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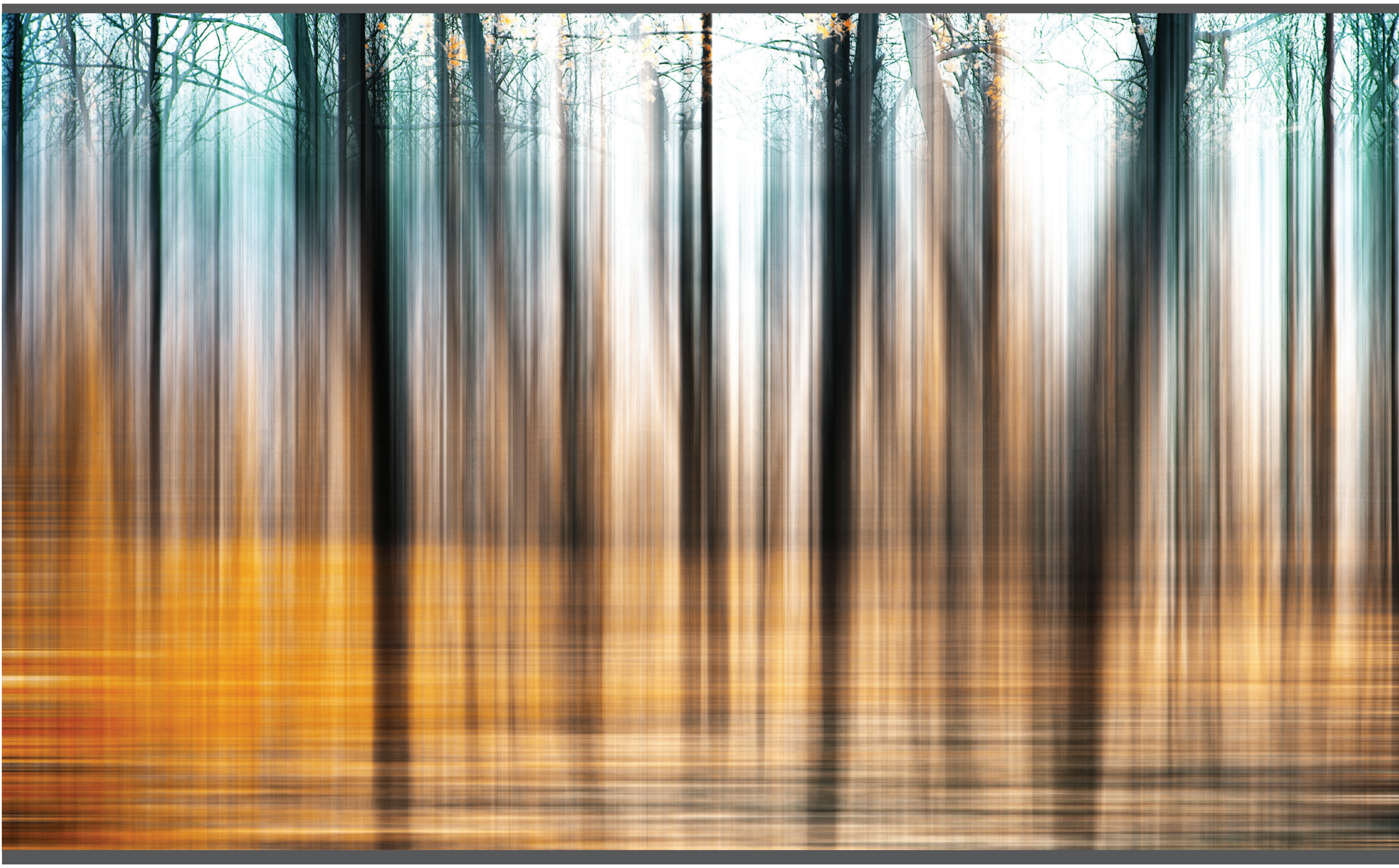
trading technologies for financial-market professionals

