, give us 40-odd more pieces of data around a trade."

But the guidelines of BCBS 239 are saying: "Also prove to us how you got to those particular results." So it's important to consider lineage, provenance and how the data got to a certain state, or asking if a similar question from two different lines of business will get the same answer, and whether it's a regulator or internal risk and compliance asking. Those are good things to do anyway.

In 2008 when the question was asked—"What's our exposure to Lehman Brothers?"—it wasn't a simple, "Let's just go to this exposure table and look up all the Lehman Brothers entries and add them up." As we know, exposure to Lehman Brothers was a complex web of legal entities as well as a sort of cross-asset-class instrument exposure that required a mapping of all the interconnectivity of not just the legal entities that comprised Lehman Brothers, but all the different derivative instruments where you might have exposure, particularly interest-sensitive or debt instruments.

From the perspective of knowing just how every piece of data pertinent to risk and exposure for the organisation got there, if you take a fundamental look at managing the data from the front office all the way through middle to back to the reporting for regulators, you could do things at a foundational level that will give you the sort of position to react more easily to what the regulators are asking for.

So instead of taking an outside-in approach, as they are asking for, let's work our way back from the regulation to the source, taking an inside-out approach. It's easier said than done, but there are other technologies available today where other technologies and data management strategies that banks can employ to create a more agile kernel of data management to react to what the regulators may be asking for.

Q In answer to the question "What best describes your firm's regulatory compliance strategy?" 56.3% of our audience said they anticipate regulatory needs to self-certify with upcoming regulations. But 22% said they had no overall strategy, but deal separately with regulations as they arise.

Ken Krupa: Some businesses' exposure to regulation—whether based on size or how and when they participate in the market—limits their need to proactively address it. However, if you're a Global Systematically Important Banks (GSIBs), you shouldn't be in that bucket of addressing each new regulation separately.

GSIBs don't have the luxury of reacting to each new regulation as it arises. They are in too many jurisdictions, participate in too many different types of market and with too many counterparties to just react. The complexity is too great, so they should be in that 56.3% that are anticipating regulatory needs.

Firms need to take a more fundamental approach and ask, "What are the principles that matter?" Transparency and a good understanding of how you get to specific numbers is fundamental to any strategy.

Q To what extent does firms' preparedness depend on their own internal culture and management philosophy, and how much on compliance as an end in itself, as opposed to being something in which you can exploit the investment you've made to create better business ends?

Robert Paolino: Smaller organisations tend to look at their operations as more simplistic and not requiring as intensive a review as the GSIBs, or, as with the seven largest banks in Canada, domestic systemically important banks. Many times, organisations see their operations and their approach as quite simple—it is a "wait and see" what the first-movers will do within the industry.

This approach tends to leave smaller organisations playing catch-up and they may be rushing a programme that needs to build on the alignment and consistency within data gathering, without getting into the complexities of building out stress testing and modelling programmes, and having a core foundation around the collection of data to determine the responsiveness.

My outlook has always been to demonstrate the approach in the organisations I've worked with, with the regulators. And I think it's quite important that most organisations take an anticipatory approach with active communication and regularly liaising with the regulators. Many times, some organisations may feel their operations are quite simplistic and take the incorrect approach, not believing that the regulations will cover them similarly to the larger, more complex organisations.

Q What is the best way to balance the carrot and the stick when convincing people of the value of getting ahead of new regulations?

Christian Hunt: To touch on the topic I flagged earlier, the combination of compliance and operational risk control. I don't like the word "compliance" because it sends all sorts of signals and pushes one into traffic-cop territory if one isn't careful.

Compliance is about managing regulatory risk and, like any other operational risk, comes in different guises and needs to be thought of in terms of having a risk appetite. There are many examples where regulators are prescriptive and others where they are less prescriptive, but they make hints or make statements about principles.

So it's not a straightforward case of saying, "Here are some rules we comply with and if we comply with those rules we're fine," because you have to look at the intent behind them. So one is looking more now at treating regulatory risk as any other risk, which needs to be understood. It needs a coordinated approach, and we need to think quite carefully about managing the challenges that poses.

Christian Hunt

Clearly, the more complex one's businesses are and the more locations one is in, the greater that challenge. It's undeniable that, whatever business one is in, there is a huge amount of change and that the regulatory agenda continues to be quite aggressive in a number of territories and a number of different ways that challenge the very business model firms have historically undertaken.

That is a challenge for the people on the front line who must take responsibility for things they never really thought about before. So in the first-second line delineation, we have seen first lines as being quite weak and people in the front line saying, "I'm here to make money, and you guys sort the risk and the compliance issues out." And that's clearly not the direction of travel.

So when I talk about carrot and stick, the combination of compliance and operational risk allows me to use the compliance label as a mechanism for persuading people to do things that actually help mitigate risk. The stick of compliance is saying, "Look, there are consequences for not complying with the rules." That makes it a unique form of risk in that in many other operational risks you can't demonstrate as loudly and as clearly the downsides of the full range of activities, whereas everybody knows the costs of non-compliance.

The carrot is that, if one gets ahead of these pieces, manages it well and is seen to manage it well by the regulator, one is sometimes cut some slack.

But it also puts one in a position of being ahead of the curve when launching new businesses, when you think about which businesses you want to be in, when you are dealing with clients who have their own regulatory concerns. If you can demonstrate that you're forward-thinking and are answering the 21st-century regulatory questions, that puts you in a much stronger position to generate sustainable business going forward.

Does one want to be engaged in short-term arbitrage where the rules are changing and one could get away with certain things, or be ahead of the curve and thinking how to use compliance as a business advantage? It's that business advantage I try and push. W

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A FRAGILE REGIME

The systematic internalizers regime has sparked heated debate, not only among the financial markets but also between the European Commission and the European Parliament. It is a substantial regulation that radically modifies trading structures and is currently in the spotlight for its complicated nature and its unfortunate loopholes. Aggelos Andreou examines the reasons why SIs have failed to become a powerful weapon in the regulators' quest for market transparency.

There have been dark clouds gathering over the European Parliament lately and some members fear that the systematic internalizers (SI) regime might end up being Mifid II's Achilles' heel. The SI regime is suffering increased notoriety due to its unique complexity and a series of events that triggered public disputes between regulators, politicians and market participants.

The Delay

It all started with a delay. The SI regime is the only piece of Mifid II to receive an extension and is scheduled to enter the statute books nine months later than the rest of the Directive, in September 2018. Introduced as part of the original Mifid regulation in 2007, SIs were designed as a way of bilateral trading for executing orders outside traditional venues like multilateral trading facilities (MTFs) and organized trading facilities (OTFs). In essence, an SI is an investment firm that acts as a counterparty. Therefore, third-party buying and selling interests are strictly prohibited. The delay was decided when the European Securities and Markets Authority (Esma) realized that, because of the lack of a trading venue, it had to somehow supply participants with data. Esma's database will not be fully available until August 2018, six months after Mifid II comes into force.

Matthew Coupe, director of market structure at Barclays, tells *Waters* that participants need to understand what is actually trading in the market. "There wasn't any reliable database to go live with Mifid II on day one," he says.

"We need to have that data to understand the impact of where we think it's going to be and then understand how many people are going to be an SI."

Eventually, in a Q&A report published on November 4, 2016, Esma stated that "in order to ensure a consistent assessment and to ensure that all investment firms are treated in the same manner, for all instruments, irrespective of their liquidity status, the assessment should, therefore, be performed by September 1, 2018."

"There wasn't any reliable database to go live with Mifid II on day one. We need to have that data to understand the impact of where we think it's going to be and then understand how many people are going to be an SI."
Matthew Coupe, Barclays

The Three Letters

This delay would probably not have been that significant, had, three months later, on February 17, 2017, Esma not published a letter addressed to the European Commission, in which its chairman, Steven Maijoor, raised serious concerns over potential breaches of the SI regime.

In the letter, he said that some players among the broking community were planning to form covered connections of SIs as a way of introducing a version of the broker crossing networks (BCNs) that are set to be terminated under Mifid II. "We are very concerned about this potential loophole," Maijoor wrote. "Such arrangements would allow SIs to cross third-party buying and selling interests via matched principal trading or other types of back-to-back transactions, and would be supported by liquidity-provision agreements between members of the networks."

Paul Squires, global head of trading and securities financing at AXA Investment Management, explains that a Mifid II version of BCNs was not intended when SIs were originally conceived. "They wanted a regime that carries a significant amount of principal risk. To take on a trade, use latency advantage, execute elsewhere, and get back to fill that order on preferential terms is not what Esma had in mind," he says.

A week later, the members of the European Parliament's Mifid II negotiation team sent a second letter to the Commissioner, Valdis Dombrovskis, urging the EC to "take action to avoid the SI regime being circumvented by networks of interconnected SIs that de facto trade on a multilateral basis."

Markus Ferber, a German MEP and member of the team, tells *Waters* that, so far, nothing has been done, apart from a letter sent by Dombrovskis on March 16. "I cannot deny that I am very disappointed by the Commission's reply," says Ferber. "It is only a summary of the problem at hand, and of the different views one could take."

Ferber says it is frustrating that the EC refuses to take a firm stance and any action on the matter. "The Commission considers an exchange of views on supervisory best practice as the best they can do to deal with such an important issue," he says. "It is staggering—we are witnessing key Mifid II provisions being circumvented while the Commission is just a casual bystander."

Ferber vows to keep nudging the EC until it steps up and defends the regulation. "If the EC still refuses to act, which I would consider to be very disappointing, the next best thing would be for Esma to clarify the issue via guidelines or Q&As," he says.

A Commission official tells *Waters* that it is in talks with the involved parties but declines to answer Ferber's accusations. "We will continue to monitor the issue closely to make sure the provided guidance is sufficient," says the official. "We don't know yet how long these talks are going to last."

Geoffroy Vander Linden
Trax

He notes that the outcome will not be published any time soon, although it is not expected to cause any further delays in terms of the SI implementation. BCNs will cease operating on January 3, 2018. In their defense, while the reason for shutting them down was their complete lack of transparency, they did play a key role in high-quality trading, according to AXA IM's Squires.

"Post-Mifid I, BCNs remained an important pool of liquidity for us, and we transacted a lot of business in them either directly or via the brokers who then executed in their own dark pools," Squires says. "They were pools that were well-governed by the brokers and therefore the impact of toxic liquidity was less prevalent there contrary to public lit pools or even some public dark pools."

Sell-Side Burden

Despite this political row, the SI regime has always been one of the most contentious pieces of the Directive. It has two serious issues: First, as with many Mifid II mandates, there are still no final guidelines, and second,

it is an expensive regime, especially for the sell side. Firms will be forced to redesign their business models and carry out potential spending, especially on the technology front. Coupe says that the Barclays team has already spent a significant amount of time studying the legislation and all its components.

"We spend a huge amount of time understanding what we see as the liquidity threshold in the instruments that we trade, how our clients trade with us, and the detail of what they do," he says. "We've done a lot of analysis to see if we can do it on a client basis, to understand the level of pre-trade transparency that our clients are going to see and expect, and also how they trade with us over-the-counter (OTC) versus on-venue."

Barclays will produce something of a hybrid of a number of requirements to meet the SI obligations. "We want to make sure that we have efficient and effective compliant infrastructure," Coupe says. "It's going to lead to a number of different solutions and I think any bank in that stage will seek to leverage an internal build and also vendor solutions where appropriate."

Jason Rand
Mirabaud Securities,

The steps to qualifying as an SI should be followed carefully, provided sell-side firms can bear the burden of the huge technology and data infrastructure they have to build and maintain. Matthew Luff, director at consultancy QuA Vodis, says SIs will require major implementations of technology solutions that smaller companies might not be able to afford.

"If they become an SI, they have to trade off their own inventory," he says. "They have to do the pre-trade transparency, so if they provide a quote, it has to be provided to the market as well. And then they have to do the post-trade transparency as well."

The SI status, however, will be automatically triggered by the prerequisites set by Esma. "You are obliged to become an SI if you trade enough volume in a particular security," explains Luff, an aspect of the SI regime that smaller firms are afraid of.

A number of vendors such as Thomson Reuters and Trax have already implemented "SI determination" functions on their platforms. These functions alert users when they reach the levels where they automatically qualify as a systematic internalizer, which, as the vendors confirm, also represents something of a challenge for them too.

"Our solution is based on the instructions provided by Esma," says Geoffroy Vander Linden, head of transparency solutions at Trax. "At the same time there are still a number of question marks, so we are working with our clients to determine what the industry view is and how to interpret some of the Esma guidelines."

He says that like so many regulatory issues, the devil is in the details. "There are different criteria that you have to apply, but there is also the question of what kind of transactions will be impacted, so we are still looking into it," he adds.

Buy-Side Algos

With sell-side firms trying to figure out how they will successfully adapt their businesses to become SIs—or not—the buy side is, by necessity, in the wait-and-see corner. Squires says buy-side firms have difficult questions to answer. For example, how and when do they interact with SI flow? "This is a gray area at the moment," he says. "These are not easy questions because it is not clear exactly how different brokers or electronic market-makers will set themselves up as SIs."

There is also a belief emerging in the market that, due to the trade reporting obligations Mifid II is set to impose, the buy side will seek to interact with SIs in order to avoid that obligation, neglecting the benefits of price discovery. "Under the trade reporting obligation, the SI has to do the trade reporting rather than the buy side," Luff says. "It will be interesting to see whether people are going to use the SIs just to get the trade reporting done on their behalf rather than because they are providing the best price."

The sell side is also waiting to assess the extent to which institutional trading patterns are likely to change. "Are institutions going to trade liquid products more on-venue, because this helps solve the trade reporting rules, or are they going to trade with SIs when best execution factors are equal?" questions Barclay's Coupe. "We need to see how the commercial model of SIs and venues play out in real time as well."

Squires says this pattern is "one of those unintended consequences that often appear with regulations." He says it is an interpretation that might compromise the choice of execution strategy and venue. "I think it's wrong for the buy side to put pressure on their brokers to become SIs purely to relieve them from that burden," he says.

On a technology level, the SI regime will introduce a number of significant changes. Jason Rand, global head of execution services at Mirabaud Securities, identifies some of the priorities that every investment firm should set. "A number of different areas will need to be addressed, with the development of new technologies and infrastructures being of particular importance," he says. "For example, smart order routing (SOR) technologies will need to be enhanced and improved to afford further flexibility and client customization."

Matthew Luff
QuA Vodis

Paul Squires
AXA Investment Management

Rand adds that the buy side needs to invest in algorithmic strategies to maximize liquidity interaction and minimize information leakage and market signaling. "These strategies will need to incorporate dynamic performance measurement techniques and sizing logic to ensure firms are optimizing their interactions with SIs," he says.

Experience

Squires says the key to addressing the SI challenge is to learn from the Mifid I experience, which saw the market flooded with the proliferation of broker algorithms. "Before we knew it we had 18 different algo providers, each with slightly but not fundamentally different smart order routing methodology," he says. Therefore, AXA started a program of consolidating its providers, reducing the number from 18 to six. "We will use an 'algo-wheel' for the order flow based on certain parameters around these six algo providers. Then there will be like-for-like comparison of the execution results," Squires explains. "After a period of time and based on analysis of the execution performance, we will change the allocation of orders to the top three."

This methodology, according to Squires, will be split between three different liquidity buckets. "For the smaller liquidity buckets, with less than 5 percent of our average daily volume, we often don't care so much about market impact, because we will immediately access liquidity and then we're done," he says.

For those buckets, AXA will consider going to SIs to seek a potential price improvement. "What we are looking for is some kind of aggregation of different SIs, a pre-trade composite of SI pricing, because that will simplify our workflow," Squires says.

Consequences

There is a consensus that small firms will be the first victims under the SI regime. "The smaller players simply won't be able to cope with that burden so either they will be unable to do their business or they will find it a lot harder," says QuA Vodis' Luff. On the bright side, however, he says the regime will benefit the more illiquid markets. "In the non-equity space, the market will become more liquid and move toward a more equity-like look," he adds. **W**

SALIENT POINTS

- The systematic internalizer (SI) regime offers an alternative method of bilateral trading where executions are held outside venues.
- The regime has been delayed by nine months, as it has proven to be one of the most complex aspects of Mifid II to implement, and sell-side firms need to consider a number of factors before becoming SIs.
- Regulators have expressed concern that certain brokers are planning to circumvent the SI rules by reintroducing soon-to-be-banned broker crossing networks, which has sparked a political clash between the European Commission and the European Parliament.
- Both the buy and the sell side will be affected when SIs come into force, and both need to ensure that they have technology in place to comply with their stipulations.

BUY SIDE EYES Order-Routing Transparency

The call from the buy side for greater order-routing transparency has put pressure on brokers to divulge more granularity around data and enhanced post-trade analytics technologies. John Brazier finds that order routing is intrinsically bound up with Mifid II and its implications for best execution and algorithmic trading, as complete transparency into how and why orders are routed has become a must-have for asset managers.

Transparency has become the watchword by which every participant in the capital markets must now operate; almost every facet of electronic trading has become fundamentally tied to the ideals of openness and intelligibility over the past decade since the global credit crisis, and regulators worldwide continue to push for amplified visibility and culpability in all areas of operations.

Order routing and execution have become one of the core focal points for transparency in the capital markets and asset managers are growing increasingly demanding in terms of the level of transparency, standardization and breadth of data they receive from orders routed through brokers.

"Largely, the buy side is skeptical and rightly so," says the global head of trading at a large, US-based asset manager. "They want to really make sure that they understand that the broker is working in their best interest. If a broker is not transparent or reluctant to work with a buy-side client, there is a level of trust that might not be captured. They are providing a lot of transparency but they're not walking you through why they are doing what they are doing. It is not just about numbers—it's about articulating decisions around those numbers."

Industry consultancy Tabb Group's 2016 *Institutional Equity Trading* report found that half of asset management respondents were dissatisfied with the level of transparency and disclosure they received from their brokers; 37

"The first hurdle to providing full transparency is always technology—getting a routing architecture in place that enables it is by no means a trivial undertaking. Trying to do that with a legacy platform is even harder, especially when margins at these firms are under pressure." **Peter Maragos, Dash Financial Technologies**

percent of asset managers singled out further granularity on routed flow, order placement and unfilled orders as particular areas for improvement, while 35 percent wanted to see Securities and Exchange Commission (SEC)-mandated standardization of data and definitions.

