Introduction

Stress testing is here to stay for the world’s largest financial institutions as regulators issue new prescriptive frameworks designed to avert future crises. Moving forward, firms can count on more frequent, varied, and rigorous stress testing that extends far beyond what we saw in the immediate wake of the financial downturn.

Basel III has led the charge with an expanded focus on liquidity risk management. The United States has followed suit, adopting similar liquidity risk and stress testing frameworks. In early October 2012, U.S. financial regulators unveiled their latest stress testing requirements under Dodd-Frank. The largest U.S. banks – with more than $50 billion in assets – will have to run two internal stress tests each year and publish some of the results. This expands existing stress testing programs already in place for the largest banks. Regulators added similar requirements for banks with more than $10 billion in assets.

Federal regulators have prescribed three economic and financial market scenarios, but encourage institutions to use at least five scenarios reflecting improbable events, including those considered impossible by management. In the future, we also can expect to see stress testing ordered as a follow-up to regularly scheduled periodic reports. Regulators seeing vulnerabilities in reports may begin to request additional stress tests based on those results. The stress test scenarios will, thus, be very specific to each bank. Further, banks will be expected to provide test results quickly – often in just a few days. Regulators, therefore, will assume that banks will organize their risk data in a manner that enables rapid response.

Banks also face expanded Federal Reserve Comprehensive Capital Analysis and Review (CCAR) requirements. Until recently, this annual stress test applied only to the 19 largest holding companies. It also now applies to most bank holding companies with assets of more than $50 billion and is known as the Capital Plan Review (CapPR). Expanded CCAR requirements and the introduction of CapPR for smaller banks are creating new challenges for institutions. First, many mid-sized banks do not have the required modeling capabilities in place. In addition, expanded requirements mandate that banks translate economic stresses into impact on the bottom line in the form of restated income statements and balance sheets – representing true integration of the risk and finance domains. Moving forward, in addition to measuring consequences in terms of financial statements, banks will find that their ability to manage capital is directly tied to having sufficient levels of Tier 1 capital looking nine quarters out.
Compliance and Beyond

The primary benefit of system-wide stress testing is to benchmark banks against one another, running peer comparisons to assess each bank’s relative vulnerability to different shocks.

Such tests also can be an extremely useful tool for helping individual banks proactively manage risk – including liquidity risk, which was particularly vexing during the financial downturn – as part of a broader business strategy. As we witnessed, global events, whether related to economic developments, disasters, or conflicts, can have a profound and immediate impact on a bank’s performance. The ability to run timely stress tests on demand enables an institution to gain a better understanding of the potential of such events and tune responses as they unfold.

Traditionally, regulations have largely shaped financial institutions’ risk management programs. Today, however, progressive firms, focused on more proactive management of their businesses, are beginning to look to risk management, including stress testing, as a strategic tool that can deliver valuable and timely views of costs and profitability, as well as insight into specific product and line of business performance.

While necessary and valuable, new stress testing requirements present significant challenges for many institutions, including increased operational overhead, because they simply do not have the systems and processes in place to respond promptly and agilely to regulators’ requests. In a Spring 2012 survey of more than 40 bank risk managers conducted by SourceMedia, fewer than half (47%) of respondents from banks with $100 billion in assets said they were “very prepared” for impending stress testing. Only 7.7% of respondents from banks with $1 billion to $10 billion in assets said they are “very prepared.”

Obstructed Views

Most financial institutions today conduct stress testing as a standalone exercise that contributes little to no value to strategic decision making. As stress testing did not start with one comprehensive regulation, banks are living with a complex jigsaw of internal home grown and third-party risk systems that were deployed one off in response to new regulatory requirements or market threats.

In addition to multiple systems to manage credit, market, liquidity, operational and other risks, they often have separate risk environments for each division, region, and even line of business. It is not unusual for a large global bank to have more than 100 separate risk management point solutions.

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The challenge becomes instantly clear: these complex and siloed environments simply cannot deliver the enterprise visibility that financial institutions require to understand and act on risk across their enterprises; nor can they identify the correlations between risk types, such as market and credit risk. For example, if the three-year swap rate increases by 20 basis points, it impacts not only the default mortgage rate (credit risk), but also banks’ market and prepayment risk.

This silo constraint prevents banks from accurately assessing the comprehensive impact of various shocks. Additionally, in a disparate environment, enterprises cannot uniformly apply tests and struggle to take into account varying degrees of events across all risk silos – yielding an inaccurate or incomplete picture. Further, each subsequent regulatory requirement presents a significant burden and requires further IT and management investment.