Enterprise-Wide Risk Management

Special Report



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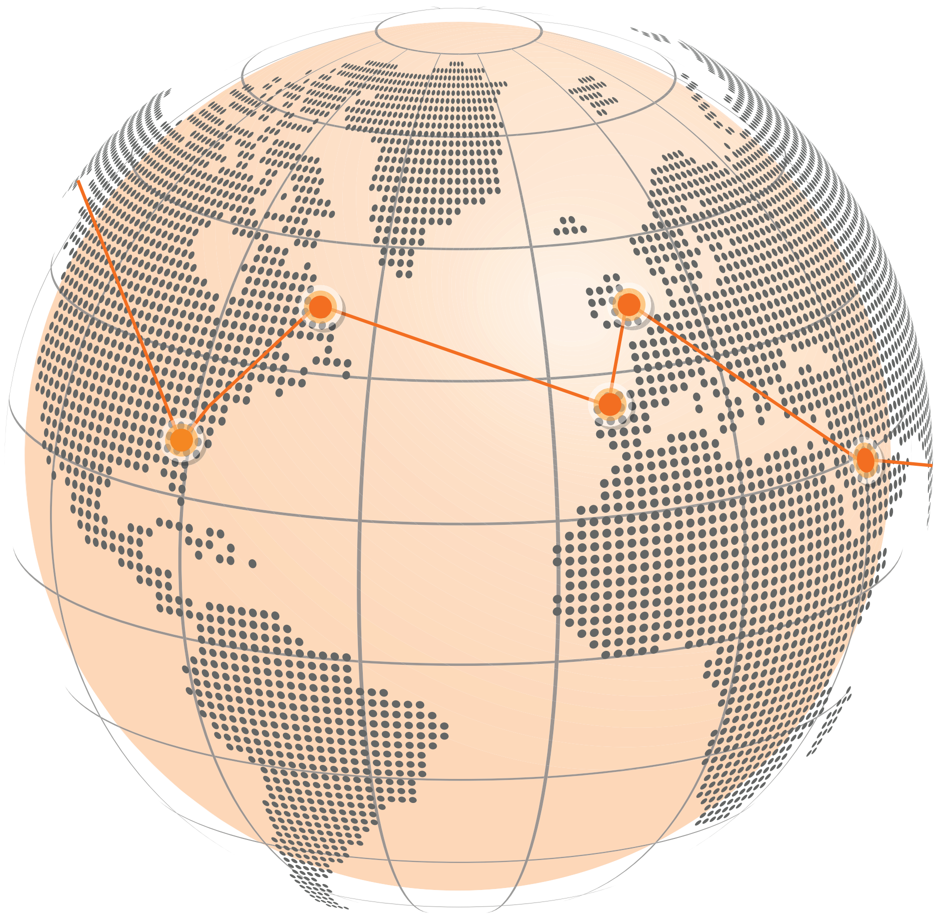

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What Price Paradise?

To many risk managers, paradise looks a bit like this: You have a single risk management platform that supports every conceivable risk measure or activity across the entire business, allowing you to calculate and manage your potential risk exposure to a huge degree of granularity across asset classes, business units, geographies, counterparties, and even individual traders or portfolio managers at any given time around the clock. The numbers this all-singing all-dancing paradise risk platform produces are as reliable as they are consistent, allowing risk managers and front-office staff to optimize their business decisions, secure in the knowledge that they are utilizing the organization's financial resources to the fullest extent without inadvertently exposing it to any unnecessary risk. Oh, and this system is data agnostic and has the constitution of an ox, which means it can consume, process, digest and regurgitate huge data quantities and varieties from across the capital markets spectrum as a matter of course.

The problem with paradise, though, is that it's out of reach for many capital market firms. In this context, paradise comes with an eye-watering price tag and a tendency to turn what appear to be fairly rudimentary projects at the outset into multi-year operational and technology quagmires, responsible for swallowing entire budgets year after year, while also stunting, or in some cases even terminating, careers.

But the above scenario is still an ideal toward which all capital markets firms ought to work. Sure, some will feel that their risk framework is sufficiently robust to adequately underpin the type of business they conduct, although those firms are in an ever-increasing minority, as asset owners, institutional investors and regulators are now less inclined than ever to turn a blind eye or give a provider the benefit of the doubt when they discover or even suspect risk management inadequacies. Consequently, capital markets firms have little option but to start moving in an enterprise-wide risk management direction, irrespective of where they currently sit on that continuum. It's a journey not for the fainthearted, but with careful planning, numerous deliverables can be enjoyed along the way to the benefit of the wider organization. While the destination might seem unattainable, it's important to remember that much of its value is derived from the journey. ■

Victor Anderson
Editor-in-Chief

SocGen Bolsters Rates Business with Quartet's ActivePivot

SocGen's Jérôme Cazes and Quartet's Georges Bory discuss the implementation of ActivePivot at SocGen, and future enhancements of the analytics tool.