While there have been a number of eye-catching fines handed out to sell-side institutions for misdemeanors around how orders were routed—Citadel, Deutsche Bank, Credit Suisse and Barclays among them—the main accelerant in this space is that of regulatory change, particularly through Mifid II.

In this environment, the buy side is faced with the paradoxical pressure to reduce operating costs while wringing ever more output from their technology stacks, which means emphasis is being squarely placed on performance management and analytical capabilities.

"Routing is a very complex space, specifically when looking at the US with the liquidity fragmentation," says the global head of trading. "It's complicated everywhere, but this is a space where just looking at data without any context can be somewhat deceiving or overwhelming. Transparency is vital and as a large asset manager you need to have insight into how you or your brokers are routing."

How, Where, Why

The heart of the issue around order-routing transparency lies in the quantity and quality of data that is being delivered from the sell side to asset managers, regardless of order type or strategy. Full disclosure on not just where orders are executed, but on what other venues they might have touched, both how and why, is starting to flow a little more freely to where orders were originated, both from sell-side institutions that are starting to feel the pressure from the buy side, and from technology-oriented providers that have entered the space.

One such company is Dash Financial Technologies, which was formed in February this year through the merger of Dash Financial and LiquidPoint, Convergex's options trading and technology business. The vendor has recently launched its web-based portal, Dash360, which delivers real-time transparency with a heavy investment in data visualization.

Peter Maragos, CEO of Dash Financial Technologies, says the vendor is seeing key demands from its buy-side clients around complete transparency on all order-routing and related analytics, adding that the industry is very much upping its game not just on visibility, but also measurement.

"It allows the buy side to not only see what is going on, but to measure it as well and see how they did versus their benchmark, or on the cost side," says Maragos. "People are asking for more analytics capabilities so they can push that analysis upstairs to the best execution committee to show how they are choosing to execute their flow and why."

The US-based global head of technology says that greater data granularity and consistency enables buy-side firms to ask better questions of their brokers and make better trading decisions based on both quantitative (transaction-cost analysis) and qualitative (trader feedback) metrics.

The asset manager's objective, like many of its peers on the buy side, is to maximize liquidity and minimize market impact, across both passive and aggressive strategies, a goal that is unlikely to be achieved if a broker is routing orders to a lit venue or is using an order type that might have a significant amount of information leakage.

"We have taken it one step deeper and that is in the venue analysis," he explains. "We were working with a vendor in the US that would take routing data at a fairly detailed level from each of the providers, broken down into a bracket concept. That gave us the ability to look at a comparative nature between the different providers in each of the brackets and see certain things in terms of fill rates, the amount executed in terms of what they send, how much they internalize, where they are going, what types of orders they use, how much information leakage there is, and how much participation or liquidity capture there is."

Capability Concerns

Both the ideal and purpose of complete transparency into order routing seems relatively straightfor-

ward: The broker keeps its buy-side client happy by routing orders effectively and providing as much detail as possible, while the asset manager is able to maintain an end-to-end view of its order lifecycle. However, the main obstacles toward achieving this are rooted in technology, according to Dash Financial's Maragos, particularly on the sell side.

"The first hurdle to providing full transparency is always technology—getting a routing architecture in place that enables it is by no means a trivial undertaking," says Maragos. "Trying to do that with a legacy platform is even harder, especially when margins at these firms are under pressure, given increased regulatory and technology costs and decreasing client commission wallets."

One of the main datasets that is lacking, according to Richard Bentley, chief strategy officer at network provider Ullink, is around pricing. "Pricing is a large part of the transparency issue in terms of what prices the brokers are providing. Purely from the broker perspective there is a lot of complexity, particularly for less-liquid instruments, in terms of sourcing accurate benchmark pricing," he says.

Quantitative analytics such as transaction-cost analysis (TCA) are essential in order to carry out reliable post-trade comparisons, and Bentley says there is general distrust on the buy side over broker-provided TCA and performance analysis, citing the need for information neutrality and consistency so that broker- and algorithm-comparison data can be accessible and digestible.

Not Invulnerable

Of course, asset managers are not invulnerable to technology-centric issues of their own when it comes to the quantity and integration of the order data that they are demanding. Not only do they need to know what questions to ask of their brokers, but it is vital to have the right analytics in place to handle greater data quantities.

"The industry is potentially going to be asking buy-side firms to consume an awful lot of data, even if the brokers can provide that data and make sense of it," says Bentley. "There are two different interpretations: Is it that the buy side just needs to collect that data for compliance purposes to show that they are collating information, or are they using that data in order to select brokers going forward, because they have that obligation to demonstrate that they are trying to achieve best execution through their choices of order routing."

Regardless of the purpose for which buy-side firms are demanding order routing data from their brokers, the downside of increased transparency is a greater likelihood that data dumps will occur. In this event, asset managers run the risk of possessing information required for either compliance or performance management, but not being able to consume or utilize it.

This is where visualization technologies can be deployed to make large quantities of data more manageable for the buy side, says Maragos, adding that pushing data to the buy side in real time and digestible formats is a key capability for technology firms in this space.

"The buy side has a tough hand to play these days, so they really do need assistance from their technology providers," he says. "Asset managers need to know what is happening to their order, whether it is going to places they don't want it to and whether the broker is truly achieving best execution on their behalf and just ticking some generic best execution box."

Regulation Cannonball

Heightened regulatory scrutiny into execution quality is also having a significant impact on order-routing practices. The planned changes to best execution requirements under

Richard Bentley
Ullink

Mifid II means asset managers must ensure they are taking "all sufficient steps to obtain the best possible result in the execution of an order for a client," based on price, cost, speed, the likelihood of execution, and the likelihood of settlement.

At the start of April, the European Securities and Markets Authority (Esma) moved to scale back the best execution reporting requirements for the first year of the Directive's implementation, fearing that asset managers will not have access to "full and granular data" on the exact proportion of passive and aggressive orders executed on each of the execution venues used over the previous year, something that the buy side will be required to include in the first quarter of 2018 within their annual reports.

"We talk a lot about open architecture and integrating different systems, but here we are talking about data integration, not functional integration, and that is a very big deal," says Bentley. "That is clear for many of the clients that we have spoken to that some of the provisions around best execution are clearly troublesome concerning benchmark pricing, but they are solvable."

Significant Role

Smart order routing (SOR) is also set to be hugely affected by Mifid II through new requirements on algorithmic trading and testing. The original Mifid regulation introduced in April 2004 played a significant role in the development of SOR practices and its replacement in 2018 will also cause a market structure change that has been preceded by a proliferation of dark pools, large-in-scale or block trading venues available in the equities space.

"The whole landscape is changing and that's before you even consider what it means beyond cash equities," says Bentley. "What does it mean for a smart order router in fixed income and bonds that are traded on markets with request-for-quote (RFQ) models, for example? There is an awful lot of complexity coming into the European market structure as a result of this, which is directly relevant to smart order routing."

For example, SOR and algorithmic engines will, under Mifid II, be required to have activity accounts that allow asset managers to make direct correlations back to the parent order, as a full biography of everything done with a client order is required for order recordkeeping, and can also feed downstream processes like transaction reporting and market surveillance.

Ultimately, Mifid II is pushing the industry to where it should essentially already be in terms of trading practices under best execution. Buy-side firms are facing more pressure than ever to know exactly how and why their trade orders happen as they do, measuring the impact on them and determining future orders as a result, although they require ever-deeper and more granular data to do so.

Increased transparency into order routing data goes some way toward achieving those goals and it is certain that brokers will come under increased pressure to facilitate greater information flow to asset managers. However, the issue does not simply end there—comparative analytical capabilities will be top priorities for asset managers as they seek to maintain both regulatory compliance and measure their brokers' performance. W

SALIENT POINTS

- Asset managers are increasingly demanding to know more about brokers' order practices for both performance enhancement and best-execution purposes.
- Brokers and technology vendors are investing in new systems to facilitate order data flow and analytical capabilities for the buy side, with a focus on virtualization functionality for post-trade analysis.
- Regulation such as Mifid II is accelerating order-routing data demand as changing requirements for best execution, smart order routing and algorithm testing mean new and deeper datasets will be required by the buy side.

SLOWDOWN SHOWDOWN: Exchanges Eye Speed Bumps

Three exchanges have filed with the SEC regarding implementing either a delay mechanism or order types similar to what IEX operates, following its approval as a national exchange less than a year ago. As the SEC sorts through the proposals, the industry questions what incorporating additional speed bumps and delay mechanisms might mean for the market.

By Dan DeFrancesco

The natural trend in technology is to speed things up. The implementation of a new type of platform or solution usually means quicker, more efficient processes. It's a theme that's particularly evident in the equity markets, where the speed at which trades occur has been on a continuous upswing.

But all that changed on June 17, 2016, when the Investors Exchange (IEX) and its 350-microsecond delay gained regulatory approval as a national securities exchange from the US Securities and Exchange Commission (SEC). In doing so, the Commission did more than just add an exchange—it took a stance on intentional access delays. In a release announcing IEX's approval, the SEC said delay mechanisms less than one millisecond are de minimis, or immaterial, and they "will not prevent investors from accessing stock prices in a fair and efficient manner consistent with the goals of the Order Protection Rule," which falls under Regulation National Market System (Reg NMS) and "protects the best priced automated quotations of certain trading centers by generally obligating other trading centers to honor those protected quotations and not execute trades at inferior prices," according to the SEC in the release.

And while the SEC deemed the impact of IEX's speed bump on the Order Protection Rule to not be substantial, the same could not be said for its effect on some of the other exchanges, which considered the new interpretation of the ruling a chance to reevaluate their offerings to clients.

Less than a year later, three exchange groups have submitted

> "Every time you add a speed bump, the price that you see may not be the price that you can get. This makes it more difficult to manage risk and creates complications for all market participants. We think this is a really bad development for the markets."
> **Jamil Nazarali, Citadel Securities**

proposals to the SEC pertaining to integrating speed bumps or order types that function in a similar way. Nasdaq, the Chicago Stock Exchange (CHX) and NYSE Group are all currently awaiting regulatory approval from the SEC for proposals that, to varying degrees, mirror what IEX introduced less than a year ago.

One can debate the merits of implementing speed bumps, but what's undeniable is the SEC's approval of IEX opened the door for the current flood of proposals the industry has seen over the past year. Whether the SEC's decision to grant IEX status as a national exchange was the opening of Pandora's Box—exposing the industry to complexity issues due to an eventual proliferation of speed bumps—or whether it was merely the Commission's way of ushering the US equities market into a new era where speed isn't necessarily king, remains to be seen.

Regardless of what is inside the proverbial box, other exchanges, despite some of their previous comments, are now interested in looking inside.

"The SEC has changed the definition of what they consider immediate," says Tal Cohen, senior vice president of North American equities at Nasdaq. "So we thought, 'Why don't we rethink how we can innovate and serve our customers in this new environment?'"

Same Model

Of the three proposals, NYSE Group's filing most closely mirrors what IEX currently operates. The exchange group is looking to implement a 350-microsecond delay for orders on NYSE American, the newly proposed name for what is currently known as NYSE MKT, the exchange operator's venue for small- to mid-cap stocks. The two proposals are so similar that NYSE went as far as referencing IEX 61 times in its 15-page filing submitted to the SEC on February 9.

The decision to do so was deliberate, according to Michael Blaugrund, NYSE's head of equities, as the SEC has already set the bar for what is considered an approved speed bump, and implementing one extremely similar to what's already in place should make the proposal non-controversial.

However, there are some differences between how the two speed bumps operate—NYSE's delay is software based while IEX's is implemented through hardware; the two exchanges have different ways of routing orders through their speed bumps—but Blaugrund maintains that these are immaterial. John Ramsay, IEX's chief market policy officer, disagrees, saying both these differences are substantial and need to be addressed. He also points to NYSE's lack of explanation in its proposal around why the exchange group wants to make this implementation an issue, especially considering that NYSE strongly opposed IEX's approval as a national exchange.

A.J. Kim
CHX

Blaugrund, however, says the SEC's approval of IEX means NYSE should be offered the same opportunity to implement a speed bump of its own if it puts forth a similar proposal. "We certainly opposed this development, and felt like the SEC should have taken another path. But given that this is the new state of play, we are going to offer customers the alternatives that they are interested in," Blaugrund says. "Our obligation is to demonstrate that our proposal is consistent with the Exchange Act. Given that we are proposing a model identical to one that the Commission has already determined to be consistent with the Exchange Act, we think it should be self-evident."

Different Strokes

CHX's proposed offering, while a speed bump, differs from IEX in that it is discriminatory. Originally entitled Liquidity Taking Access Delay (LTAD) and filed in September 2016, the Chicago-based exchange resubmitted the proposal on February 14 under a new name, Liquidity Enhancing Access Delay (LEAD).

Instead of applying a delay to only liquidity-taking orders, which was the case with LTAD, LEAD will be applied to all order types with the exception of liquidity-providing orders and cancel messages for resting orders that are submitted by LEAD Market Makers (LEAD MMs) who meet heightened market-quality requirements. The change was made in response to comment letters questioning whether LTAD would potentially allow firms to quote bait or facilitate non-bona fide trading liquidity strategies, according to A.J. Kim, associate general counsel at CHX. "We introduced these new performance standards, which we believe are as aggressive as, if not more aggressive than, any requirement in the National Market System for market-makers. We believe these standards will ensure that the quotes that are displayed at CHX will remain reliable and accessible," Kim says. "We decided to propose the most aggressive requirements possible that would not negatively impact the ability of most market-makers to participate in the program."

Nasdaq's Extended Life Order (ELO) is the most dissimilar from IEX of the trio of proposals, as it's not even an actual speed bump but an order type. ELOs, which were initially announced last August and are only available for retail orders, are granted priority in the queue over resting displayed orders as long as the order is not altered or canceled by the member for a minimum resting time of at least one second. It's worth noting that Nasdaq, like NYSE, was critical of IEX's application to become a national exchange.

As is the case with the other two proposals, Nasdaq's ELO has faced criticism via comment letters. The main gripe stems from the fact that ELOs will be marked and identified via the exchange's proprietary data feed, which could make them a target for high-frequency trading (HFT) firms. Nasdaq's Cohen says he understands the concerns raised by some around information leakage—and acknowledges it is something the exchange will consider changing for future ELO versions, designed specifically for the institutional community—but when it comes to retail investors, the main concern is around improving fill rates.

"When institutional traders are building positions, or working out of positions, we understand and appreciate their desire not to be attributed—because it could lead to information leakage, or may be part of a larger block that could inadvertently move a market," Cohen says. "But an individual's single retail order is actually the retail trader's full expression of how much they want to buy. So to us, attribution seems well suited for retail at this time."

Risky Business

For some, the increase in speed bump applications was a predictable, unwanted result of the SEC's approval of IEX's application. Jamil Nazarali of market-making firm Citadel Securities, falls into that camp. Nazarali, who was recently named as a senior advisor at Citadel Securities after serving as the firm's head of execution services for over five years, says this is the situation his firm warned of during IEX's application process. "Exactly what we worried was going to happen is happening in that there is a proliferation of speed bumps, which means that the National Best Bid and Offer (NBBO) that you see is much less transparent, fair and accessible," Nazarali says. "Every time you add a speed bump, the price that you see may not be the price that you can get. This makes it more difficult to manage risk and creates complications for all market participants. We think this is a really bad development for the markets."

Citadel Securities has been critical of all speed bump proposals, already submitting multiple comment letters criticizing Nasdaq and CHX's applications. For Nazarali, the potential of a market full of speed bumps means that it will be that much harder for firms to understand how they can properly manage their risk due to the fact they can't access quotes quickly because of the delays. "Not only can I not get the price that I see on the screen, but I may have to send the order to the speed bump venue due to the Order Protection Rule. I would have to wait for that order to come back and be declined before I can go to the next venue to access that quote, and by the time I do that, the quote may be gone," Nazarali says. "This creates problems for anyone trying to manage risk and trade quickly, particularly in a volatile and fast-moving market."

John Ramsay
IEX

Unreliable quotes will lead to uncertainty in the markets, according to Nazarali, which will lead to wider spreads. Firms conducting arbitrage trades will need to take on more risk, as they might have to hold on to one of the legs of their trades for a longer period of time, forcing them to widen their spreads to ensure the profit covers the additional risk.

"Over time, true value is going to deviate more and more from the stated price. I think the market will become less efficient for anyone trying to do a trade," Nazarali says. "People will still get their trades done, but the price will be worse—it's not going to be a huge difference—but depending on how big that component of the market grows, it's going to have an effect."

Too Early to Tell

Vishal Sood, global head of electronic trading technology and head of North America equities technology at Citi, says that additional speed bumps will create further complexity in the marketplace, but it's tough to distinguish the potential consequences this early on.

Exchanges implementing different delay mechanisms with various lags could create further disparities, according to Sood, which is ironic considering the whole point of many of these additions is to lower the discrepancy between faster and slower participants. However, firms' smart order routers, which are already accustomed to the different idiosyncrasies of individual exchanges, will just need to be readjusted to account for these additional differences, Sood says.

Detractors of delay mechanisms have continually made the point that speed bumps will negatively impact the NBBO, and while Sood says further implementations of speed bumps would have an effect, it might not be as devastating as some make it out to seem.

"Both pre-calculated NBBO from the Securities Information Processor (SIP) and self-calculated NBBO will get behind, but it will be slower for everyone," Sood says. "The NBBO disadvantage will be the same for everyone. It will be an even playing field."

Sood also doesn't believe that more exchanges will try to implement speed bumps, although he does see the market evolving through the adoption of more order types similar to that of Nasdaq's ELO. He sees trading venues looking to emphasize the slowing down of some of the faster participants.

Vishal Sood
Citi

This is not to say that's a direction in which Sood wants the marketplace to go, though. He believes the industry should stop looking at speed bumps and new order types, and instead focus on making the markets simpler. The industry would be better off taking a step back and rethinking how firms trade, according to Sood.