An Integrated Approach

In the new risk environment, institutions require a unified analytical platform that allows them to “host” risk models that exist across the organization in disparate systems, to ensure an effective and timely response to regulator-specified stress tests, such as the U.S. Treasury’s Supervisory Capital Assessment Program (SCAP). Creating a single environment for all risk models allows risk managers to carry out complex calculations that assess the interdependence across risk categories. The platform also must enable new levels of agility in setting up, analyzing, and reporting on risk scenarios – and modifying them rapidly when warranted – whether driven by regulatory requirements, by crisis, or executive management request.

As stress testing becomes the new normal, banks are beginning to assess their risk management environment and stress testing capabilities. Below is a checklist to help prepare for the journey ahead and a more strategic approach to risk management.

- **Does your risk environment include a unified data model to support the convergence of risk and finance?** Over the past few years, banks have been painfully reminded of the fundamental and non-severable link between risk and profitability. As we have seen many times in recent history, miscalculating risk can lead to significant financial loss. Regulators have taken note as well and are asking banks to translate stress test scenario results into balance sheet impact. In addition, we are seeing increased focus on risk-adjusted performance. As such, organizations require a data model – purpose built for the financial industry – that supports both risk management and finance operations.

- **Do you have a comprehensive and centralized library of risk variables?** Comprehensive stress testing requires a robust library of risk variables – including any and all that can have a potential impact on income and the balance sheet. These must include endogenous variables, such as prepayments, as well as exogenous factors that are beyond the institution’s control, such as gross domestic product (GDP) and inflation. This data should be housed in a centralized library so that banks can apply them consistently across the enterprise.

- **Do you have a library of shocks, and can you rapidly define new ones?**
With stress tests set to become more frequent, robust, and diverse, financial institutions must define shocks that keep pace with these requirements. The library should, at a minimum, include events related to market movement, GDP movement, interest rates, energy prices, and more. Sample shocks might include:

- Equity markets crashing by more than X% in a year
- GDP falls by X% in a year
- Long-term interest rates increase by X% in X period of time
- X% of instruments in a portfolio terminate their contracts in a given year
- Oil prices double in two months

As regulators require more frequent stress tests and faster results, financial institutions also must be able to rapidly create new shocks at a regulator’s request, and then retain them for future use across the enterprise.

- **Can you quickly create complete and varied scenarios and store them for future use across the enterprise?** Financial institutions, in the new environment, must be able to bring all variables and shocks together in a flexible framework to rapidly create robust new scenarios. They will need to build a comprehensive library of stress scenarios that are consistent with enterprise use and regulations in responding to market-wide and institution-specific requirements. A centralized library is also essential to ensuring consistent application of scenarios across a firm’s various risk environments. Further, it helps organizations to respond rapidly to regulatory requests.

The library should include three types of scenarios:

- **Extreme event scenarios**, which hypothesize a portfolio’s return given a catastrophic event, such as the collapse of a large systemically important financial institution (SIFI). These scenarios combine current positions and risk exposures with the historical factor returns.
- **Risk factor shocks**, in which one or more factor in a specific risk model is shocked by a user-specified amount – for example an interest rate rise of more than twice the typical magnitude of such change.
- **External factor shocks**, in which a shock is applied to any index, macro-economic factor (such as oil prices or property prices), or currency factor (such as exchange rates). This method uses regression analysis to estimate new factor returns as a result of the shock.

- **Can you create comprehensive reports and turn them quickly?** Some tier-one banks have hundreds of people working to aggregate stress testing data for reports, creating a tremendous operational burden. Just as the architecture should enable a single library for scenarios, the same follows for reporting, where all results of stress tests that have been calculated in a consistent manner can be stored for effective and efficient analysis and reporting. This capability will become increasingly important as regulators begin to demand responses in days versus weeks. Banks require a risk management environment that enables them not only to process huge volumes of data rapidly, but also to develop reports and analyze the findings to satisfy regulatory requirements, promote stability, and preserve profitability.
Conclusion

Expanded stress testing requirements are the new reality for financial organizations. While few welcome more prescriptive oversight and the operational burdens that, historically, have come with it, the new focus on risk management presents an important opportunity for many financial institutions to rethink their approach to risk management. Stress testing, in particular, can be a strategic tool that delivers valuable and timely views into possible vulnerabilities, as well as insight into costs, profitability, and even product performance. Many organizations, however, are constrained by legacy processes and a series of point solutions, which hinder compliance to stress testing and other requirements and do not support agility or an enterprise-wide approach to risk management. It is time for financial institutions to rethink their risk management architectures with an eye toward the strategic benefits they can deliver.