It's been nearly five years since Quartet Financial Systems initially began implementing its in-memory aggregation engine, ActivePivot, into Societe Generale's rates business, but the French bank is still seeing the benefits of the analytics tool.

According to Jérôme Cazes, global head of IT for the front office of global banking and investor solutions at SocGen, the implementation stemmed from a number of factors occurring simultaneously. Around 2010, he says, a growth in the fixed-income space was coupled with the passing of the Dodd–Frank Act, making banks' day-to-day operations more challenging due to rising regulations. At the same time, there was an initiative at SocGen to grow its fixed-income business.

"In order to master our risk and our profit-and-loss (P&L), we needed a tool that could address that increase of volume and at the same time the complexity of the product," Cazes explains. "We needed a tool to accompany us in our growth and to better manage our real-time risk."

Enter Quartet's ActivePivot, winner of the best sell-side product of the year and best sell-side analytics provider awards at this year's Sell-Side Technology Awards. The analytics tool provides aggregated risk measures that are constantly refreshed on the fly to give traders real-time visibility of their risk. ActivePivot uses 250 measures based on market and risk data, refreshed in real time, allowing traders to visualize and analyze their risk and P&L across 200 dimensions. Risk measures can be viewed by traders from a macro (desk rate risk in the US) or micro (rate risk in USD by book) level.

ActivePivot, a component technology that is integrated into a wider risk-management system, was first implemented at SocGen at the end of 2010 over a five-month period, starting with a proof-of-concept with derivatives rates.

> "In order to master our risk and our P&L, we needed a tool that could address that increase of volume and at the same time the complexity of the product. We needed a tool to accompany us in our growth and better manage our real-time risk." **Jérôme Cazes, Societe Generale**

"The combination of performance, scalability, volume and real time pushed us to choose the ActivePivot tool," Cazes says.

Further Growth

The implementations didn't stop there. P&L calculations for all of SocGen's derivatives rates products were eventually centralized through ActivePivot. The point of the move was to put the bank in a position where it could generate accurate P&L figures at any point during the day. As the market data shifted during the course of the day, so too did SocGen's P&L views.

The bank's New York trading desk was the first to integrate ActivePivot around 2013 due to liquidity in the US markets at the time, according to Cazes. The thought was that if it could work in the US it would work elsewhere else too.

Once the implementation of rates was global, a similar move was made for credit and foreign exchange (FX) options desks at the end of 2014 and beginning of 2015.

"The margins in the fixed-income industry are going down, so there is a push for us to better manage our risk," Cazes says. "We partnered with Quartet for a risk and analytics function, and we moved to a detailed P&L and real-time P&L. That proves how effective we think the tool is."

More Improvements

Georges Bory, co-founder of Quartet, says the vendor typically releases an update for ActivePivot every four months and a major upgrade every two to three years. An upcoming feature for the tool is around what-if simulations. Bory says that in the next release, traders will be able to simulate any type of situation, similar to what one would do if they were using a spreadsheet. The benefit, however, comes from the ability to share ActivePivot with other users within the organization—users are able to change part of the data within the platform, flag it as a what-if scenario, and share it with others who can also edit it.

One of the most recent upgrades is a time machine feature, similar to what can be found on Apple's MacBook computers. The enhancement allows traders to go back in time and look at their positions at any time during the day.

"ActivePivot's new time machine feature is very powerful because you can move from a snaphsot view to a complete movie," Bory says. "Sometimes when you see how numbers have changed, you understand better what the root cause of the issue is."

Helaba Selects Quantifi xVA Platform for Counterparty Risk Management

German bank Landesbank Hessen-Thüringen (Helaba) has chosen to replace its existing in-house-developed xVA solution with that of analytics and risk technology vendor Quantifi to manage its counterparty risk.

With a greater regulatory burden placed on risk mitigation and reporting, Helaba opted to replace its legacy xVA system—encompassing credit value adjustment (CVA), debt valuation adjustment (DVA) and funding value adjustment (FVA) calculations—with Quantifi's integrated trading, analytics and reporting platform, which supports xVA, IFRS13, Emir, Mifid II, CRD IV, the Dodd–Frank Act and Basel III, with a focus on the bank's over-the-counter (OTC) derivatives business.