"The market needs to take a macro view and look at how to get out of this vicious cycle of continuing to trade in these smaller, little inefficient sizes," Sood says. "I think if the exchanges keep adding new implementations, be it speed bumps or newer order types, they will keep making it more and more complicated. It's going to defeat the purpose that they actually started with, which was to make it simpler for the participants."

At the end of the day, though, Sood says he finds it tough to speculate about what might be the true impact of multiple speed bumps being implemented in the markets because it's so early in the process.

It's also worth noting the amount of market share potentially impacted here. IEX's average market share has hovered around 2 percent since the start of 2017. CHX has maintained roughly 0.5 percent market share over the past year, while NYSE MKT holds approximately 0.25 percent during the same time period. ELO will be implemented directly on Nasdaq, which holds roughly a 14 percent market share, but due to the fact it is an order type and not a speed bump, it will be optional as opposed to the other venues' implementations.

"We need to step back and take a look at what happens in the next 12 to 24 months," Sood says. "At this point in time, I do think it's overblown."

Incumbent Weighs In

But what about IEX? It was the exchange's approval, after all, that led to the SEC's new interpretation of Reg NMS' Order Protection Rule, opening the door for Nasdaq, CHX and NYSE Group to throw their hats into the speed-bump ring. The newest national exchange remained relatively quiet on the topic for a while, perhaps waiting for the dust to settle on its recent approval and preferring to stay out of the spotlight. The exchange didn't submit any comment letters regarding Nasdaq or CHX's proposal.

However, NYSE's proposal did cause the firm to step into the fray, sending the SEC a comment letter criticizing the exchange's proposal for the reasons previously listed in this story. In speaking to *Waters*, IEX's Ramsay also mentioned issues with both CHX and Nasdaq's proposals, citing the former's discriminatory design and describing the latter's choice to attribute orders on its proprietary feed as problematic.

That's not to say IEX is opposed to the implementation of other speed bumps. Ramsay says that even if every market had its own unique speed bump that still wouldn't make things more complicated than they currently are. It's not as if the markets are simple as it is, Ramsay says. "Each particular market operating has unique geographical characteristics. They all sell multi-tiered access. Most of them sell prop data feeds. They all have these complicated pricing systems. So each market participant, in order to survive in that ecosystem, has to understand the unique features of that particular exchange relative to the others," Ramsay says. "Whatever speed bump or delay mechanism anybody might impose—as long as it is clearly described—is not going to be that difficult to add into the mix of understanding how to deal with that particular market compared to the others."

It's not simply a matter of asking whether a speed bump is good or bad, according to Ramsay. The devil is really in the details of each offering. He does admit, though, that it could be a bad thing if a trend were to arise where individual markets were to adopt speed-bump mechanisms that selectively slowed down some participants compared to others.

"If markets are experimenting with ways to deemphasize speed as an advantage in a way that works for purposes for applying equally to all participants and everybody did that, I think it could be a real advantage from the standpoint of the overall market structure," Ramsay says. "Frankly, I think the ideal situation would be if you had four or five real exchanges—not just families of exchanges—that could offer somewhat different models but are competing vigorously with each other on the basis of service and execution quality and price. That would be a lot better system than the one we have today. And we'd like to be one of those, obviously." W

SALIENT POINTS

- The SEC's approval of IEX as a national exchange, and its subsequent new interpretation of Reg NMS' Order Protection Rule, opened the door for other exchanges to reevaluate their offerings to clients and consider implementing similar delay mechanisms.
- All three proposals are very different from one another and even NYSE Group's filing, which mirrors that of IEX, isn't identical to that of the newest national exchange.
- The proposals have also each received their fair share of criticism via public comment letters.
- Further implementation of speed bumps could impact price quoting, which would force some trading firms to reevaluate the risk management around their trading operations.
- Others say each exchange already has its own set of unique characteristics, and, as long as it's clearly described, it wouldn't be that difficult for market participants to know how to deal with additional speed bumps.

Operational risk managers are faced with increasingly diverse challenges. For Jodi Richard, her experience at a regulator—and a little bit of family tradition—has helped her to navigate these changing seas. By Emilia David with photographs by David Bowman

Jodi Richard never wanted to be a stay-at-home mom. Her mother was a manager at a regional bank and she instilled a solid work ethic within Jodi from a young age. There are no free rides.

Richard went on to study finance at the University of Northern Iowa, though at first she thought she was going to be an accountant rather than a banker. She was in her senior year looking for jobs when her mother gave her a suggestion: Take an interview with the Office of the Comptroller of the Currency (OCC). That would become her first job out of college.

For Richard, the strong work ethic instilled in her by her mother who put in long hours at the bank served as a guide on how to make it in the financial world. Though her mother never got to see her appointed to the role of bank examiner—Richard's mother died before she graduated—she remains a strong role model, Richard says.

"I never thought that I wouldn't be working in a business environment because that's what I learned from my mom and I had that role model to follow," Richard says. "I feel fortunate that I was able to have her to look up to."

Richard is now the chief operational risk officer for Minneapolis-based US Bank, where she oversees the bank's entire operational risk department.

Preparation

Right after she graduated from college in 1990 with a bachelor of arts degree in finance, Richard joined the OCC, working specifically on retail credit loans and compliance activities. "I focused a lot on bank credit card supervision, which was a hot topic—or emerging risk—in the late 1990s and early 2000s," Richard says.

The first six years of her professional career were spent with the OCC. In 1996


Born to Be
a Banker
Jodi Richard
US Bank

she took a job with Sears National Bank as its chief compliance officer, but that only lasted for a year before she returned to the OCC for a second stint, where she'd stay for another six years.

In 2003, she decided to leave government work—and the constant travelling she had to do—to join HSBC as director of regulatory compliance. A year later she was bumped up to senior vice president for risk governance and administration. It was at HSBC that she began working in the field of risk. She helped build out the bank's enterprise risk management and risk governance processes. In particular, she helped lead the Basel implementation program in North America for the bank in the 2000s, giving her in-depth exposure to the world of operational risk.

She says that working at the OCC helped prepare her for the regulatory environment that the banking industry is facing today. It also helped to make her a better banker.

"All of my foundational learning about regulation and even how a bank's balance sheet works and how it operates, I learned from the OCC. I've brought to my current job the understanding of liquidity management, funds management, and capital that came from core work programs that I worked on at the OCC," Richard says. "I always say that being a bank examiner made me a better banker because I felt like I understood what their mission and goals were. Being a banker and then going back to the OCC also made me a better examiner because, having sat in the other chair, I knew it wasn't as easy as you think it might be."

From Credit to Op Risk

Richard would eventually become executive vice president and regional head of operational risk and control at HSBC, a position she held for five years before moving

to Minneapolis-based US Bank in 2014. She says the biggest change in the move to the operational risk arena from working in compliance and retail loans is determining risk in a way that doesn't have a fully measurable value. She was used to a more analytical and measurement-based approach.

"Operational risk is a broad field that focuses on managing the control environment. We think about what controls we have in place to mitigate the unknown and how we can avoid big, one-off events," Richard says. "We are able to manage operational risk by understanding our risk and control environment and enhancing internal controls using process improvement and data analysis."

At US Bank, Richard is in charge of a broad range of risk controls. She and her team manage internal and external data loss, risk and control self-assessments, business continuity and disaster recovery programs, the bank's data protection program, fraud investigations, third-party risk management, business change and product due diligence, and the firm's Enterprise, Governance, Risk and Compliance (EGRC) tools.

US Bank has developed a program to oversee operational risk technology. The unit is led by the technology team but works in partnership with operations. Together they look at information technology and cybersecurity issues relating to operational risk. Beyond technology, US Bank's op risk department works closely with the numerous other divisions within the organization in order to fully understand the possible risks coming into view, Richard says.

"We're very much integrated into the business. We were involved in evaluating the strategy of the bank and we make sure that we can stay back and examine those processes and adapt our programs to work jointly to manage that risk," Richard says. "I think that's why it's important that operational risk has a seat at the table."

Working closely with the different divisions prevents each from coming up with a siloed approach that makes problem solving and operational risk identification more difficult. Richard believes the operational risk team is there to give advice on the potential risk challenges that could arise from a new bank-developed platform, third-party partnership, or new product offering. This includes—increasingly—cybersecurity. Richard sees operational risk as an environment that is constantly changing with new emerging risks. "It's no secret that the world is becoming more digital—from the way we connect with each other to the way we interact with our favorite stores and companies," she says. "The work we do in risk management is becoming more important as a result. The way we use and move data, the quality of the data we rely on, and how we protect that data are all top of mind."

> "Operational risk is a broad field that focuses on managing the control environment. We think about what controls we have in place to mitigate the unknown and how we can avoid big, one-off events. We are able to manage operational risk by understanding our risk and control environment and enhancing internal controls using process improvement and data analysis."

She adds that the bank is looking for consistent frameworks and an intersection of historically disparate functions like anti-money laundering, operational risk, and information security to provide a more robust view of the organization and to prevent problems before they become crippling.

Staying Plugged In

Aside from keeping a close eye on the new risks that technology can usher in, Richard and her team are looking for ways to leverage these innovations in a way that helps the bank manage its data and its risk environment in a more efficient manner.

"We're trying to stay plugged in on how we can leverage machine learning or robotics capabilities with the data we have," she says. "There's been a lot more use of analytical technologies in a modelled capacity in the credit space and in the fraud area, but we also want to know how we can use data to be smarter in the broader operational risk management area."

Richard says new technologies can help enhance the bank's capabilities, especially because innovations can help manage risk—such as fraud—in a more automated way, which is faster and more accurate than the current, mainly manual, procedures. For her, having a thorough understanding of new technologies and tools used in the risk space should be de rigueur for anyone working in that domain.

"I think risk professionals—not just in operational risk, but in all risk disciplines—need to look at new ways to manage risk, understand what those emerging risks are, and adapt risk management tools to mitigate those areas," Richard says. She believes the risk space has undergone rapid change in the past 10 years, so it is more important than ever to stay one step ahead of emerging risks.

When she arrived at US Bank, Richard's goal was to build out the operational risk capabilities of the organization to meet the changing business environment. She says she believes she's met that goal. "When I came to the company, there were a few main objectives I laid out for myself and my team so we could build a strong operational risk capability in light of 'heightened standards' from the regulators," Richard says. "For a company as established as US Bank, elements of risk management were managed broadly. My goal was to begin to operationalize what we did and to make sure they were consistently and sustainably managing risk under the operational risk umbrella."

Among the things Richard implemented at US Bank were the core foundational elements for the bank's operational risk practice. These elements included embedding operational risk management within the bank's day-to-day business, managing risk within its risk appetite, focusing on material risks and key controls, integrating standardized operational risk tools into the enterprise risk management framework, ensuring consistent execution, and being sustainable in times of both stress and plenty.

Mentor

Richard is committed to her work, not just because she is good at it and she finds it challenging, but because she genuinely loves the operational risk space and the bank she now works for. She says US Bank's core value of putting people first and supporting the communities it operates in appeals to her. It's important, she explains, that she works in an organization that rewards her both personally and in a professional capacity. She doesn't mind the long hours, but it does take time away from being with her two sons, aged 11 and 14.

Richard's mother didn't pressure her to go into banking, and she is similarly not pressuring her boys to follow in her footsteps. Her 14-year-old likes video games, while her younger son wants to be a rock star,

JODI RICHARD
FUNDAMENTAL DATA

Name: Jodi Richard

Title: Chief operational risk officer, US Bank

Hometown: Waverly, Iowa

Age: 48

Education and Degree: BA, Business Administration and Finance, University of Northern Iowa

Hobbies/Interests: Boating, life at the lake, traveling, supporting Minnesota sports teams, advocating for women in business

Defining Moment: We spend a lot of time talking about our culture and the fact that how we do business is as important as what we do. In the past few years, we have launched a new purpose statement, a set of core values and a brand, all tied around the concept of helping people reach their potential. Working with a company that values ethics, strong leadership and putting people first has been a defining moment in my career.

so she's letting them enjoy childhood and will save the pressure of deciding on a career for a later date.

Still, she recognizes the unique opportunity she had by having a mother who worked in the industry who encouraged her to follow a path that explores things she was interested in—like math. Not everyone has that same opportunities, and so she believes it's important to create a network to mentor other women, to let them know that getting to the highest echelons doesn't require superhuman efforts. And she works hard to answer questions that women in the industry ask when they meet her.

"A lot of women on my team—and even those outside of my team—reach out to me because they want to understand my career and how I got here," she says. "One of the things they walk away with after meeting me is that it's very real—there's no secret sauce, everybody struggles with the same things and just wants to do a good job.

"Sometimes you see some people from afar and think, 'Oh, there might be something special and magical about them that they get it all done,' and then you meet them and see that they're just like everybody else who struggles and works," she adds.

Richard's mother did not get to see her daughter take on her role at the OCC. She didn't even see her daughter graduate. But that didn't stop Richard from pursuing her mother's legacy and working her way to a position in a bank doing something that she loves and that she finds challenging. And that really all came about because her mother asked her to take an interview with an OCC recruiter. The rest was through her hard work and genuine interest. W

FRTB in the Sell-Side Spotlight

The Sell-Side Technology Awards 2017, held on the evening of April 5 at the Marriott Marquis in Times Square, were notable for two reasons: FRTB, or the Fundamental Review of the Trading Book, featured across the number of different categories and in no fewer than a dozen entries, while former US Olympic gymnast Kerri Strug was on hand to present the awards.

The Fundamental Review of the Trading Book (FRTB), a revised market risk framework introduced by the Basel Committee on Banking Supervision (BCBS) to ensure firms' "standardized and internal model approaches to market risk deliver credible capital outcomes and promote consistent implementation of the standards across [its] jurisdiction," seems to be everywhere right now.

Granted, we have known about FRTB for a while now, given that the BCBS issued its first paper on the overhaul back in late 2013. But it appears as though sell-side firms have moved from a phase of head scratching to one focused on what the changes are likely to mean to them on an organizational level, but most especially to their current risk management frameworks and underlying technology stacks. There is still some time to go before the January 1, 2019, implementation date, but if anything, sell-side interest in FRTB is only going to intensify.

It's good to know that the third-party technology community looking after the sell side's needs appears well-prepared for the challenges ahead. As we have come to expect over the years, there were a number of new faces in this year's winners' circle. Synechron, Digital Reasoning, Dealogic and Nex Abide Financial were all first-time winners, while two perennial victors, Nasdaq and IHS Markit, won the final two categories announced on the night—best overall sell-side product of the year and best sell-side technology provider of the year, respectively.

Write-ups by Anthony Malakian (AM), Dan DeFrancesco (DD), John Brazier (JB), Aggelos Andreou (AA), Emilia David (ED) and Victor Anderson (VBA). W

Victor Anderson
Editor-in-Chief

Winners' Circle

Sell-Side Technology | Awards 2017

waterstechnology

Sell-Side Technology honored the winners on April 5 in New York.

Sell-Side Technology | Awards 2017
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Awards 2017

Best Distributed-Ledger Technology Project

Synechron

There is no shortage of distributed-ledger technology (DLT) projects across the capital markets. Seemingly, every firm in the space has thrown its hat into the ring, working on some type of offering either internally, through a consortium, or via a mentorship program. So it seemed appropriate for *Waters* to add a category to the Sell-Side Technology Awards to reward a firm for its success in working with this innovative technology. And while there are plenty of vendors pushing their specific DLT-based solutions, one provider's approach to DLT, and getting firms accustomed to using it, stood out to the judging panel. Synechron, a digital consulting and technology firm and its Blockchain Accelerator Program takes home the win in the first year this category has been on offer.

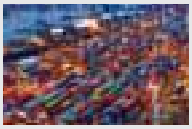
The program aims to help firms experience the benefits of the technology through six blockchain applications focused on various areas of the industry: trade finance, know-your-customer (KYC), mortgage financing and processing, insurance claims processing, over-the-counter smart margins, and global payments. "Unlike other DLT projects that focus on conceptualizing a blockchain solution, Synechron was one of the first to develop working blockchain applications that reimagined the world on blockchain, built on leading platforms like Ethereum and Hyperledger's Fabric," says Sandeep Kumar, managing director of capital markets at Synechron. "Synechron's Blockchain Accelerator Program enables firms to experience blockchain's most tangible benefits in enhancing business operations, minimizing operating costs and combatting fraudulent activity. The applications bring together distributed-ledger technology (DLT), smart contract functionality, digital payments and the inherent security features of a private, permissioned blockchain."

Synechron has dedicated a 50-person team in its Financial Innovation Labs (FinLabs) focused on blockchain innovation to offer clients end-to-end delivery capabilities and accelerate their blockchain initiatives through continued Agile development in a sandbox environment, according to Kumar.

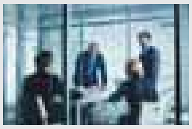
The New York-based firm has already done custom development work for a number of capital markets firms. Data specialist Dun & Bradstreet participated in a proof-of-concept in which a unique blockchain identity was mapped for 6,500 current DUNS identification numbers. Kumar says the firm is actively working on several paid blockchain development initiatives and plans to release additional pilot and production projects in 2017. "We're also helping our clients with the development of additional business cases through our blockchain consulting practice to assess what makes a good blockchain project, what platform is best fit-for-purpose across options like Ethereum, Hyperledger's Fabric, Corda, Quorum and others, and how to bring together the ecosystem they need to initiate a project," Kumar says.

—DD

"Synechron has dedicated a 50-person team in its Financial Innovation Labs (FinLabs) focused on blockchain innovation to offer clients end-to-end delivery capabilities and accelerate their blockchain initiatives through continued Agile development in a sandbox environment.



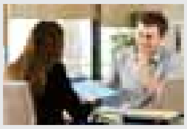
Trade Finance



Know Your Customer (KYC)

Smart Margin Calls

Mortgage Lending



Insurance Claims Processing

Global Payments

Best Artificial Intelligence (AI) Technology

Digital Reasoning

While the artificial intelligence (AI) category is new to the Sell-Side Technology Awards lineup, it is reasonable to expect it to be a staple for as long as this program continues to run. The inaugural winner is Franklin, Tennessee-based, Digital Reasoning.