"The complexity in all aspects of counterparty risk management has driven Helaba to replace its in-house xVA risk solution with a technology partner that is both capable and committed to addressing the needs of this market," says Matthias Rapp, head of trading at Helaba. "To mitigate risk, enhance transparency, and increase capital efficiency, we needed a more dynamic system that could provide consistent analytics and a single view of xVA risk across our entire portfolio of vanilla and exotic instruments." ■

StatPro Enhances Revolution's Risk Capabilities

StatPro Group has rolled out the latest upgrade to its cloud-based Revolution portfolio analysis and risk management platform.

The latest version includes new risk management capabilities, dashboards and reports. Neil Smyth, marketing and technology director for the London-based vendor, says the aim is to help asset managers consolidate systems so as to bring performance and risk management together, allowing them to use the same datasets for analysis and reporting.

Major enhancements to the platform include new relative risk and risk attribution dashboards, supporting reports and enhanced table-view configuration options so that users can better analyze a portfolio's risk against a benchmark. Revolution has also been coupled with StatPro's compliance-monitoring engine.

Additionally, StatPro has created two new reports, Value at Risk Attribution and Expected Tracking Error Attribution so that clients can assess the drivers of risk in their portfolios. Smyth says Revolution is now able to calculate over 140 risk measures and has a library of over 1,300 stress-tests. This latest rollout also includes Kalman filtering, designed to lessen statistical noise and other inaccuracies with the view to creating more accurate estimates. ■

Manulife AM Taps RiskFirst for Further LDI Expansion

Manulife Asset Management, the global investment management arm of Canadian insurance and financial services firm Manulife, is using RiskFirst's PFaroe risk analytics platform to help pension plan clients better understand their asset, liability and risk profiles, helping to enable more efficient LDI and de-risking solutions.

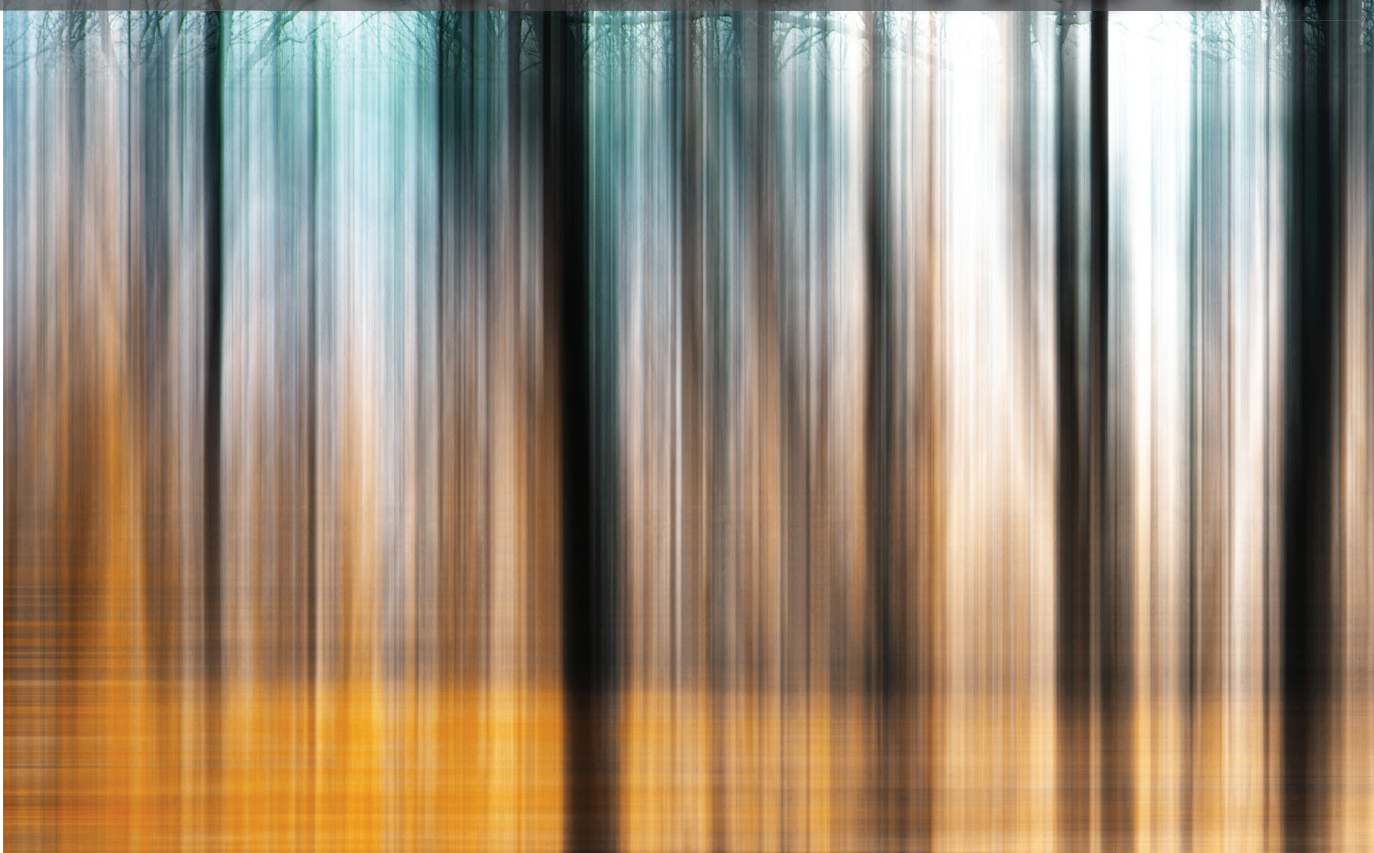
PFaroe's risk analytics will complement Manulife Asset Management's current liability-driven investment (LDI) offering, enabling the firm to stress-test clients' pension plans against economic and demographic assumptions and explore the impact of alternative portfolio allocations in order to drive more effective solutions. Manulife Asset Management runs approximately C$16 billion ($12 billion) in customized LDI strategies for North American pension plans.