Digital Reasoning's Synthesys platform "learns human communication" to apply "human-like reasoning" to a firm's documents, emails, spreadsheets, social media and other forms of unstructured data. It can sift through text, audio and images and resolves who is talking about what and with whom. The system is designed to read through all of a firm's data and highlight the important people, places, organizations, events and facts discussed in those documents. From there, it takes those highlights and determines what's important by connecting those dots. Finally, Synthesys figures out what the final picture means to a portfolio manager or trader by comparing it with pre-determined opportunities, risk and anomalies.

The platform has been used to address various regulations, from the Dodd–Frank Act in the US to the Markets Abuse Regulation and Mifid II in Europe. It allows users to oversee the entire trade lifecycle, ensuring banks meet the latest standards without adding headcount. It also helps improve a firm's know-your-customer/anti-money-laundering (KYC/AML) processes by finding anomalies that would be difficult for a human to pick up. This can save banks huge amounts of capital in potential fines. It can also be used as a customer-relationship tool to help identify and alert banks to potential problems with a customer before it becomes an issue where the customer would want to leave.

According to the consultancy Forrester, users can double the return on their investment in four months and cut false-positives in half by using the Synthesys platform. Additionally, Digital Reasoning claims a 250 percent increase in acuity, while across 90,000 emails, Synthesys accurately identified 14 concerning messages compared with conventional monitoring technology, which spotted only four. Investors in the vendor include Goldman Sachs, Credit Suisse, UBS and Nasdaq, among others.

Digital Reasoning, thanks to its work with Nasdaq, also won the best alliance or partnership category in this year's awards and was named in consultancy Chartis' RiskTech 100 in this year's rankings.

This category is likely to be one of the most competitive in the years to come as AI takes on greater importance in the capital markets. Expect Digital Reasoning to be one of the firms leading this movement.

—AM

"Digital Reasoning's Synthesys platform "learns human communication" to apply "human-like reasoning" to a firm's documents, emails, spreadsheets, social media and other forms of unstructured data.

Best use of the Agile Methodology

Synechron

This category, the first time it has been on offer in the Sell-Side Technology Awards, is awarded to a third-party technology vendor that has embraced the "early and often" release cadence synonymous with the Agile methodology, while also focusing its development work based on users' needs determined by way of ongoing feedback loops upon which much of the methodology's effectiveness rests. Proponents of the Agile methodology argue that it is not a way to develop and deliver software—it is the only way to do it, especially if you're looking to do so as nimbly, accurately and cost-effectively as possible. It's a position that is difficult to fault, given that Agile is unquestionably cheaper, faster, more consultative, more focused, and delivers tangible results more frequently than the methodology is replaces: Waterfall.

But if Agile is the way forward, why haven't all technology vendors—and indeed capital markets firms on both sides of the industry—embraced its tenets? Well, many have, although Agile is not binary: It's not a "yes-no" proposition, where you either do it or you don't; instead, it is more of a continuum along which firms move, based on their resources, their development experience, and their clients' needs.

One such firm well into its Agile journey is New York-based Synechron, a 7,000-strong digital consulting and technology firm that provides technology and various related services to capital markets clients by way of three core offerings: digital, business consulting, and technology. Syncheron, which also won this year's best distributed-ledger technology project—also on offer for the first time—bases all of its development work on its interpretation of the Agile methodology. Sandeep Kumar, managing director at Synechron, explains that client demand drives the bulk of the firm's development work. "In a blockchain project or any other emerging technology—we also do a lot of digital reimagination and artificial intelligence (AI) projects—banks are eager to get going, so we cannot afford anything longer than a few weeks. That's the pressure they are under, whether it's from the competition or from the internal business side," he says.

Synechron's initial sprints typically last for 10 to 12 weeks, company-wide, after which shorter, more iterative sprints are incorporated into projects so that new functionality can be drip-fed into future releases. "When we kick off new projects like blockchain, digital re-imagination or AI, we must be able to deliver a minimum viable product (MVP) within 12 weeks," Kumar continues. "That is the maximum time it can take us. That involves use-case writing, prototyping, building, and showing the client a working solution. We worry about adding more functionality and industrializing the MVP later."

—VBA

"Synechron's initial sprints typically last for 10 to 12 weeks, company-wide, after which shorter, more iterative sprints are incorporated into projects so that new functionality can be drip-fed into future releases.

Sell-Side Technology Awards 2017 waterstechnology

Best Alliance or Partnership

Nasdaq & Digital Reasoning

What do you get when you combine the best artificial intelligence (AI) technology provider with the best market surveillance provider from the same awards? Well, you get the winner of this year's best alliance category award—the first time this category has been on offer in the annual Sell-Side Technology Awards—with Digital Reasoning winning the former category and Nasdaq the latter. The two have come together to help improve Nasdaq's Smarts Trade Surveillance juggernaut, a platform already considered by many to be without equal in the industry. In February 2016, the two firms announced the strategic alliance to provide a combined solution for market surveillance and compliance.

Digital Reasoning's eComms has been integrated with Nasdaq's Smarts Surveillance, allowing Smarts to take care of the trade surveillance alerts while eComms provides context to those alerts through a single interface. The combined solution allows analysts and compliance teams insight across communications and trade data to automatically prioritize areas for evaluation and investigations.

"The application of machine intelligence to identify inappropriate activity in digital communications greatly boosts positive predictive values over traditional methods, and it brings a radical new technological approach to the field of behavior analysis," said Marten den Haring, chief product officer at Digital Reasoning, when the partnership was announced. "By partnering with Nasdaq, we can raise the bar in signal detection across disparate systems and apply deep understanding of context to assess risk, without adding workload to the already burdened surveillance analyst."

Smarts oversees 47 marketplaces, 13 regulators and over 130 market participants, globally. Its library is stocked with 210 preconfigured alert scenarios spanning different market abuse and trading anomalies. Digital Reasoning's Synthesys platform, which underpins the firm's eComms tool, uses natural-language processing (NLP) and machine learning to understand how people communicate by analyzing context, content and relationships within human communications, while semantically revealing concealed insights. It aims to decipher traders' "code" in order to separate innocuous chatter from illegal concealment, manipulation or collusion. The combination of Smarts' data and detection capabilities with Synthesys' underlying NLP and machine-learning technology has allowed users to improve surveillance coverage while cutting down on false positives.

This is the first time this award has been on offer for the Sell-Side Technology Awards. In addition to being named the best market surveillance provider, Nasdaq also took home the prestigious best overall sell-side product of the year trophy.

—AM

"Digital Reasoning's eComms has been integrated with Nasdaq's Smarts Surveillance, allowing Smarts to take care of the trade surveillance alerts while eComms provides context to those alerts through a single interface.

Best Sell-Side Front-Office Execution Platform

Fidessa

Fidessa has positioned itself as a leader in execution platforms for over 20 years, providing access to 220 markets for more than 300 sell-side firms, globally. The London-based vendor's dominance in a perennially competitive category is reflected by it winning the award for best front-office execution platform at this year's SST Awards for the third consecutive year.

Fidessa's electronic execution platform covers multiple asset classes, allowing users to outsource the commoditized aspects of execution, such as exchange interfaces and connectivity, and to take advantage of advanced execution tools, including those supporting smart order routing and smart crossing to facilitate higher fill rates.

A significant aspect of Fidessa's ongoing success is its effort to stay relevant in a constantly changing market. In 2016, it identified a trend within its user-base where half of its clients were trading electronically through low-touch execution channels. In order to adjust its service to meet their current needs, the vendor introduced low-latency gateways to normalize the trading workflow across markets.

Two additional features launched over the past year allow users to achieve better trading performance: First, the Order Performance Monitor functionality oversees the performance of low-touch order flow in real time by identifying outliers and altering trading strategies to optimize outcomes, while the Prospector feature was designed specifically to allow sell-side firms to identify trading opportunities concealed within their client order flow, and by so doing provide their buy-side clients with better services. Prospector is designed to monitor both live and historical client trading activities, client watch-lists, shareholdings data, and traders' interests. The functionality is integrated within Fidessa's order management system (OMS), with no need to move between applications or re-key data.

Of particular note is Fidessa's expansion to markets outside of Europe and the US. In 2016, the Fidessa front-office execution platform was rolled-out by 14 mainland Chinese brokers as part of a strategy to elevate their business to an international level. Another 17 brokers opted for the firm's Hong Kong-Shenzhen Connect link, while three major Malaysian banks chose the platform to support their expansion plans in Southeast Asia.

Fidessa's plans for 2017 focus largely on the regulatory challenges facing its sell-side clients by providing them with an execution platform that will help them meet their regulatory obligations. The vendor has invested significantly in the platform in order to develop new capabilities ahead of the upcoming regulations in both Europe with Mifid II and the US with the tick size pilot program launched by the Financial Industry Regulatory Authority in October last year.

—AA

"Winning this award means a great deal to us. With the markets evolving in so many ways, we are committed to delivering the technology our customers need to provide exceptional execution services. Industry recognition like this is further validation of the value that market participants see in the powerful, competitive capabilities we're delivering." **James Blackburn, global head of equities product marketing, Fidessa**

Sell-Side Technology waterstechnology | Awards 2017

Best Automated Trading Platform

FlexTrader

FlexTrade wins this year's best automated trading platform category, an award it won at the first Sell-Side Technology Awards back in 2013. Since then, four different companies have won the award, but FlexTrade—with its FlexTrader platform—takes the crown once more as it enhances its capabilities to offer solutions for cross-asset and multi-asset trading.

FlexTrader is an order and execution management system for institutions that trade in equities, foreign exchange, equity options, futures and fixed income. Jamie Benincasa, senior vice president of global sales at FlexTrade, says winning the award again shows how much its clients have come to rely on FlexTrader and take advantage of the algorithms it offers. "FlexTrade has a long-standing pedigree of providing advanced functionality to broker-dealers. This goes back to when I used it on JPMorgan's Program Trading desk in 1998. At that time, we chose FlexTrade because of the complex rules infrastructure and back testing framework, the robust FIX and analytics engines, as well as the ability to make customizations on the fly," Benincasa says. "Add to that the deep bench of talent that we've put together and our rigorous quality assurance cycle."

In the past few years, FlexTrade has added a number of new capabilities to FlexTrader, including a strategy server and an algorithm container, which allows firms to develop new algorithms within the container framework and scale them up quickly. This update has allowed broker-dealer clients to process large transaction volumes, and quickly produce, test, and deploy new customized algorithms to take advantage of fleeting arbitrage opportunities in shortened timeframes. It also provides users with standardized and streamlined access to FlexTrader's pairs trading, options dispersion, or futures spread trading algorithms. Benincasa says the vendor is also planning on adding new functionality around reducing latency, which will be released in the next few months.

The updates help FlexTrader meet increasing demand for more cross-asset and multi-asset trading as well as more exposure to exchange-traded funds (ETFs). Benincasa notes that broker-dealer clients are always looking for more effective ways to execute strategies. "What we're seeing is that more desks are looking to add ETF market-making and Delta One trading due to their popularity. Of course there is always interest in cross asset and multi-asset strategies, where our product's advanced capabilities give clients access to sophisticated execution algorithms," Benincasa says.

In addition to the sell side, FlexTrade also serves traditional asset managers and hedge funds, and, according to Benincasa, wants to continue providing outstanding services to all three constituents.

—ED

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In the past few years, FlexTrade has added a number of new capabilities to FlexTrader, including a strategy server and an algorithm container, which allows firms to develop new algorithms within the container framework and scale them up quickly.

Sell-Side Technology Awards 2017
waterstechnology

Best Sell-Side Credit Risk Product

Numerix

Numerix maintains its crown among sell-side credit risk products, winning the best sell-side credit risk category for the fifth straight time in the Sell-Side Technology Awards. A vendor's ability to hold its spot in the winners' circle for that long speaks volumes about its ability to evolve and change its offering over the years, based on what the market dictates, and Steve O'Hanlon, CEO of Numerix, is certainly cognizant of that fact.

"Counterparty credit risk needs of five years ago are not the risk analytics needs of today," he says. "New business models pursued by the sell side have driven a substantial shift in analytics infrastructure. The Fundamental Review of the Trading Book (FRTB) and SA-CCR [BCBS 279] have transformed front-office operating models, and margining requirements have changed the economics of collateral. Collectively, with the all-in pricing of derivatives trading, XVA has emerged as the new analytical language linking the front and middle offices and finance."

It was under that premise that Numerix Oneview, the vendor's pricing, risk, analysis and trade management platform, was released in March 2016, and the vendor has continued to build on it over the past year. Key focus areas for Numerix have been where O'Hanlon believes other front-office platforms fall short: scale, data management, openness and flexibility. However, the top priority has been improving the performance and speed of calculations.

According to O'Hanlon, the front office needs low latency—whether it's 20-millisecond credit valuation adjustments (CVAs) for automated trading or a few seconds for manual trading—while the middle office requires high throughput, audit capabilities, and data lineage control. Customer expectations are five to 10 times faster than what they were just a few years ago, O'Hanlon says. "Over the past year, we accomplished this by implementing a consistent data model, having full understanding of the data, optimizing calculations and avoiding redundant ones, with a greater focus on back-testing, P&L attribution and analytics," O'Hanlon says. "Numerix has more efficiently streamlined the XVA process for clients."

Looking ahead, O'Hanlon says Numerix will look to continue to develop a central, consistent analytics engine for its Oneview Risk solutions so that clients can build business processes around XVA calculations. "The ability to manage and optimize the balance sheet and P&L with respect to XVA, optimize the use of regulatory capital with respect to expected return, and meet all regulatory requirements with respect to 'VAs,' continue to be our top priority as we address clients' needs around the world," O'Hanlon says.

—DD

"Key focus areas for Numerix have been where CEO Steve O'Hanlon believes other front-office platforms fall short: scale, data management, openness and flexibility. However, the top priority has been improving the performance and speed of calculations.

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Best Sell-Side Market Risk Product

FIS

There is no questioning the importance of banks having a proper risk management platform in place. However, the January 1, 2019, implementation of Fundamental Review of the Trading Book (FRTB) has made market risk platforms even more of a top-of-mind concern for all financial firms.

That's what brought FIS its first win in the market risk product category at this year's Sell-Side Technology Awards. The Jacksonville, Fla.-based vendor's Adaptiv Market Risk for FRTB was the fifth different product to win the award in its five-year history, which speaks to the competitiveness of the field of solutions.

One of the main focuses of FRTB is around data management. Adaptiv manages static/trade data and market data in the Master Data Store and Market Data Manager, respectively. The new regulation also requires firms to conduct complex calculations, as banks often use several approaches when it comes to feeding pricing information into their market risk engines. Adaptiv Analytics can manage three types of data flows, offering firms flexibility in their approach to meeting the requirements of the new regulation.

The platform also uses proprietary in-memory cube technology to calculate standardized and advanced capital metrics with the ability to drill down to trade-level inputs and calculations at any point in time. Users can correct erroneous data, explain the results and perform what-if calculations quickly.

Mat Newman, vice president of sell-side risk solutions for FIS, says the firm has also released an Algorithmic Adjoint Differentiation module that allows clients to compute XVA sensitivities quickly, which provides them with greater business insight into their portfolios' risk profiles, allowing them to make quick, informed, profitable decisions. All of these enhancements were made with an eye on the future, according to Newman, and to help users adjust to a new trend gaining steam in the industry.

"These innovations allow our customers to bring their middle-office risk departments closer together to the front office and the finance functions, accelerating the convergence we see in the industry, which is helping to drive down costs. Our future roadmap looks to this theme to draw inspiration, merging cash-flow generation for liquidity risk, balance-sheet management and trading-book risk into a unified engine." Newman says. "We are also tightly focused on data management—a big topic as institutions grapple with BCBS 239 and other data-governance regulations—simplifying how customers map data into our applications and services, thereby reducing implementation times and costs."

—*DD*

"Adaptiv Analytics can manage three types of data flows, offering firms flexibility in their approach to meeting the requirements of the new regulation.

Sell-Side Technology waterstechnology | Awards 2017

Best Cloud Provider to the Sell Side

BT

Since the launch of the Sell-Side Technology Awards five years ago, there has been only one winner of the best cloud provider category—BT with its BT Radianz Cloud.

The vendor's scale is impressive, to say the least. In 2016 alone it added 101 new customers and 3,313 service connections. It also added 13 new content providers—of which it has over 400—and over 130 new applications.

Starting last year, BT also began rolling out its new high-bandwidth market data network in the US, linking datacenters in Chicago and the New York metro area. "We were being told by our customers in the US that year-on-year, the amount of bandwidth they require for market data is growing phenomenally," Yousaf Hafeez, head of business development at BT Financial Technology Services, told *Inside Market Data* in September last year. "One of our customers is forecasting, between now and January 2018, a 40 percent increase in bandwidth. You can't be in a position where you're putting infrastructure in place, which is great today, but when the bandwidth increases in six months' time, you're struggling."

This year, in February, BT announced the launch of Radianz FX Express, which links markets in the UK, US, Singapore, Japan and Hong Kong, providing quicker access to foreign exchange (FX) market data for traders.

"If you're a customer sitting in Tokyo and you want to trade on an FX venue in the US, you can now access the market data a lot quicker than you could have done previously—turn-up of Radianz services with this and other infrastructures can be in a matter of days, as opposed to weeks or months—and therefore make a decision whether to trade or not on that venue," Hafeez said.

BT has additionally expanded its cybersecurity capabilities thanks to new partnerships and has worked with clients to help them meet new regulatory requirements stemming from Mifid II. Furthermore, it extended its virtualized compute infrastructure, plus access to BT Cloud Compute and public cloud compute services for hybrid public/private cloud solutions.

And on the acquisition front, in February, BT acquired IP Trade, a Belgium-based provider of unified communications and collaboration technologies for trading floor environments and command-and-control dispatch centers. The deal was made to bolster BT's voice trading and turret solutions, which Radianz underpins.

With advancements like these, don't be surprised to see BT back in the SST Awards winners' circle this time next year.

—AM

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BT Radianz

BT

Supporting the world's largest secure, network financial community.

ONE COMMUNITY. ONE CONNECTION. ONE FOCUS.

1 **400** data and content providers delivering thousands of application based services critical to the everyday functions of the financial sector

2 **Thousands** of member sites make up the worldwide BT Radianz Cloud community

3 Unrivalled global reach: more than **64** countries served

4 **100+** trading venues

5 **40+** Forex Trading (FX) service and information providers

6 **40+** post-trade and securities services providers

7 **40+** dark pools

8 **BT is unique** in the ability of its products and solutions to span the entire Trade Cycle from pre-trade, trade to post-trade

9 Managed Hosting services in over **20** data-centres globally

10 Managed low-latency connectivity to, within and between **16** key financial markets venues and data-centres globally

11 Up to **50%** year-on-year total cost of ownership (TCO) savings when compared to DIY models

12 **100%** service level agreement as baseline

13 World's largest **FIX ready network**

14 **24/7** global service desk support from a dedicated team of experts

24h

15 Over **90** of the world's **top 100 banks** are a customer of BT

Find out more at **www.bt.com/radianz**

Best Infrastructure Provider to the Sell Side

AlphaPoint

Back in June 2016, *Waters* attended the sixth annual New York FinTech Innovation Lab Demo Day, held at Bank of America's One Bryant Park offices. One of the eight profiled startups on the day was Madison Avenue-based AlphaPoint, whose platform was designed specifically to help capital markets user-firms to use blockchain technologies to issue, track and trade any financial asset. Like large numbers of distributed-ledger technology vendors, AlphaPoint is just at the beginning of its journey, but the promise of its solution is what most impressed the SST Awards judges, enough to be named as the best infrastructure provider to the sell side for 2017.

The AlphaPoint Distributed Ledger Platform (ADLP) was built from scratch to optimize data throughput and minimize system latency. ADLP, which leverages the Microsoft Azure cloud, has been in active deployment since 2013 and is currently installed at over a dozen "revenue-generating customers," according to the vendor, including CME Group; Scotiabank; BTCC, a Chinese bitcoin exchange; and Brighton Peak, a Melbourne-based bitcoin exchange.

ADLP offers users a front-office execution platform, a sell-side data management solution, and a sell-side reconciliation platform, and has hosted over 5.3 billion historical transactions to date. It is designed to resolve key bottlenecks so that blockchain technology can be used in the more controlled, more demanding realm of high-performance enterprise environments.

A key differentiator for AlphaPoint is its ability to digitize costly, slow, error-prone and paper-intensive workflows, allowing users to more quickly get up-and-running in new markets, while providing a "golden ledger" of record for any workflow or asset.

This allows customers to find new sources of revenue by better trading illiquid assets, such as over-the-counter (OTC)-traded commodities or securities based on, say, fine art. It also lessens a firm's need to outsource reconciliation and low-level operational functions. AlphaPoint has also completed a period in an accelerator lab operated by Accenture and sponsored by Goldman Sachs, BlackRock and JPMorgan, among others.

Blockchain is one of the more intriguing technologies to enter the capital markets space in recent years. The technology is still in its nascence, so it's impossible to tell just how revolutionary it will prove to be. While AlphaPoint still has a long way to go, if it succeeds at its goal, the benefits could be huge for the sell side.

—AM

"ADLP offers users a front-office execution platform, a sell-side data management solution, and a sell-side reconciliation platform, and has hosted over 5.3 billion historical transactions to date.

Best Sell-Side Analytics Product

AlphaSense

No part of the capital markets is seeing more investment and innovation that the analytics sector. Trading firms are always looking to find new information sources and artificial intelligence has helped to improve those efforts as they try to find alpha is a sea of words and data.

AlphaSense, winner of the best sell-side analytics product category, is lining itself up as "the Google for company research." Its search engine is designed specifically to help analysts and fund managers drill into—and organize—the "daily firehose" of public company information.

The AlphaSense engine helps users to find bits of information in huge documents or speeches, track new statistics and data, organize it, and have access to it from wherever advisors are located. Its algorithms and libraries are geared toward financial services and understand specific themes relating to things like "revenue guidance," "capex growth" or "improving margins," while semantic indexing makes searching for information on the platform more efficient.

Fund manager Opal Advisors uses AlphaSense to find information buried in dense text documents, such as a Securities and Exchnage Commission (SEC) filing, broker research report, a piece of news, or a conference transcript, according to James Hua, Opal's founder and portfolio manager. Hua says he also uses the platform to generate investment ideas. "If I search for a certain word and they have a lot of synonyms attached to it, it gets underlined; there's a thesaurus database behind it," Hua told *Waters* earlier this year. "So, if I search 'revenue guidance,' guidance is underlined and it takes everything similar to guidance, such as 'given the range of' or 'projected.' I don't have to be super precise about the words that I'm searching for. Sometimes I might miss something. I might term it as 'risk,' but they term it as 'uncertainties' within the balance sheet. So they recommend terms that I otherwise might not have looked for."

Hua estimates that the platform cuts his search times down on an individual company from four or five hours to 30 or 45 minutes.

A year ago the vendor received $33 million in funding to grow its search capabilities, as well as its staff. New investors include the likes of Tribeca Venture Partners, Triangle Peak Partners and Quantum Strategic Partners, while Tom Glocer, former Thomson Reuters CEO, is also an investor.

As alpha becomes increasingly hard to find, AlphaSense aims to become the go-to tool to help firms find gold nuggets in a river of information.

—AM

"The AlphaSense engine helps users to find bits of information in huge documents or speeches, track new statistics and data, organize it, and have access to it from wherever advisors are located.

Sell-Side Technology Awards 2017
waterstechnology

Best Sell-Side Data Management Product

IHS Markit

It may return to the Sell-Side Technology Awards winners' circle with a slightly different name, but IHS Markit has again triumphed in the best sell-side data management product category. This year's victory makes it four wins out of a possible five for the vendor's Markit EDM solution, which has gone from strength to strength in its core principles of data governance, transparency, quality, integration and dissemination.

In a space where demands on data validity, storage and delivery have never been higher, IHS Markit has been required to evolve in parallel with the market, as the vendor sees an ever-increasing variety of use-cases incorporating its core reference data into account, position, legal entity, transaction and regulatory datasets. Specifically on the sell side, IHS Markit has focused on regulatory use-cases, constructing and developing a Mifid II solution supporting the total transaction reporting lifecycle through its managed service. The vendor reports a significant increase in firms looking to adopt its managed services offering, which provides access to a centralized team that manages integration, and once implemented, delivers changes and upgrades at an optimized rate.

Markit EDM operates as a central hub of a firm's data scope across trade, operational, risk and customer data, providing sourcing, validation, enrichment, normalization and data aggregation capabilities within a fully audited environment, enabling visualization, interrogation and distribution of required data in specified formats. Users are able to track the full data lineage to know and display where data originated, who touched it within the organization, and what rules were applied to it. As customer datasets grow in size and quantity, and service level agreements (SLAs) become more exacting, Markit EDM's performance has been enhanced by introducing full in-memory and concurrent processing, and a new matcher to normalize data.

The merger between IHS and Markit was finalized in July last year and the data giant has boosted the total number of users on the Markit EDM platform to over 200 financial institutions over the last year. It has also completed the acquisition and integration of CoreOne's Vista Platform, furthering enhancing the EDM Warehouse offering.

Looking to the future, IHS Markit will focus on helping users surface data for both exception management and strategic business opportunities, and ease access to data and queries through updated customizable dashboards and responsive layouts, including grids, charts and KPIs.

In addition to winning the best sell-side data management product category, IHS Markit also won the best sell-side newcomer category and was also named as the best sell-side technology provider of the year.

—JB

"Markit EDM operates as a central hub of a firm's data scope across trade, operational, risk and customer data, providing sourcing, validation, enrichment, normalization and data aggregation capabilities within a fully audited environment, enabling visualization, interrogation and distribution of required data in specified formats.

Best Data Provider to the Sell Side

Thomson Reuters

On the day of the Brexit referendum, Thomson Reuters' Elektron platform processed 30 billion live updates in 24 hours, while at the time of the result's announcement they peaked at 10 million updates per second. In an era where data volumes are exploding, markets need a robust and stable data environment to operate safely.

Speaking of stability, Thomson Reuters ensured a fourth consecutive win at this year's Sell-Side Technology Awards as the best data provider, because its platform can do just that: process massive amounts of data without it impinging on its performance capabilities.

Marion Leslie, managing director of enterprise proposition at Thomson Reuters, says part of Elektron's success is that it has not only been able to sustain and manage huge volumes but it has also been able to manage the structural changes that regulations introduce to the market. "This gives users the confidence that no matter what the external environment throws at them, we will keep running and help them to face these changes," she says.

Elektron offers a variety of services, including the delivery of low-latency feeds from exchange-traded and over-the-counter (OTC) markets, along with analytics, a market data platform, and transactional connectivity to support any financial workflow application. In addition, the Elektron Feeds service provides normalized, full-tick, depth-of-market data from exchanges around the world in a format that can be easily integrated into users' proprietary and third-party applications.

Thomson Reuters has been quick to adopt an open application programming interface (API) approach to its platform, where clients and developers can tweak it according to their individual needs, by creating their own applications. The firm provides a set of open-source APIs that simplify access to its datafeeds and services, consisting of a broad set of interfaces ranging from low latency/high performance to simple content aware and web APIs.

Thomson Reuters' biggest bet, however, is the upcoming Mifid II regime, and that's where Elektron will focus until the beginning of 2018. "We are not expecting people to implement new things—we are going to enhance the existing infrastructures," Leslie says. "Our data feeds will reflect the new Mifid II requirements, our trading platforms will be compliant, and the data we provide will make it as easy as possible for the clients to be compliant as well," she says.

The firm will also create new analytics solutions during the course of this year for its clients' reporting obligations. For Thomson Reuters, this is vital in its efforts to make sure that the core market data infrastructure stays relevant in the new regulatory landscape.

—AA

> "Thomson Reuters ensured a fourth consecutive win at this year's Sell-Side Technology Awards as the best data provider, because its platform can do just that: process massive amounts of data without it impinging on its performance capabilities.

Best Sell-Side Trading Communication System

Cloud9 Technologies

For the second straight year, it is Cloud9 Technologies taking home the best sell-side communication system award in what's becoming an increasingly competitive category.

Long a staple of the trading desk, the turret is going through something of a renaissance. Much as how cloud-based technology has revolutionized information systems, so too has it changed the way traders communicate with one another. Cloud9 offers a software-as-a-servive (SaaS)-based alternative to traditional telephony solutions. Its C9 Trader platform taps into the power of WebRTC technology and Amazon Web Services' cloud infrastructure. This helps provide traders with increased mobility, scalability, reliability and affordability. Some users have seen cost savings of up to 50 percent on their trader-voice needs, according to the New York-based vendor.

Eclipse International, a brokerage specializing in over-the-counter (OTC) options and futures in the commodities space, recently switched from using a turret provided by Speakerbus to Cloud9. Jesse DiPlacido, a partner at Eclipse International, told *Waters* that the results were impressive. "We were able to take the Speakerbus turrets off our desks; we don't use them anymore," he said. "Our clients on the other side don't know the difference. They don't know if we're pressing a button on the turret or picking up the handset or clicking a button on the Cloud9 app to talk to them—the sound quality didn't change."

DiPlacido explained that by eliminating 15 hardwired turrets, the broker was able to save between $2,500 and $5,000 per month.

In July, Cloud9 released its Gateway Service, which connects Cloud9 users to their trading counterparties, even those firms that are not Cloud9 customers. It can also be deployed on-site or as a hosted, cloud-based service.

Pointing toward future growth, Cloud9 received $30 million in funding from a group of investors, including JPMorgan Chase, Point 72 Ventures, Hudson River Asset Management and Barclays. The vendor's next innovation is Wavelength—a service designed to connect the trading floor and middle and back offices with intercom capabilities. It also supports group and TV audio broadcasts to keep users informed on industry news.

And just as cloud has revolutionized the trading space, the next evolution is almost certainly artificial intelligence (AI). Cloud9 is currently evaluating a number of AI tools, looking to use deep-learning techniques to provide more accurate voice-to-text translation for institutional trading purposes.

After years of slow, incremental change, the communication space is now changing rapidly. Cloud9 aims to be at the front of that new order.

—AM

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The C9 Trader platform taps into the power of WebRTC technology and Amazon Web Services' cloud infrastructure. This helps provide traders with increased mobility, scalability, reliability and affordability. Some users have seen cost savings of up to 50 percent on their trader-voice needs.

Best Sell-Side Trading Network

IPC Systems

The trading network landscape has become a highly competitive one over the last few years, with multiple providers struggling to find their place. Good reflexes and continuous evolution of services are essential to making headway in this ultra-competitive sector.

Jersey City-based IPC Systems confirmed its place at the head of this field by winning the best trading network category in this year's Sell-Side Technology Awards, thanks to its Financial Markets Network (FMN) suite. It is the firm's second win in four years in a category it reclaims from BT Networks, winner of the 2015 and 2016 award, while SunGard emerged victorious in 2014.

The FMN has 6,000 live sites in 60 countries, and in 2016, IPC added over 250 new clients, ranging from brokers and investment banks to regional banks, buy-side firms, liquidity venues and trade lifecycle service providers.

This global approach is what IPC considers to be one of its most distinctive advantages. "Because we have that unique network that is very diverse in its nature, we can help market participants source liquidity, generate alpha and mitigate risk," says Ganesh Iyer, director of global product marketing at IPC.

Currently, the FMN suite provides data services exclusively to capital markets participants. It includes a financial extranet, managed Ethernet, a virtual private network (VPN) and trader voice services with unified access. The suite is protocol-agnostic and supports FIX messages, transaction standards, unicast/multicast market data as well as other industry protocols.

IPC's goal is to update and enhance its network with new services and solutions every year, which will prove compelling to its client base. In May last year, the FMN was enhanced with the addition of two new services, the FX Hub, a low-latency, co-located performance solution, and the Fixed Income Marketplace, designed to allow users to trade fixed-income instruments electronically or via voice. Both were developed to address the challenges facing capital markets traders around the lack of information and transparency pertaining to reliable liquidity. According to Iyer, the solutions "create" liquidity by enabling all-to-all trading, dealer-to-dealer trading and dealer-to-client trading.

The Connexus Cloud was also launched in June 2016 as an encrypted communication platform allowing 200,000 members to interact securely, exchange information, and mitigate risk. The platform also offers partner services for integrated biometric, encryption and distributed-ledger technologies. But perhaps IPC's biggest coup came by way of its Connexus Infrastructure Service launch, a managed, private and hybrid infrastructure platform available at premier co-location facilities, globally.

—*AA*

"FMN has 6,000 live sites in 60 countries, and in 2016, IPC added over 250 new clients, ranging from brokers and investment banks to regional banks, buy-side firms, liquidity venues and trade lifecycle service providers.

Best Sell-Side Mobile Initiative

Dealogic

Dealogic wins this year's best sell-side mobile initiative award, the third company to win the category since 2013. Dealogic , the London-based vendor's mobile app, was launched in April 2016. Erik Anderson, Cortex product head at Dealogic, says Dealogic was built to provide the same personalized, real-time insight as the vendor's flagship Dealogic platform to senior bankers who are now experiencing a generational shift. "We used to deliver content to desk-bound analysts who used to rely on manual reports," Anderson says. "What changed is that we're seeing the next generation in the brass ring that grew up with mobile phones and who want to consume content while they're on the road."

Anderson says the content found on Dealogic is the same as on its desktop platform, including client and market performance data, predictive analytics, and live capital market deals. He notes that the Dealogic mobile app tailors its information specifically for bank-selling views and offers forward-looking content.

Dealogic was built on HTML5, so that it can be accessed from any mobile device without being reliant on any particular operating system. It offers users different permission levels based on their function and role within the bank or other financial institution, and delivers customized data for each user. Teams can also collaborate through the app, which allows for the sharing of reports while on the move.

According to Anderson, the mobile app, as well as the original desktop version, provides users with full visibility into all of the underlying data and assumptions that go into insights. "The prior workflow was that you got a report emailed to you and you read it a couple of hours later. Then you realized that you had a question, so you emailed the person who created the report and they may or may not have been at their desk. So you get into this cycle that takes 24 hours just to answer a question about what you're seeing," says Anderson. "With the app, that's now done in real time."

Mifid II, set to come into force in January next year, might also influence the type of content pushed out to users by Dealogic, according to Anderson. "We're seeing a lot of time and resources being put into Mifid compliance, especially among our research clients who are primarily impacted by the regulation. We believe we can do a lot to help both the buy side and the sell side understand the resources investors are consuming."

—ED

"It is great to have more validation for the work that we do. We are intensely focused on our clients and this helps us maximize their performance and optimize their workflows." **Erik Anderson, Dealogic**

Best Outsourcing Provider to the Sell Side

Broadridge Financial Solutions

Broadridge follows up last year's win in this category by winning it again, and by so doing becomes the second two-time winner of this award after Saxo Bank won it in 2014 and 2015.

Broadridge's outsourcing platform allows its sell-side clients to outsource processing for both real-time deals and post-trade reporting, automating the whole securities transaction lifecycle. Clients have access to desktop productivity tools, data-aggregation systems, performance reporting platforms, and portfolio management offerings. These tools, according to the vendor, help users efficiently and cost-effectively consolidate their books, gather and service assets under management, and manage risk so that they can focus on their core business needs.

Lake Success, NY-based Broadridge offers a range of business-process outsourcing services, including securities clearing, asset servicing, securities lending, and reconciliations, as well as client onboarding and tax and regulatory reporting functions. Sell-side firms also use Broadridge to support their collateral management, revenue and expense management, performance analytics and reporting, and workflow functions. The platform is used in over 70 countries and offers multi-currency solutions for equity, mutual fund, foreign-exchange and fixed-income securities. The company is proud of its 99.995 percent availability and uses IBM data centers to guarantee that availability.

Broadridge, which serves the front, middle, and back offices, has also been working on projects to enhance its offerings to the sell side and help those firms better deal with their buy-side clients. As an example, Broadridge launched its Global Post Trade Management (GPTM) service in May of last year to help streamline bank and broker-dealer operations. Charlie Marchesani, president of global technology and operations at Broadridge, told *Waters* at the time that the rationale for the rollout was that clients were looking for ways to rationalize their many technology platforms—both internal systems as well as reducing their vendor-usage footprints.