"PFaroe is a flexible system that will complement our existing capabilities, allowing us to stress-test the impact of certain capital markets and economic assumptions across both assets and liabilities, run scenarios, and look at value-at-risk in a more holistic manner," says Eric Menzer, the firm's global head of pension and risk management solutions. "It also allows us to use this information to test alternative portfolio recommendations and understand their risk and return impact in the asset-liability space."

Menzer, who notes the firm's 17-year history working in the burgeoning LDI space, says the addition represents a next "critical step" in helping plan sponsor clients reduce funded status volatility, risks associated with large unexpected contributions, and, ultimately, get to fully funded status.

"PFaroe is an easy-to-use tool that fits well alongside our already robust proprietary LDI modeling and investment management capabilities, giving us the flexibility to incorporate our own proprietary capital market outlooks and assumptions into the LDI investment decision-making process," he explains. ■

Seeing the Wood for the Trees



Managing risk accurately, reliably and transparently across a single asset class, portfolio, region or counterparty on an intra-day basis is a tough ask for most capital markets firms. But that challenge pales into insignificance when they set out to manage their risk across the entire organization, especially when it comes to the inevitable headache of combining and normalizing data from disparate systems. It's hardly surprising, therefore, that some firms feel they can't see the wood for the trees.

Q How do capital markets firms make the business case for implementing the technologies and operational disciplines in order to manage their risk across the entire enterprise?

Marion Leslie, managing director of Thomson Reuters' pricing and reference services business: Regulations are often perceived as the stick behind many technology or operational changes. However, a positive side-effect is the fact that incoming regulations are driving the industry toward a more holistic approach to data management in general, but specifically for risk. New regulations such as the Basel Committee's BCBS 239 are pushing financial institutions to adopt best practices for managing risk data by requiring them to aggregate their exposures for a comprehensive view of the broader picture.

Of course, the output in terms of risk calculations will only be as good as the input, which translates into the need for an equally robust approach to data and data management. More than just garbage in, garbage out (GIGO), the complexity and scope of today's financial institutions introduce a whole series of data quality requirements as far as risk data is concerned, not just quality, accuracy and timeliness, but also aggregation, normalization, validation and interpretation.

This brings the focus back to the importance of data quality, which is central to the discussion. Ultimately, data management systems and processes supporting risk and operational management need to deliver relevant, consistent, timely and accurate data to risk managers so they can trust their risk calculations. The business case may be compliance in the first instance, but ultimately it will be about the creation of growth and returns through proactive risk management.

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> **Marion Leslie, Thomson Reuters**

Vijay Aviur, head of risk, global markets and wholesale lending technology for ANZ: An enterprise-wide risk management (EWRM) business case must ideally include: the expected risk measurement results—both tangible and intangible; the estimated potential hard-dollar savings achieved through centralization and consolidation; the estimated costs, including hard dollars and internal resource support; and the project timing and minimum program requirements, ideally defined according to short-, middle- and long-term as per EWRM objectives.

Additional executive buy-in may involve more technical sessions. Internal courses must ideally focus on risk modeling and aggregation concepts—including value-at-risk and probability, risk results interpretation and mitigation strategies, and general market and derivatives sessions. Educational materials could address risk tolerance levels, aggregated risk results, related limit setting process, and board review and approval requirements.

The benefits and value of EWRM far outweigh the financial and operational challenges. A successful EWRM implementation enables every member of a firm to systematically assess and proactively respond to events or uncertainties that could reduce stakeholder value; align risk appetite and strategy; improve decision-making by aligning growth, risk and reward; reduce operational and financial surprises/shocks and related costs or losses; leverage opportunities by considering the uncertainty as an entire range of potential events; and achieve consistency with an holistic risk management philosophy, process and strategy.

Drew Wade, senior managing partner, AIA Group: At our firm, we always start our risk identification process with a brainstorming session. Next, we do interviews and self-assessments. A scenario analysis from these questionnaires is the next step. Finally, a SWOT (strengths, weaknesses, opportunities and threats) analysis is performed. We've found that a ranking system is critical to our risk measurement activities, giving us the tools we need to implement enterprise risk management (ERM) maturity models and education/training that is fully integrated into our culture and values. The main benefit of this is that we're ahead of the game when it comes to assessing and responding to challenges when they arise in real time, leading to a greater awareness of the trade-off between risk and return.

"If you mushed all these disparate systems together into one system, wouldn't we get the benefit from not having 50,000 servers, but just 50? Unfortunately, when you actually look at the spend on hardware and the infrastructure, they don't actually add up to very much." **Ami Grewal, GFT**

GFT

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Ami Grewal, head of business consulting, GFT: The business cases tend to be—for regulatory work—non-existent in many ways. Firms think, "Well, if we don't do this, we won't stay in business." No one will really question that in any way. What's interesting is that when business cases do need to be made, there's often this view of, how do we consolidate infrastructure? If you mushed all these disparate systems together into one system, wouldn't we get the benefit from not having 50,000 servers, but just 50? Unfortunately, when you actually look at the spend on hardware and the infrastructure, they don't actually add up to very much. So while it may look initially like a great save, from an accounting perspective, it doesn't hit the bottom line in the right way and provide the benefit that you thought it would. Additionally, there's often a belief that this kind of consolidation can decrease headcount, but in many ways you don't reduce headcount, you just reallocate headcount. However, since companies must make these investments in order to remain in the market, doing so strategically is crucial to continued success.

Q What are the operational and technology challenges capital markets firms need to consider before they are in a position to manage their risk across the entire enterprise?

Wade: While successful boutique hedge funds and smaller trading firms seek out the best and brightest, often when it comes to managing risk, these organizations lack staff with specific IT and operational risk management experience. Firms also struggle with robust electronic document management systems. Furthermore, risk disclosure documents signed by customers, trading order details, and performance records may not be scanned or backed up.

Even with the latest cloud-based risk management systems on the market, managers at these firms fail to take advantage of these readily available solutions due to a lack of exposure and limited resources. In some cases, managers may even select a product that ignores the specific need requirements of firms, thereby creating a whole new set of challenges, and in some cases, repetitive tasks become a barrier to growth. A lack of properly selected automation tools for mitigating operational risk becomes an issue.

Grewal: The technological challenges that firms face are almost entirely around the discrete and disparate nature of the systems that exist. Historically, every asset class has its own risk system, for the most part. Suddenly, when you get into enterprise-wide risk, you have to start making everything talk to each other. Doing that from a systems perspective isn't that terrible; doing it from a data perspective becomes really, really tough. You have different flavors and behaviors of systems, such as the fact that some are talking in XML, some in SOAP, and some in even older languages. Additionally, not only are the system languages different, but the meaning of certain key elements also differs, requiring data normalization and a standard data lexicon. You start mashing these things together and it becomes quite difficult to see the bigger picture.

On the operational side, the classic challenge is that you have different risk cut-offs for different businesses that make sense. You start to see operational groups that don't fit together being pushed together because of cost constraints and it may not always make sense.