"They're using multiple systems to be able to process in those multiple geographies. They want to have one enterprise solution that will give them a common user experience, a common view of their data, a common view of their risk and their positions, and that is what GPTM allows them to do," Marchesani said.

The company recently announced acquisitions relating to regulatory transaction reporting and post-trade control solutions, as it looks to beef up its offerings ahead of the upcoming Mifid II regulation in January 2018. One such deal was the acquisition of Message Automation in March this year, while in April, it was involved in a pilot test using blockchain technology for proxy voting, and has also released a new tax platform that allows securities brokers and dealers to better manage tax reporting requirements.

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Broadridge's outsourcing platform allows its sell-side clients to outsource processing for both real-time deals and post-trade reporting, automating the whole securities transaction lifecycle.

Sell-Side Technology waterstechnology | Awards 2017

Best Smart Order Routing Product/Tool

Broadway Technology

Broadway Technology made its first appearance at the Sell-Side Technology Awards in this category last year and has returned to reclaim its title as the best smart order routing provider. The key to the product's success lies in its flexibility—it is an asset class-agnostic tool, designed to automatically and optimally handle all order types across trading venues according to all desired execution strategies and routing policies.

Flexibility and functional richness underpin the Broadway Order Router, a turnkey solution with out-of-the-box capabilities that can be heavily customized as required, allowing users to stay on top of fluctuating business and regulatory demands.

The Broadway Order Router has evolved alongside demands in trade order routing, not least with the new requirements on best execution that will be introduced under Mifid II in January 2018. Increasing demands from clients also means stronger competition among providers in the order routing and execution space, resulting in Broadway undertaking an extensive enhancement program to boost the Order Router's capabilities.

The most significant enhancement made to the product over the course of the last year has been the addition of rules-based meta-strategies, a set of reusable instructions that can be used to specify when to follow different trading strategies. While the Broadway Order Router includes a number of out-of-the box strategies—exclusive/full size, iceberg/reserve (including Sniper), market peg, pay up, stop limit, sweep, and time-weighted average price (TWAP)—customization has become a key focus for the platform's users who are increasingly looking to create bespoke order routing strategies backed up by real-time data analytics.

Broadway Order Router's data analytics capabilities have recently been given a boost with an expanded menu of turnkey options covering liquidity provider performance, customer performance, execution analysis, algorithm and market analysis, and expectation analysis. Centralized, permissioned strategy sharing has also been introduced, with more than 30 parameters available to users to determine router behavior on an order-by-order basis. Bundles of parameter settings as named strategies that were historically designated by users for personal use can now be shared to ensure optimal practices across different user types.

Order routing has become an important focus for sell-side firms (and their buy-side clients) as liquidity continues to fragment globally, while regulatory demands around order transparency and trading practices continues to exert pressure on all capital markets firms. Broadway Technology has once again set the standard in this space by way of its outstanding Broadway Order Router.

—JB

"Broadway has been delivering industry-leading fintech solutions to top institutions for well over a dozen years. We're greatly honored to be recognized by Waters as a provider of best-in-class technology year over year." **Joshua Walsky, CTO, Broadway Technology**

Best Compliance Product

AcadiaSoft

AcadiaSoft returns to this year's Sell-Side Technology Awards winners' circle after its win in 2016 as the best sell-side newcomer. This year, AcadiaSoft Hub has been named the best compliance product, a category that has seen a different winner each year since the inaugural awards back in 2013.

AcadiaSoft Hub, launched in February 2016, provides a central margining platform for non-cleared over-the-counter (OTC) derivatives. Development of the Hub involved collaboration between AcadiaSoft and 16 industry participants. In addition, the vendor worked with partners like Quantile Technologies for a portfolio optimization feature included on the Hub.

Chris Walsh, AcadiaSoft's CEO, says the product aims to bring to market solutions to meet new and upcoming margin rules. "That's the focus of the AcadiaSoft hub—to bring to market these solutions faster and to make standard solutions in a way that benefits all market participants," Walsh says. "It's a great collaboration that extends beyond AcadiaSoft, and it's truly a remarkable thing that the industry came together and coordinated a standard in such a way that everyone was able to implement on the same day the regulations took effect."

Walsh adds that firms are under pressure to meet these new margin rules, but have to keep costs to a minimum, so they look to platforms like the Hub. The old method was to manually calculate bank-specific margins using proprietary processes. With the Hub, clients are now able to automate standard margin calculations and compare data inputs with counterparties, Walsh says.

"The Hub integrates into their systems and eliminates disputes without the cost of building their own program," he says.

AcadiaSoft is now looking to provide a service for the next batch of firms that need to meet margin regulations. The next wave of compliance begins in September this year. Walsh notes that the smaller firms that will be affected by the regulation have requested certain enhancements. "They've asked for the ability to calculate risk as well as margin calculations and reconciliation," he says. "We're going to offer a service where the firms just submit their trades to the Hub and we can calculate risk and the other functions."

The update will be released before September.

For AcadiaSoft, the novelty of calculating initial margin has proven to be a fertile ground for new innovation. "This is such a new area—the need to post initial margin—and we want to continue to service the clients who need to meet this requirement by bringing innovative solutions to the forefront," he says.

—ED

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Development of the Hub involved collaboration between AcadiaSoft and 16 industry participants. In addition, the vendor worked with partners like Quantile Technologies for a portfolio optimization feature included on the Hub.

Best Sell-Side Reconciliation Platform

SmartStream Technologies

SmartStream's TLM Reconciliations Premium platform claims a fifth consecutive victory in the best sell-side reconciliation platform category, continuing its streak as the only recipient of this award since the inception of the Sell-Side Technology Awards back in 2013. The London-based vendor has also enjoyed considerable success in other WatersTechnology awards programs, including the Buy-Side Technology Awards, the Waters Rankings, and the Inside Market Data/Inside Reference Data Awards, a clear indication that as a technology provider it is on top of its game and it continues to push the boundaries in the reconciliation technology market.

The TLM Reconciliations Premium platform provides a depth of functionality that is rarely matched elsewhere in the market; it is the only platform that provides an integrated exceptions management layer as part of its core offering, designed to manage all types of reconciliations regardless of data types or asset classes. The platform was developed to provide a single solution from the simplest intersystem reconciliation to the most complex reconciliations, allowing for the maximization of economies of scale and cost reductions.

SmartStream's flagship offering provides the flexibility required to maintain control over the entire reconciliation process, through an onboarding facility that allows users to adopt the technology either within their own premises, as a shared or managed service, or on a software-as-a-service (SaaS) basis, as well as boasting a user interface (UI) in HTML5 and multiple points of entry.

The HMTL5-based UI is one of the recent upgrades made to the TLM Reconciliations Premium platform, bundled with real-time analytics and customization options that allow end-users to view data dynamically in multiple ways. The vendor has also added an intuitive analytics layer designed to assess users' reconciliation processes upon adoption to provide an optimized set of business rules. Data staging and hosting and archiving capabilities have also been enhanced.

Looking to the future, SmartStream plans to build out its reporting capabilities for daily reconciliation activities, exceptions management for investigations, and management information system (MIS) reporting to allow users to delve into statistical information in greater detail. The vendor is also investing in its ETL (extract, transform, load) layer, which will allow for greater data manipulation and transformation.

SmartStream will not be resting on its considerable laurels and will focus on building out the platform's scalability as it seeks to create an industry standard for reconciliation operations, while at the same time remaining focused on the technology capabilities that have served it so well to date.

—JB

"The TLM Reconciliations Premium platform provides a depth of functionality that is rarely matched elsewhere in the market; it is the only platform that provides an integrated exceptions management layer as part of its core offering, designed to manage all types of reconciliations regardless of data types or asset classes.

Best Sell-Side Market Surveillance Product

Nasdaq

Nasdaq's double win at this year's Sell-Side Technology Awards—winning the best overall product of the year and the best market surveillance product categories—reflects the firm's position as arguably the industry's foremost provider of surveillance technology, thanks to its Smarts surveillance platform, which has won this category for the past four consecutive years.

Nasdaq is one of the oldest vendors in the market, having worked in the surveillance space for the past 22 years. Smarts, the New York-based exchange operator's flagship surveillance offering, is a multi-asset, software-as-a-service (Saas)-based platform that covers 45 marketplaces, 16 regulators and serves 137 market participants spanning 139 venues, globally. This year has seen a number of enhancements made to the platform, partly as a result of Europe's new Market Abuse Regulation (MAR). For example, in 2016, Nasdaq started training user-firms on a combination of new alerts for order book manipulation, while more recently, its focus has shifted to layering and spoofing, which it has addressed by way of a new visualization tool that monitors how people behave in an order book and how that behavior relates to the overall market direction.

A graph comprising all this information, which also includes past investigations on relevant cases, allows users to understand in seconds whether there is or was manipulative behavior in an order book. The tool has more than 210 preconfigured alert scenarios, and it also includes targeted regional alerts designed for each market.

Smarts has also adopted a new perspective on orders and trades where its clients are able to monitor each trader in order to understand their trading patterns over time and the number of alerts they might have received, allowing them to compare traders' profitability against their peers, with the view to detecting possible suspicious performances.

These changes reflect Nasdaq's conviction that the recipe for success boils down to two factors: staying ahead of market developments and pursuing technical innovation.

Valerie Bannert-Thurner, senior vice president and global head of Nasdaq'a risk and surveillance business, says that these factors are critical if a firm wants to provide high-quality services. "We try to be ahead of the curve for our customers," she says. "For example, the fixed-income market is moving from over-the-counter (OTC) to on-exchange trading; before customers realize what's happening, we tell them we have a surveillance platform for that." Bannert-Thurner adds that innovation is high on the firm's agenda. "We try to get lots of new and good products," she says. "With every new feature we release we take a step toward new technologies."

—AA

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Sell-Side Technology Awards 2017
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Best Sell-Side Web-Based Development Environment

OpenFin

New York-based OpenFin holds onto its crown in the best sell-side web-based development environment category in this year's SST Awards, fighting off tough competition with its Chromium-based desktop operating layer that has been enthusiastically adopted by a number of major sell-side institutions that are looking to upgrade to HTML5 technology to power trading activities.

As the sell side moves away from entrenched Java, .NET and Flash-based technologies toward HTML5, they require the capabilities to facilitate that migration. OpenFin's adapters enable users to maintain existing technologies crucial to trading ecosystems while migrating to newer, HTML5-based systems. The OpenFin operating layer is currently used by over 100,000 licensed users across the capital markets for both client-facing applications, such as single-dealer platforms, and internal, front-office applications.

The OpenFin desktop operating layer works in much the same way as the iOS or Android operating systems, sitting on desktops enabling the instant deployment of applications built within Agile development environments, with communication and interoperability between each other and other applications installed on the desktop via a series of new plug-ins. Those plug-ins allow for integration with Microsoft Excel, Bloomberg and other applications, while also offering the ability to simplify application rollouts between platform providers and end-user firms.

The underlying technology, Chromium, is an open-source web browser project from which Google Chrome draws its source code and a new version is rolled out every six weeks by the tech giant. OpenFin has spent much of the previous year ensuring that it keeps up with Google's update schedule, ensuring that its operating layer technology continues to perform at peak efficiency.

OpenFin is seeking to establish itself as the industry standard technology for both the sell and the buy side in terms of development environments, and to that end has established an advisory board and architecture working group for the platform, including the presence of six sell-side banking institutions. In February this year, OpenFin raised $15 million in Series B funding led by JPMorgan, Bain Capital Ventures, and Euclid Opportunities, the venture funding arm of the NEX Group. Venture capital firms Nyca Partners, Pivot Investment Partners, and DRW Venture Capital also participated in the round, in addition to a number of angel investors and industry executives. The new capital will be used to expand the firm's staff count in both its New York and London locations, as well as provide the necessary bandwidth to increase its focus on existing products and the development of new ones.

—JB

"OpenFin is now being used by most sell-side firms to reimagine their end-user desktop experience and we're honored to be recognized by Sell-Side Technology." **Mazy Dar, CEO, OpenFin**

Best Implementation at a Sell-Side Firm

AxiomSL

The best implementation award is the only category of all 30 on offer in this year's Sell-Side Technology Awards where the outcome is determined by the effectiveness of a technology implementation at a sell-side firm. By winning this award, New York-based AxiomSL becomes the first two-time winner in this perennially hard-fought category—it won this award last year too, courtesy of its collaboration with Standard Chartered Bank on its Bank of England (BOE) statistical reporting requirements, while this year's win was down to its work with State Street and its federal statistical reporting obligations.

It's no secret that data is the lifeblood of the financial services industry. Without it, literally every business process will eventually cease to function properly, while the accuracy, reliability and timeliness of data are similarly crucial, not only for day-to-day business requirements, but for regulatory purposes too.

On the regulatory front, capital markets firms of all sizes and descriptions are now required to provide regulators with large volumes of data pertaining to their holdings. Forms FR Y-9C—used to monitor financial institutions between on-site inspections—and FR Y14-Q—a report used to assess a financial institution's capital adequacy using forward-looking projections of revenues and losses—are two such reporting obligations that State Street needs to comply with, requiring firms to aggregate their holdings across subsidiaries and define rules over custody assets and the treatment of specific types of assets across business functions. According to AxiomSL, State Street "initiated significant data management transformation," impacting its enterprise data warehousing strategy and its data infrastructure and reporting framework. State Street selected AxiomSL's platform to address time-critical reporting modules while aggregating large data volumes in a complex environment. The project was completed on an accelerated schedule—twice as fast as a regular schedule—and on budget, and has automated the delivery of more than 9,000 data points for regulatory reporting purposes.

AxiomSL cites three challenges that the project, supported by 12 of its personnel, needed to address: deadline, budget, and the platform's reporting accuracy. State Street completed the implementation—which required the coding of 9,000 lines of the Federal Reserve Board's Micro Data Reference Manual to align and populate its data with appropriate reporting lines—in less than nine months. The project resulted in streamlined data storage, aggregation and a reporting process that allows State Street to complete thorough analysis of its data at the point of submission as well as review and control over the entire process.

Past winners of this category include Caplin Systems (2013), Torstone Technology (2014), and Numerix (2015).

—VBA

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Best Sell-Side Newcomer (Vendor or Product)

IHS Markit

The newcomer categories in the Sell-Side Technology and Buy-Side Technology Awards are by far and away the most popular, regularly attracting 20-plus entries. This year *Waters* received 21 entries, which, after the first round of voting, were whittled down to five, and then finally one: IHS Markit's FRTB Solution Suite. By winning this category, IHS Markit becomes the only two-time recipient after winning it back in 2014 when it unveiled its integrated resource management offering underpinned by the Markit Analytics Engine.

Over the past 18 months, one risk management issue has overshadowed all others across the capital markets: the Fundamental Review of the Trading Book (FRTB), a revised market risk framework introduced by the Basel Committee on Banking Supervision to ensure firms' "standardized and internal model approaches to market risk deliver credible capital outcomes and promote consistent implementation of the standards across [its] jurisdiction."

In 2016, IHS Markit launched a suite of FRTB tools, designed to help banks comply with the above-mentioned requirements, due to come into effect on January 1, 2019. The suite, currently being trialed by a number of tier-one banks, includes the firm's risk calculation engine and new software developed from the ground up using a blend of risk analytics and big-data technologies, combined with the firm's proprietary sources of cross-asset transaction and historical pricing data. The suite offers sell-side firms a platform for modeling and managing market data, risk factors, scenarios and capital calculations. It comprises a set of analytics required for the standard approach (SA) and internal models approach (IMA) to market risk management, underpinned by three applications: an FRTB "modellability" service—a combination of data and analytics for assessing and managing risk factor modellability, including transaction datasets and a bucketing application programming interface (API) for cross-asset modelabillity reports; an FRTB scenario service featuring cross-asset historical pricing derivation, from time-series gap-filling to proxying and configurable scenario generation; and an FRTB capital analytics tool featuring a high-performance risk platform, providing analytics for IMA and SA requirements across trading desks, supporting roll-up to the enterprise level.

These offerings can be implemented on a standalone basis or in combination to provide end-to-end support for FRTB. According to IHS Markit, a tier-one bank processed a portfolio of 1 million trades in seven seconds using FRTB Studio, an intra-day aggregation tool, running on hardware costing approximately $20,000. This allowed it to understand the capital implications of business decisions in near real time in relation to FRTB. The bank was up and running on Studio in two days. Past recipients of this category include Torstone Technology (2013), Markit (2014), Symphony (2015) and AcadiaSoft (2016).

—VBA

"The suite, currently being trialed by a number of tier-one banks, includes the firm's risk calculation engine and new software developed from the ground up using a blend of risk analytics and big-data technologies, combined with the firm's proprietary sources of cross-asset transaction and historical pricing data.

Best Sell-Side OTC Trading Initiative

FIS

It's been a year-and-a-half since FIS completed its acquisition of SunGard, but the deal continues to yield dividends, as the platform created by SunGard has helped FIS reach the winners' circle in the best OTC trading initiative category. Front Arena, a platform for the management of both listed and over-the-counter (OTC) traded instruments across the entire trade lifecycle that was developed by SunGard, was named the best sell-side OTC trading initiative, taking home the award for the first time. And while the platform might have originally been built at SunGard, that's not to say the solution's new home has prevented it from further development. Rob Mackay, vice president of trading solutions at FIS, details three enhancements made to Front Arena over the past year.

Mackay first notes Mifid II compliance, which has been top-of-mind for many in the industry. The goal is to leverage the platform's two core strengths: OTC and electronic trading. FIS has created a Mifid II-compliant OTC trading platform that includes: transaction logging, auditability and regulatory reporting; support of sales-trader interactions; and OTC instrument definitions, pricing, risk and operations, all on the same platform.

"The driver for this investment is to enable our customers to stay compliant after Mifid II," Mackay says. "But to a larger extent, we see a great opportunity in innovating the OTC market from a trading system perspective to enable efficiency and new business model opportunities for our customers."

Mifid II isn't the only regulation in the crosshairs of Front Arena. The platform also aims to help Fundamental Review of the Trading Book (FRTB) compliance, as there is a need to better align the risk calculations between the front office and risk management, according to Mackay.