Leslie: For the buy side, firms need to consider building risk assessments into their portfolio construction and management activities to create a better understanding of risks and returns, and to improve overall performance and results. While there is considerable overlap in requirements, sell-side firms may need to place a greater emphasis on credit and counterparty risk, seeking to minimize potential loss from an increasingly complex execution process. For these firms, assessing the risk of default among counterparties, issuers and indeed clients, is paramount to getting a firm grip on the risk exposures of their business.

Both sides of the fence share a common hurdle to instituting an holistic approach to risk management. However, they are often organized by vertical lines of business, creating silos that do not, or cannot, communicate with each other effectively.

Aviur: Contrary to popular belief, ERM is not as much a solution as it is a framework and a concept. It's a concept whose success largely depends as much on an enterprise's risk appetite and risk culture as it does on its technological and organizational maturity. It's about building a structure and discipline around risk management within the firm.

Achieving operational alignment is key. Many firms struggle with multiple operational challenges that impede successful implementation of an enterprise-wide risk management strategy. These include lack of strong leadership support and commitment; an insufficient risk-based culture; a poor definition of enterprise risk that leads to poor and inadequate qualitative modeling; a lack of transparency in departmental risk reporting, deviation assessment and monitoring, leading to ineffective senior management oversight; and ever-fluid regulations, which make it difficult to keep up in an organized manner.

Technology alignment is vital. Some of the formidable technology barriers firms contend with while implementing EWRM include: a heterogeneous technology landscape and disparate risk systems; insufficient risk measurement and systems—many risks, even those that are well understood, remain unmeasured due to lack of analytical models, data, staffing and systems integration limitations; insufficient data; and lack of a single product or platform that provides a total solution to enterprise risk management.

Q How has the current landscape added to the complexity facing the industry when it comes to managing their risk on an enterprise-wide basis?

Grewal: The current landscape in terms of the regulatory change is forcing banks to start to get their acts together to reduce not only front-office risk but back-office risk, too. At GFT, we commissioned a global survey that found that 95 percent of financial firms agree that they are operating in a "new normal" environment of constant, and in fact increasing, regulatory change. Historically, banks have worked around some of these regulatory challenges tactically rather than fixing them strategically; however, they're now getting to a point where regulatory compliance demands will leave them deficient. They find that the investments they've made are not quite as innovative or strategic as they could have been, so they'll have to look to rebuild to a better solution.

I was speaking with someone the other day who said: "We build things three times. The first time we don't know what we're doing; the second time we think we know what we're doing, but we haven't figured it out; and by the third time we build it, we actually know what we're building."

This doesn't mean that you're spending the same amount on the second or third iterations, but you do have to keep on spending over time. Firms are finding that their regulatory burdens split their attention and resources away from managing enterprise risk, unless they approach compliance in a strategic way.

Wade: The increased regulatory environment, while necessary, in some cases exacerbates the complexities of risk management, particularly for smaller funds and trading operations. For example, firms have to set aside time and resources to train employees on compliance and risk management procedures. Additionally, in order to keep pace with regulators, firms must constantly monitor regulations and new rulings. They must also dedicate resources to maintain documentation and compliance guidelines, which can be expensive. The handling of vast amounts of data, including protecting against cyber-attacks, can place further weight on the firm's resources, especially when taking into account the priority of maintaining a secure platform on a perpetual basis. Of course, innovation is a key to success. However, the reality is that being on the cutting edge increases the complexity of risk management. For example, algorithmic trading operations like the one I manage must innovate to achieve consistent returns that exceed investor expectations.

Q What aspects of enterprise-wide risk management do capital market firms tend to underestimate in terms of complexity?

Aviur: Successful ERM implementations have to feature strong support from top management, sufficient resources in terms of cost and trained professionals, expert knowledge in risk management, and the continued focus on the implementation without losing steam in the middle of the project. For instance, integration of market risk management, credit risk management, liquidity risk management, and operational risk with other "financial" risks is a difficult step, which requires significant effort, time and costs to improve the underlying data management.

Vijay Aviur
ANZ

A fact that most firms do not realize is that EWRM integrates risk management into activities at all levels of a firm—right from enterprise-level activities such as strategy all the way to business unit processes and technology projects.

Leslie: When it comes to enterprise-wide risk management, capital markets firms tend to underestimate the importance of employee ownership and accountability. Anyone in a firm who touches the data required for risk management needs to be aware of their responsibilities with regards to the data "assets." The front office, for example, needs to be accountable for the quality of the data it inputs in order for the middle and back offices to use it effectively. This highlights the need for relationships between business units and central functions to evolve in a positive way in order to facilitate better data management and governance.