"Front Arena provides the tools for customers to define how they implement FRTB at individual desks or across several desks," Mackay says. "It provides an advanced model approach to lower the capital charge and the standard model approach."

A web front-end with deep functionality was also created to enable light deployment for sales, risk and portfolio management users. The goal here, according to Mackay, was to offer easier deployment for a large number of users, along with giving sell-side customers a front-end with electronic access to OTC trading and improved workflow efficiency.

—DD

"It's been a year-and-a-half since FIS completed its acquisition of SunGard, but the deal continues to yield dividends, as the platform created by SunGard has helped FIS reach the winners' circle in the best OTC trading initiative category.

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Best Reporting Platform/Service for the Sell Side

Nex Abide Financial

Nex Abide Financial unseats Bloomberg as this year's winner of the best reporting platform or service in the Sell-Side Technology Awards, thanks to its Nex Regulatory Reporting platform. It was the comprehensiveness of the vendor's reporting suite that impressed this year's judges, utilizing straight-through processing for evolving reporting requirements across Mifir/Mifid II, the European Market Infrastructure Regulation (Emir) and Securities Financing Transactions Regulation (SFTR), as well as numerous other international rules, including those under Dodd–Frank.

The Nex Regulatory Reporting suite is the unified product brought together under Abide Financial and the other companies in the Nex Optimisation group: Traiana, Nex Data, Enso and TriOptima. It provides an end-to-end reporting solution that currently handles over 20 percent of total Mifid II reported trades and Emir reportable transactions.

Launched as a fully integrated reporting system in March this year, the Nex Regulatory Reporting platform draws not only on Abide Financial's history in this space, but also on the other regulatory-minded organizations and capabilities of the Nex Group, following its acquisition by Icap in October last year. The result for Abide Financial has been both a growth of clients using the platform, adding tier-one institutions and hedge funds to its existing base, and of the suite itself.

On the Emir side, Abide has added a one-click foreign exchange (FX) reporting service, Abide Financial MT4 Adaptor, designed to reduce the entire Emir reporting process to a single click by automatically routing all FX and contract-for-difference (CFD) trades directly to the Abide financial hub for data validation and processing, before being sent to designated regulatory destinations under Emir rules.

Mifid II is the biggest regulatory landmark on the horizon and Abide has prepared for the January 3, 2018, deadline and increased demand for solutions in related reporting. Its enhanced Mifid/Mifir transaction reporting system supports straight-through processing across all Mifid reports to the UK's Financial Conduct Authority, and provides access to underlying data in real time.

Abide Financial has also positioned itself as a key reporting service provider ahead of numerous regulatory changes in the near future. It has applied to become an approved reporting mechanism (ARM) and an approved publication arrangement (APA) provider for Mifid II, a regulatory reporting mechanism (RRM) for Regulation on Wholesale Energy Market Integrity and Transparency compliance, and is currently awaiting approval to become a trade repository under Emir, which it expects to achieve by the end of this year.

—JB

"The Nex Regulatory Reporting suite is the unified product brought together under Abide Financial and the other companies in the Nex Optimisation group: Traiana, Nex Data, Enso and TriOptima.

Most Promising Sell-Side Startup

OpenDoor

Anyone who has followed the financial services industry for any appreciable time will know that startups are two-a-penny. Founding and launching a fintech firm is the easy part; ensuring that it can scale, that it has a solid business model, and is able to generate enough revenue to sustain itself is the really tricky part that not many startups manage to crack. The failure rate among startups in their first two years across all industries is as high as 90 percent. While that number is perhaps 10 to 15 percent lower in our industry, it's fair to say that the odds of a startup making it out of the valley of death are not good.

But that doesn't mean it can't be done, and this year, OpenDoor, a Jersey City-based US treasuries trading platform, has shown the way. According to OpenDoor, the US treasury market is facing a "liquidity imbalance": The six on-the-run (most recently issued) treasuries account for less than 2 percent of the total $14 trillion of outstanding supply, although they represent 69 percent of the total trading volume. Meanwhile, off-the-run issues (those securities issued before the most recent issue) comprise the remaining 98 percent of the market, illustrating the dearth of liquidity. The OpenDoor platform, the first session-based, all-to-all, anonymous trading platform for treasuries, was designed to address this issue. It has just over $5 trillion in engaged assets under management (as of February 2017) with another $15+ trillion in its pipeline to be activated imminently.

The platform is structured to partner with primary dealers for clearing and settlement, a prerequisite for onboarding central banks that hold around half of all outstanding securities. Unlike the majority of request-for-quote systems, single-dealer platforms and central limit order books, OpenDoor directly connects buyers with sellers, providing open and equal access with no price discrimination. Prices for institutional investors, traders and dealers are improved through trades mainly transacted at mid-market levels, while the platform's internal trading protocols ensure no information leakage.

The platform is available to sell-side firms that are Fixed Income Clearing Corp. netting members, allowing end-users to continue settling trades with their choice of sponsor. They incur no costs to access the platform, but instead pay a volume-based transaction cost included in the clearing price of the transaction. OpenDoor, whose clients include central banks, hedge funds, pension funds, sovereign wealth funds, mutual funds, primary dealers, asset managers and trading firms, plans to expand its reach outside of the US and into other European and Asian markets during 2018.

Previous recipients of this category include Green Key Technologies in 2015, while R3 was last year's recipient.

—VBA

"Unlike the majority of request-for-quote systems, single-dealer platforms and central limit order books, OpenDoor directly connects buyers with sellers, providing open and equal access with no price discrimination.

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Best Swap Execution Facility (SEF)

Tradeweb

Tradeweb has begun to build a dynasty at the Sell-Side Technology Awards, winning the best swap execution facility (SEF) category for the third consecutive year. The New York-based vendor has built a strong reputation thanks to its constant engagement with clients about how to build and enhance existing tools and functionalities on TW SEF, according to Lee Olesky, CEO of Tradeweb Markets.

Offering clients choice, Olesky says, has made Tradeweb stand out in the world of SEFs.

"The ease of execution on Tradeweb has helped drive the adoption of new trading technology and corresponding volumes on our platform. Clients have flexibility in the way they engage liquidity through a range of protocols, including request-for-quote, click-to-trade, request-for-market, list trading and inventory-based trading," Olesky says. "In addition, TW SEF now has more than 900 market participants and is one of the few SEFs that supports trading for both interest-rate swaps and credit derivatives, continuing to grow market share in both asset classes. These are just some of the reasons that Tradeweb was the largest SEF by volume in the last quarter of 2016, according to ClarusFT."

Tradeweb is the leading SEF for buy-side compression, according to Olesky, with more than $10 trillion notional in executed volumes since the platform was launched in November 2013. The vendor has also worked hard to ensure that every step of the trading workflow is accounted for, taking into account International Monetary Market (IMM) dates and other attributes for offsetting swaps and making sure they match exactly.

Compression trading has also been integrated and streamlined on Tradeweb, according to Olesky. Firms can now execute compression trades in nine currencies, while yen, Canadian dollar, Swiss franc, Danish krona, Norwegian krona and Swedish krona swaps were recently added, with plans to add even more currencies over the next 12 months, according to Olesky.

"We remain focused on improving existing functionality on our platform," Olesky says. "We work closely with our customers to ensure that the workflow enhancements and new functionality we introduce deliver meaningful progress to the way they trade on our platform.

With a number of firms looking to move away from utilizing swaps as tools to manage portfolio risk, Olesky says market participants will increase their focus on other derivatives.

"Our continued growth and success demonstrates that clients choose Tradeweb for its bespoke solutions, portfolio optimization tools, integration capabilities and quick-access liquidity," Olesky says. "We expect our offering will continue to grow with the marketplace over the next 12 months, and are looking forward to enhancing the trading experience with powerful tools and better access to liquidity."

—DD

"Firms can now execute compression trades in nine currencies, while yen, Canadian dollar, Swiss franc, Danish krona, Norwegian krona and Swedish krona swaps were recently added, with plans to add even more currencies over the next 12 months.

Best Overall Sell-Side Product of the Year

Nasdaq

The best overall product category is traditionally one of only two announced at the annual Sell-Side and Buy-Side Technology Awards held in New York and London, respectively. All the winners of the preceding 28 categories making up this year's SST Awards line-up were considered for this award, but it was Nasdaq, with its compelling Smarts Trade Surveillance platform and its recent alliance with Digital Reasoning, that landed the penultimate category of the 2017 SST Awards.

As has come to be the case over the last four years in these awards—and in the annual Buy-Side Technology Awards—the New York-based market operator and technology firm was adjudged as possessing the industry's must-have market surveillance platform, thanks to its Smarts Trade Surveillance offering, designed "to automate the detection, investigation and analysis of potentially abusive or disorderly trading to help improve the overall efficiency of the surveillance organization and reduce cost."

Nasdaq's second visit to this year's winners' circle was a collaborative effort with New York-based artificial intelligence (AI) specialist Digital Reasoning, which won an individual category of its own: the best artificial intelligence technology award, the first year the category has been on offer. In February last year, Nasdaq and Digital Reasoning came together in an alliance with the view to providing sell-side firms with a market-monitoring service with a difference: The platform would not only monitor markets and their participants, but it would also add AI technology to the mix and by so doing provide user-firms with the ability to identify inappropriate activity through digital communications and "understand the context of that monitoring," according to Marten den Haring, chief product officer at Digital Reasoning. The collaborating saw Nasdaq's Trade Surveillance platform merged with Digital Reasoning's eComms offering, resulting in arguably the industry's best market surveillance platform becoming a lot more intelligent, allowing analysts and compliance teams insight across communications and trade data to automatically prioritize areas for evaluation and investigation.

A number of other technology firms came into the final reckoning for this award, but it was Nasdaq's two individual category wins, combined with its eagerness to continually push the boundaries of market surveillance, that ultimately proved decisive. Past winners of this category include Numerix (2013), GoldenSource (2014), Quartet FS (2015) and R3 (2016).

—VBA

> It was Nasdaq, with its compelling Smarts Trade Surveillance platform and its recent alliance with Digital Reasoning, that landed the penultimate category of the 2017 SST Awards.

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Nasdaq

Sell-Side Technology waterstechnology | Awards 2017

Best Sell-Side Technology Provider of the Year

IHS Markit

Like it or not, many in the industry were uncertain just how Markit and two of its highest profile acquisitions—Cadis, acquired in May 2012, and thinkFolio, some 18 months later in early 2014—would get on together. Some on the buy side were concerned that those two highly successful and sought-after brands would be damaged in the move to the Markit stable, while more recently, others wondered what exactly IHS had envisioned when it acquired Markit just over a year ago, given that the parent company's focus had always been the energy and automotive sectors. But those misgivings turned out to be unfounded. Mergers and acquisitions are an occupational hazard in all industries and while they might not necessarily be enjoyed, they do need to be endured from time to time. And let's face it, the folks at IHS Markit know a thing or two about acquisitions.

Markit, prior to its acquisition by IHS, was, by any measure, a phenomenally successful data, information and technology firm. And, given its success in this year's Sell-Side Technology Awards by winning the best sell-side data management product and best sell-side newcomer (vendor or product) categories, only a fool would bet against the new entity changing the ingredients underpinning the strategy that has made it by far and away the most successful firm across all of WatersTechnology's awards programs.

This year's success comes by way of the firm's flagship Markit EDM (Enterprise Data Management) platform, which continues to evolve and sweep all before it in what has become one of the most keenly contested of all categories, while in the newcomer category, the firm's FRTB Solution Suite was the judges' obvious choice, given the industry's recent fixation with all things relating to the Fundamental Review of the Trading Book (FRTB), a revised market risk framework introduced by the Basel Committee on Banking Supervision, set to come into force in 18 months' time. And so, with the firm's continued stranglehold over the data management category—a market that it entered once it had established its hegemony in its traditional buy-side stronghold—and its ability to identify market trends and respond to demands by way of its FRTB Suite, the *Waters* journalists were unanimous in their decision that the final category of the Sell-Side Technology Awards 2017 should go IHS Markit, following up its success in this category three years ago.

Past winners of this category include SunGard, now FIS, (2013), Markit (2014), Bloomberg (2015) and SmartStream (2016).

—VBA

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John Brazier

Buy-Side Tech Vendors Focus on the Middle Office

John takes a look at some of the more significant mergers and acquisitions among buy-side-focused technology vendors announced recently, where solutions for the middle office seem to be the flavor of the month.

In last month's column, I wrote that as the global and financial landscapes evolve, some asset managers, particularly those in Europe, may find consolidation through merger the best way to steady the boat in an increasingly choppy sea. While deals between Standard Life and Aberdeen Asset Management, or Henderson Global Investor and Janus Capital are pushed through to bulk up their market share, resources and reach, the same goes for the technology vendors in this space that must be able to develop their solutions and services to match industry demand even as it continues to change. Acquisition is the most direct approach to achieving that goal.

Technology providers to the asset management community have never needed to be as responsive and intuitive to their clients' needs as they do right now, and several among them have announced recent deals of their own worthy of a second look.

Performance Pressure

Over the better part of the last decade, Paris-based BISAM has built up a significant presence in the performance measurement and attribution space, as well as an impressive buy-side client roster, particularly in the long-only space, through its flagship performance, attribution, risk and reporting platform, B-One. The vendor's record speaks for itself: nine consecutive wins in the best buy-side performance measurement and attribution product category at the Buy-Side Technology Awards. It's little wonder, therefore, that BISAM was targeted for acquisition by big-spending data and analytics provider FactSet in late March, adding the vendor to recent deals it has closed for Portware, Vermilion Software and Cymbra Technologies over the past 18 months.

FactSet's focus on creating a single platform to support every aspect of the portfolio lifecycle reflects the trend among asset managers to deploy a single, holistic option across their front-to-back operations, meaning less data integration work for them from multiple platforms orbiting the portfolio, at a time when that focus is firmly set on regulatory datasets instead.

It's clear that FactSet is precisely aware of what it has purchased in B-One, as the vendor's Chris Ellis told *Waters* at the end of March: "We're not going to do anything to mess B-One up. We're just going to fill it up with FactSet data and make the results play nicely with the rest of FactSet. We just want to pour more gas on that fire."

Asset managers' focus on performance is at a peak right now thanks, in part, to heightened scrutiny from regulators into the entire trading lifecycle, but also because they are trying to wring as much value out of their analytics as possible. Integrating a combined data flow from FactSet and the B-One platform will sound like an attractive proposition for many buy-side firms.

"Asset managers' focus on performance is at a peak right now thanks, in part, to heightened scrutiny from regulators.

Moving to the middle?
For more information and readers' feedback please join the discussion at **waterstechnology.com/buy-side-technology**

London Calling

Another winner in last year's Buy-Side Technology Awards was UBS Delta, the portfolio analysis and risk management service division of the Swiss Bank, which walked away with the best broker-supplied technology and best overall technology provider gongs. London-based StatPro swooped in on UBS Delta in early April, seeking to create a "point of call" for buy-side firms in performance and risk technologies. The complementary technology capabilities of both firms in the risk management and middle-office spaces seem to fit snugly, and there's a sizeable amount of industry experience going around at both vendors, something that is becoming increasingly important for the buy side as interest in outsourcing and more service-oriented structures rise in prominence.

StatPro will also have an eye on the fixed-income risk management space while the deal comes to fruition, as many on the buy side are looking at alternatives to the Barclays Point–Bloomberg Port integration, an industry thorn I will be looking at in greater detail in next month's *Waters*.

Last year, I wrote that for many asset managers, the middle office can act as a halter, a millstone around their necks that is under-funded and unscalable. While these deals, and others like them in the recent past, are unlikely to solve that issue overnight, there are clear moves by vendors in this space to improve the situation for the buy side, albeit through spending quite a bit of money themselves. **W**

One Final Pause Before an Exit

Dan offers some final thoughts on the divisive issue of exchange speed bumps as the curtain comes down on his *Waters* tenure and he prepares for pastures new, although not far away—he joins the *Risk* staff at the beginning of May.

Should speed bumps stay?
For more information and readers' feedback please join the discussion
waterstechnology.com/sell-side-technology

All things must come to an end, which is why I am announcing that this will be my final editor's letter in *Waters*. My nearly three years at *Waters*, and the year-and-a-half I've spent holding down this page of the magazine as deputy editor, sell side, have been fantastic. US editor Anthony Malakian and editor-in-chief Victor Anderson, along with managing editor Elina Patler, have been amazing mentors to me, helping me grow as a journalist in a field that I had no prior experience in.

But as I said, every beginning must have an end, and while I've enjoyed my time at *Waters* immensely, I'll be moving over to *Risk*, a sibling publication of *Waters* also owned by Incisive Media—recently acquired by Infopro Digital, although the rebranding of the business hasn't been completed yet—to work on its commodities desk. Still, I am neither exciting nor important enough to spend 700 words lamenting my last column for *Waters*. So instead, I'll address the topic at hand: my feature in this month's issue.

Speed Bump Revival

As you've seen on page 20, this month I looked at the trend the industry has seen over the past year of exchanges attempting to implement speed bumps or speed-bump-type orders, as Nasdaq, the Chicago Stock Exchange (CHX) and NYSE Group have all submitted proposals to the US Securities and Exchange Commission (SEC).

It's a fitting way to end my time at *Waters*, as I will always consider speed bumps to be intrinsically tied to the start of my career here. Prior to joining in August 2014, I asked Anthony if there were any books worth reading to get a good grasp on the industry. His suggestion was Michael Lewis' *Flash Boys*, which was a great introduction to the world I'd be covering for the next three years. One can debate the merits of the book, but personally, I found it to be the perfect gateway into an industry that was clearly evolving, from a technology perspective, at a rapid pace.

Fast forward to a few years later, and here I sit on my way out the door covering speed bumps one last time. The conversations around them have certainly changed since then, mainly stemming from the fact that the SEC has granted the Investors Exchange (IEX) approval as a national exchange, although the passion people exhibit when discussing speed bumps is still just as strong.

Tough Debate

I hate to sit on the fence for my last column, but I find it hard to take one side or the other when discussing speed bumps. From a technology perspective, I find it hard not to support any new innovation an exchange wants to push forth if it believes there is a market for it among its customers. But from a markets perspective, I do agree with those in the space that trading has gotten far too complex, and adding more speed bumps certainly won't simplify things.