There needs to be a shift away from siloed management of legacy databases. Firms cannot outsource strategic management of this process, nor can they outsource their ultimate responsibility for understanding the new regulatory environment and ensuring that their data is governed and fit for compliance. Data vendors and service providers can play a key role here, with technology, enterprise usage models and high-quality, connected datasets designed for enterprise use.

Drew Wade
AIA Group

Wade: In my experience, setting a mission, strategy and roadmap sets the basis for assessing risks and effectively dealing with them. Firms that set up a foundation and a uniform philosophy may have a faster response time. Equally important is that these firms will have a reliable risk management system in place to provide proper policies to ensure that procedures are efficiently carried out, which can reduce the guesswork for assessing risks and ensure that enterprise-wide compliance is achieved at all times.

Grewal: The data. The data is by far and away the biggest thing that everyone seems to assume is really easy. Unfortunately, I've made mistakes myself when I've gone in on some projects thinking, "This will be easy because how can you not have the data to run your business? You must have the data somewhere."

The assumption that you have the data is really bad. The quality of it and the understanding of it is quite disparate. Over the last few years, we've seen a huge amount of churn of people in the banking sector. So the person who knew all about your data last month may have moved across the street. The institutional knowledge is gone, and with it leaving, they don't know their data as well as they should.

> "Firms that set up a foundation and a uniform philosophy may have a faster response time. Equally important is that these firms will have a reliable risk management system in place to provide proper policies to ensure that procedures are efficiently carried out, which can reduce the guesswork for assessing risks and ensure that enterprise-wide compliance is achieved at all times."
> **Drew Wade, AIA Group**

Q How can technology providers assist capital markets firms with their enterprise-wide risk management calculations?

Leslie: Technology providers are key to the provision of high-performing infrastructures that enable the sharing of data across the enterprise as well as the ingestion, storage, tracking and governance of data usage. Enabling the replacement of legacy infrastructures with technologies that are designed for enterprise content use will increase the returns of investment in data assets.

As data vendors, we seek to ensure that our content reflects the evolving market and regulatory needs, and we are in step with the changing way in which our customers want to access, use and benefit from our content. We have enterprise-wide agreements that serve the global nature of our customers' businesses, and which seek to help firms reduce wastage by improving efficiency and reducing costs. We continuously work to ensure that the content matches the needs of the organization's multiple use-cases: We are in constant contact with our customers, the market, regulators, experts, industry bodies and working groups, ensuring our products and services meet the current market needs and evolve accordingly to serve front-, middle- and back-office needs.

Wade: The most prevalent risk management calculations tools are SAS, SPSS and STAT. These technologies help capture and evaluate the impacts and potential of identified enterprise risks. They define, communicate, track and monitor risk appetite and tolerance levels within the organization. They also assign ownership for executing ongoing risk monitoring and internal control activities, in addition to measuring the effectiveness of risk management activities at all levels of the organization, departments, operations, functions, asset classes and capital allocations. These tools make it easier to establish accountability for those responsible for managing risk, while ensuring regulatory and compliance requirements, as well as contractual obligations and commitments, are met.

Grewal: The key is to focus on realistic deliverables. If you, as a technology provider, say yes to everything, it may sound like a selling point, but it assumes that clients know what they need, and that's often a bad, bad assumption. By saying no to clients, they have to stop and think about what they really need, rather than just throwing bodies at problems. It's all good and well to spend money, but if at the end of spending that money you don't have something that you can actually use, you'll be unhappy, we'll be unhappy, and the regulators are most definitely going to be unhappy. Instead, vendors need to focus on providing valuable deliverables with tangible benefits to the client and the regulator.

Aviur: Leveraging the potential of technology solutions available in today's marketplace would certainly help drive a successful EWRM implementation. Today's technology marketplace offers solutions that dramatically accelerate processing time and greater precision in extremely complex portfolio valuations for even the most intricate risk calculations. This includes a high-performance analytics infrastructure that delivers risk calculation results dramatically faster; grid computing capabilities that process jobs in a shared, centrally managed pool; multithreading techniques that enable parallel execution of multiple complex tasks; a self-service business-intelligence environment that lets stakeholders interact directly with the information they need; easy-to-use visualization tools that provide the ability to visually explore risk data on demand and always up-to-date portfolio views of aggregated risk; and cloud-based solutions that offer robust yet economical alternatives to in-house developed platforms. ■

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