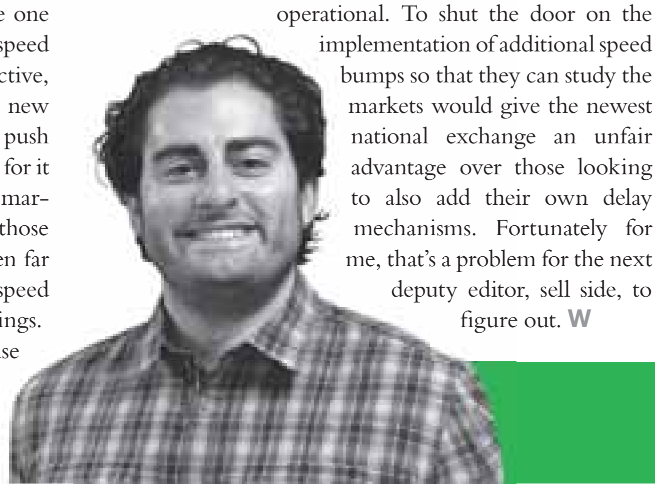
It's a difficult discussion, because it's not fair to ask exchanges to stop innovating and creating new services. One can't turn back the clock and go back to a day and age when it was easier to trade. That's just not how things work.

But exchanges must also be cognizant of the fact that with every new implementation they make, they are putting a strain on clients who must adjust their operations to account for the additional tweaks made.

> **"Trading has gotten far too complex, and adding more speed bumps certainly won't simplify things.**

It's a delicate balance, this understanding of how to allow exchanges to change their offerings while still making the markets accessible and understandable. And it's too early to tell the true impact of speed bumps, as IEX has been operational for less than a year.

And while I'd like to point a finger at the regulators, I'm not sure what I'd ask them to do, considering IEX has already gained approval and is operational. To shut the door on the implementation of additional speed bumps so that they can study the markets would give the newest national exchange an unfair advantage over those looking to also add their own delay mechanisms. Fortunately for me, that's a problem for the next deputy editor, sell side, to figure out. **W**



Emilia David

Fearless Girls and the Board Seat

Emilia says that despite increasing diversity in leadership positions in finance, it's still uncommon to hear stories like that of US Bank chief operational risk officer Jodi Richard, whose ascent was inspired by her banker mother.

This month's cover-story profile is on US Bank chief operational risk officer Jodi Richard, who cites her mother as a role model (*see page 24*). Her mother knew of her interest in banking and finance and guided her to a career in the industry. Richard acknowledges that the opportunity she got was unique.

Richard's background is different from most in that she got her start as a regulator. But it also can't be overlooked that she's a female in a male-dominated industry.

According to consultancy Oliver Wyman's recent report, *Women in Financial Services 2016*, women make up 20 percent of board positions and 16 percent of executive committee roles. Oliver Wyman analyzed 381 financial services company disclosures in 32 countries across Europe, Asia, the Middle East, Africa, and the Americas. The same report estimates that only 15 percent of chief risk officers in the countries surveyed are women. In the banking sector, that number shrinks to 10 percent. And technology is similarly behind. The National Center for Women and Information Technology estimates that women make up 20 percent of chief information officers in Fortune 100 companies.

As a woman, it's something I've certainly noticed in my year covering financial technology: Very rarely do I ever get to write "she" in my stories. Actually, it's always been rare to use that pronoun in most pieces I've written throughout my career, fintech or otherwise.

Fearless Girl

During International Women's Day, State Street Global Advisers took a stance on the diversity issue when it commissioned "Fearless Girl," a statue of a girl defiantly confronting the iconic "Charging Bull" sculpture in Manhattan's Financial District. A few Incisive Media colleagues and I paid a visit to the girl during a lunchbreak and took photos of the statue. This was before a quick search on the SSGA site showed that firm, itself, needs to increase the number of higher-ranking women executives within the organization. I take it to mean, though, that SSGA—even while calling on its peers and competitors to diversify its upper echelons—recognizes that it is lacking in women leaders, as well.

> "Programs to help young women interested in science, technology, engineering and mathematics are crucial.

Richard and other women in finance are doing their best to encourage more women to not just attempt to get positions in management, but also to enter the industry. Richard says she grew up with her mother's work ethic etched into her. And it is this work ethic that she hopes women in her organization will see and learn from. She is actively working with women at US Bank as a mentor. She says she hopes people will see that the real secret to getting to the C-level is hard work. Having a network of support, where women mentor—who don't just give tips, but actually guide other women in the firm—is similarly important. It's about having a support system, a shoulder to lean on, and a person to go to when big decisions need to be made.

Will fintech gain more women?
For more information and readers' feedback please join the discussion at **waterstechnology.com/buy-side-technology**

Not Enough

The many reports covering diversity in the upper echelons of financial services firms do note that encouraging more women to seek higher positions is not enough. Programs to help young women interested in science, technology, engineering and mathematics are crucial, because engagement in these disciplines can lead to breakthroughs, as it's become increasingly clear that diversity is important when hashing out new ideas. It also allows companies to become more flexible and inviting in terms of how they structure their work environments.

Still, it's important to remember that there are a number of trickier barriers that discourage women from becoming part of the board or part of an executive committee. Biases, unconscious or not, do exist. The financial and tech industries, as a whole, need to work on making sure these biases are addressed and rectified.

Progress is being made, however. The presence of women like Jodi Richard in top bank positions is evidence of that. But talking with her, and my reaction to hearing her story, is also proof that more needs to be done. W

Where Are the Women?

Aggelos' attempt to gather a panel of female capital markets practitioners to discuss why there are still so few women in high-profile positions in the industry did not go well. There exercise, he explains, left him with more questions than answers.

At a recent London fintech conference, five male panelists were discussing artificial intelligence and whether the automation of various processes had been overestimated by the financial services industry. When the Q&A session kicked off, a woman from a large investment bank stated her opinion in a combative tone, disagreeing with panel's consensus on the topic.

I caught myself smiling condescendingly, focusing more on the way she articulated her argument, rather than the argument itself. As the debate between her and one of the panelists became heated, I realized two things: first, that her initial point was legitimate, and second, how gender-biased perceptions can be.

Consequences

Women make up approximately 52 percent of the world's population. Yet they account for barely 15 percent of people working in portfolio management globally as of 2015, according to the 2016 survey *Women in Financial Services* published by Oliver Wyman. Most of those surveyed said that despite institutional investors' demands for more equal gender representation, most buy-side and sell-side firms remain closed to women due to their "alpha male" cultures.

But the problem lies not only in the numbers and the statistics, but also in women's roles: Their presence in the financial markets is also defined by how much responsibility they carry in their firms. The reality is that the small number of female professionals in our industry tend to occupy the back seats.

Michael Lewis' *The Big Short* gives a fairly apt representation of the situation: "The women who flooded into Wall Street firms weren't typically permitted to take big financial risks. As a rule, they remained in the background, as 'helpmates,'" he writes.

In Oliver Wyman's survey, Lucy MacDonald, CIO of global equities at Allianz Global Investors, says the lack of female employees can be traced back to the unwelcoming nature of the business, rather than the pressures of the trading desk. "Work stress is not necessarily a barrier for women—they can deal with pressure, but may have a preference not to," she says. "Overall, the more negative perception of the sector since the financial crisis appears to have impacted its attraction as a destination for women to a disproportionate extent."

Losing Out?

With few women on their books, what is the effect on capital markets firms? I would argue that they stand to lose out on more effective, less risky investment strategies, and a thorough knowledge of the trading cycle. In short, they are losing out on revenues.

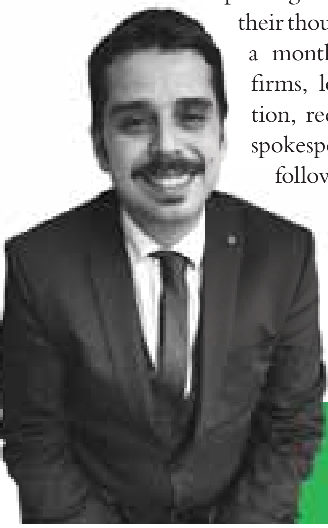
And here's why: In March this year, the University of Leicester in the UK published a study, *The Role of Hormones in the Financial Markets*, which examines the role of gender in a trading environment. The research found that women statistically get better results and produce better trading performance compared to their male counterparts, while they are less likely to cause a market crash, as they are more effective at evaluating risk. According to the study, women also demonstrate a deep understanding of the trading workflow and can quickly spot patterns, which might affect their firm's performance. And that is because females are generally more detail-oriented and willing to

> "Women demonstrate a deep understanding of the trading workflow and can quickly spot patterns.

"do their homework" before engaging in any trading activity.

I spoke to the woman after the London conference and asked her how she felt about the audience's reaction during the panel discussion. This time it was her chance to smile. "I was right in the end, wasn't I?" she said.

It was then that I decided to try to pull together an all-female panel to get their thoughts on this issue. For almost a month, I have been contacting firms, looking for useful information, requesting to speak to female spokespeople. Initial confusion is followed by either amusement or excitement. Some asked whether I would also be willing to speak with a male representative. So far, my attempts to fill that panel have failed. W



Human Capital

TRG Appoints Walters and Wadleigh

Market data inventory and cost management software provider TRG, formerly known as The Roberts Group, has hired Leigh Walters in London as managing director of its recently acquired Priory Solutions business. The vendor has also appointed Trip Wadleigh as senior relationship manager for North America.

Walters will be responsible for strategy, operational performance and for integrating Priory into TRG. He was most recently chief commercial officer at data extraction and analytics software vendor Vladis, prior to which he was managing director and global head of sales and partners at the Depository Trust & Clearing Corp. Before that, he held various positions at DTCC joint venture Omgeo, including global head of sales, head of EMEA business and product management, business development director, and chief of staff to the CEO, and as finance and operations director at Thomson Reuters, the DTCC's partner in Omgeo.


Trip Wadleigh

Walters joined TRG in January, taking over from Priory Solutions founder Peter Borchers, who stepped back from day-to-day operations following its sale to TRG, but remains a strategic advisor to the company.

In the US, Wadleigh will be responsible for working with clients to understand their businesses and issues, delivering solutions that reflect the needs of the industry. He joins TRG from State Street, where he was vice president and manager of market data services. Before joining State Street in 2010, Wadleigh was director of vendor administration at Fidelity Investments, prior to which he was a director at Charlotte, NC-based consultancy Armus Partners, and served two stints in pricing and market data services at Brown Brothers Harriman, separated by two years as data acquisitions manager at Interactive Data.


Leigh Walters

Dash Financial Names Ari House CFO

Dash Financial Technologies has named Ari House as its new CFO as the vendor sets it sights on further growth. House was previously chief financial and corporate development officer at the Association of Certified Anti-Money Laundering Specialists (Acams). During his tenure there, he helped manage its growth and eventual acquisition by Becker Professional Education of the DeVry Education Group. He was with the firm for seven years. Prior to Acams, House served as director of financial planning and analysis/corporate development for anti-money laundering compliance software provider Fortent. House took on his new role on April 1.

David Hoag Joins OCC as CIO

Options Clearing Corp. (OCC), the world's largest equity derivatives clearing organization, has announced that David Hoag will join the firm as its CIO from the beginning of May. Hoag will report to John Davidson, OCC's new president and COO, and takes over from Luke Moranda, who will serve as senior IT advisor to the president and COO.

Prior to joining OCC, Hoag was CTO at Halo Investing, which offers a pre-defined market return trading platform. He also spent 11 years with CME Group, where he most recently led its IT development teams in charge of clearing and settlement activities.

CJC Hires Industry Vets Clark, Cartledge, Humby

Data consultancy and support provider CJC has hired Sheena Clark as director of regulatory services, and Wendy Cartledge and Judith Humby as consultants, to lead a new division aimed at helping banks address regulatory challenges relating to contributed data.

All three previously worked at market data procurement platform provider Diliger, where Clark was business development executive, and Cartledge and Humby were both product managers. Before that, Clark was a director at risk and quantitative analytics provider Financial

AIM Software Appoints Raman CEO


Gayatri Raman

Vienna-based enterprise data management solutions provider AIM Software has appointed Gayatri Raman as its CEO. Before joining AIM in 2015, Raman was sales head for capital markets at Capgemini in New York. She held similar roles at Tata Consultancy Services and Genpact Headstrong.

Raman was appointed AIM's managing director and COO in June 2015 and led the company alongside chief commercial officer Josef Sommeregger. Sommeregger will continue in his role as CCO and remains a member of the board. The CEO position has been vacant since founder Martin Buchberger switched from CEO to vice chairman in January 2016. He still holds that position.


Judith Humby

Machineries, and served as European business development executive at BGC Partners and eSpeed, prior to which she was head of data acquisition at Telekurs UK (now SIX Financial Information), business development manager at Gissing Software, was newsfeeds and business development manager at PR Newswire, and datafeed manager at Icap.

Before Diliger, Cartledge was a senior research consultant and business analyst at data consultancy 3D Innovations, a freelance consultant and research analyst, and also served as senior research consultant at finance and risk consultancy Lepus. She was previously chief administrative officer at investment manager Ruffer, and held various analyst and senior administrative roles at Lehman Brothers over two stints totaling 10 years—including CAO for wealth and asset management and IT divisional CAO—separated by derivatives sales and IT business analyst roles at First Union National Bank.

Prior to Diliger, Humby also worked at 3DI as a senior market data analyst, where she also served as head of the consultancy's research and analysis team. Before joining 3DI in 2007, Humby was a market data consultant at Spanish market data management solutions provider MedySIF, a market data consultant at HSBC, and a market data manager at Abbey Financial Markets (now Santander) in her role as a consultant at BCS (formerly Buttonwood Tree). She also served as a market data consultant at Credit Suisse, Man Financial, Nasdaq Europe, Merrill Lynch and Cazenove. Humby has also provided financial analysis, translation and copywriting services for financial firms and data vendors. All three report to CJC CEO Paul Gow.


Sheena Clark

Axioma Taps Woida for Indexing Initiative

Investment risk and portfolio management solutions provider Axioma has appointed former BlackRock investment strategist Christopher Woida as managing director for its indexing initiative. Woida was a founding member of the factor-based strategies group at BlackRock, where he helped build smart beta and factor-based platforms. He was most recently lead investment strategist for BlackRock's factor hedge fund. Prior to BlackRock, Woida was at Deutsche Bank Securities and was senior research and development engineer at Intel.

At Axioma, Woida will be responsible for strategy, development and sales for the firm's indexing initiative, which is working to leverage its portfolio construction solutions to build systematic indices for index providers, investment banks, and asset managers.

Axioma Appoints Jacqueline Gaillard as Managing Director for People and Talent

Investment risk and portfolio management solutions provider Axioma has appointed Jacqueline Gaillard as its managing director for people and talent. Prior to joining Axioma, Gaillard was senior vice president, human resources and talent management at International Securities Exchange (ISE), the first all-electronic US options exchange.

"Jackie's proven ability to help rapidly evolving and growing organizations to manage and attract the talent needed to succeed is a perfect fit for Axioma," says Amaury Dauge, senior managing director and CFO at Axioma. "As Axioma's growth


Jacqueline Gaillard

continues to accelerate, a first-class support structure is critical to the achievement of our goals."

Axioma Risk was named best buy-side risk/portfolio analytics product at the 2016 Buy-Side Technology Awards.

Axon Adds Data Vets Crosby, McKibbin

Axon Financial Systems, a Belfast, Northern Ireland-based provider of data policy management tools, has hired Steve Crosby as senior market data analyst and Ronan McKibbin as sales and business development manager to bolster its market data and sales expertise, respectively.

Crosby, who was previously a senior market data compliance and governance analyst at UK-based data consultancy 3D Innovations, working largely on-site at bank client firms, will be responsible for tailoring the vendor's products—such as its PEAR (Policies, Explanations And Reporting) repository and ADS (Axon Declaration Service) outsourced reporting service—to meet end-user workflows. Before joining 3DI in 2013, Crosby spent 10 years at the London Stock Exchange as a senior market data auditor, prior to which he was a market data analyst at Imagine Software, a time-series executive at Barclays Capital, and a senior market data analyst at Reuters.

Meanwhile, the vendor has hired McKibbin to bolster its sales efforts, as the company has reached a stage in its growth where it needs a dedicated salesperson. He was most recently director of sales at Vela Trading Technologies, which he joined via its acquisition of NYSE Technologies' Wombat business, where he spent six years in various roles, including director and senior pre-sales engineer, having joined NYSE via its purchase of Wombat Financial Software in 2008, where he was a market data engineer. Before that, McKibbin spent three years as a software engineer at IT consultancy and solutions provider GFT.

Crosby reports to Axon CIO Aaron Garforth, while McKibbin reports to founder and CEO Chris Hutton.


Ronan McKibbin

CME's Menacho Joins ChartIQ Advisory Board

Charting and analytics software provider ChartIQ has appointed Julie Menacho, global head of market technology sales at CME Group, to its advisory board, to help the vendor expand its services to customers in the capital markets and the financial technology industry.

Menacho joined CME in 2011 as executive director of co-location business development, prior to which she spent eight-and-a-half years at trading technology vendor RealTick as vice president and head of Chicago sales and US implementations, where she was responsible for selling to buy-side and sell-side clients and for managing the team that performed technical configuration for users.

Other board members include venture capitalists Josh Elwell and Mark Whitcroft, of ValueStream and Illuminate Financial, respectively, Schleifer, and ChartIQ CTO Terry Thorsen.

DTCC Taps OCC's McClain to Run Equity Clearing Business

The Depository Trust & Clearing Corp. (DTCC) has appointed Michael McClain as its managing director and general manager of equity clearing. Prior to joining the DTCC, McClain was COO at the Options Clearing Corp. (OCC), overseeing the organization's technology and operations processes, with previous roles at IBM and Accenture, specializing in large-scale financial industry initiatives.

McClain takes on responsibility for running the DTCC's daily equity clearing operations and strategic initiatives, reporting to Murray Pozmanter, managing director and head of clearing agency services at the DTCC. W


Julie Menacho