

Global risk management survey,  
eighth edition  
Setting a higher bar





# Foreword

Dear Colleague,

We are pleased to present Deloitte's *Global risk management survey, eighth edition*, the latest assessment of the state of risk management in the global financial services industry. The findings are based upon the responses of 86 financial institutions from around the world, across multiple sectors, representing a total of more than US\$18 trillion in combined assets. We wish to express appreciation to all survey participants for their time and insights.

The survey's findings reveal that the financial services industry continues to respond to challenges posed by the global financial crisis and subsequent market and regulatory developments, with many financial institutions continuing to increase their focus on liquidity, counterparty, and systemic risk. Strengthening risk governance is also receiving heightened attention: many institutions have increased the role of the board of directors in providing direction to and approval of the institution's risk appetite and risk policy. The Chief Risk Officer (CRO) position continues to become more commonplace, providing a senior-level executive who has overall responsibility for the organization's risk management activities and who can provide counsel to the CEO and the board of directors on its risk exposures. More institutions have created enterprise risk management programs to develop a comprehensive view of the various risks facing their organizations—and their interrelationships—across businesses, products, and geographies.

Over the past several years, there has been a wave of far-reaching regulatory changes in multiple geographies around the world. The Basel III framework for banking regulation<sup>1</sup>, which will be implemented in stages from 2013 to 2019, will require higher quality and levels of capital and greater liquidity. The Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank)<sup>2</sup>, passed in 2010, fundamentally rewrote financial regulation in the United States: among its many provisions, the Act requires periodic stress testing for many institutions, mandates most derivatives trading to be conducted on exchanges, bans proprietary trading by banking institutions, and creates a new Consumer Financial Protection Bureau, Financial Stability Oversight Council, and Office of Financial Research. The European Market Infrastructure Regulation will require many derivatives contracts to be cleared through central counterparties. The United Kingdom has reorganized its financial regulatory agencies, including creating a new agency for consumer protection. In many countries, the frequency and intensity of regulatory examinations and related enforcement activities have also increased.

Despite major regulatory changes already accomplished, institutions should be prepared to respond to a continuing series of future developments as regulators and others set a higher bar for risk management across the financial services industry. For some of the newer and more sweeping laws and regulations, specific rules are still being developed: therefore, what institutions will need do to comply, and possible impacts on strategy and business models, remains to be seen. In response, financial institutions may well need added analytical capabilities, enhanced information and technology systems, and access to the right underlying data to allow them to respond flexibly to these continuing changes.

Many institutions may also need to upgrade other key aspects of risk management. In particular, many institutions are expanding the use of stress tests to assess their ability to withstand a future severe downturn, increasing their focus on a wider range of risk types including operational, reputational, and regulatory risk, and enhancing their risk data and technology infrastructure.

We believe that Deloitte's risk management survey series continues to be one of the most comprehensive periodic examinations of risk management at financial institutions. We hope that this report provides you with helpful insights into how financial institutions are responding to today's challenges and fosters discussion that will help to further enhance risk management across the industry.

Sincerely,

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# Executive summary

The global financial crisis has led to dramatic and ongoing changes in risk management among financial institutions around the world. Major regulatory reforms have been enacted with the goal of creating a more stable and transparent financial system. Among the most important developments were passage of Dodd-Frank in the United States, the European Market Infrastructure Regulation (EMIR)<sup>3</sup>, and issuance of the global Basel III regulatory framework. These and other initiatives are changing the regulatory requirements for financial services players in areas such as systemic risk, regulatory capital, liquidity, derivatives, proprietary trading, and financial activities with individual consumers.

Although the extent of change has been enormous, regulatory developments thus far seem to mark only an intermediate step, rather than the end, of a period of ongoing change: a higher bar continues to be set for risk management across the industry. Almost three years after Dodd-Frank and Basel III were first introduced, many specific rules are still being developed. Additional regulatory initiatives that could have important implications for risk management are also being put forward, such as the proposal to centralize supervision for European banks under the European Central Bank. At the same time, financial institutions continue to enhance their risk management programs by strengthening governance and upgrading their capabilities in such areas as risk management models, stress testing, and risk management information and technology systems.

As a result of these events, risk management continues to experience significant change. To manage the resulting uncertainty, institutions should look for flexibility in adjusting business strategies, business processes, and risk management programs as new regulatory requirements are introduced or new risk issues emerge.

Deloitte's *Global risk management survey, eighth edition*, assesses the state of risk management as the financial services industry confronts this new reality. The survey was conducted from September to December 2012: 86 financial institutions from around the world participated, representing a range of financial services sectors and with aggregate assets of more than US\$18 trillion.

## Main findings

**Board approval of risk policy and risk appetite.** At roughly 80 percent of the institutions participating in the survey, the board of directors reviews and approves the risk management policy and/or enterprise risk management (ERM) framework and the risk appetite statement.

**Role of the CRO.** The existence of the Chief Risk Officer position has steadily grown over the course of our risk management survey series. The percentage of institutions with a CRO is 89 percent in the current survey, up from 65 percent in 2002 and a slight increase over the 86 percent reported in 2010. The CRO has a strategic, senior-level role at most institutions and reports to either the CEO or the board of directors at roughly 80 percent of participating institutions. At 87 percent of institutions, the CRO assists in developing the risk appetite statement; at roughly 80 percent, the CRO participates in executive sessions with the board of directors and/or board risk committee, and provides input into the development of business strategy.

**Incentive compensation.** There has been extensive discussion about how some incentive compensation plans may inadvertently encourage excessive risk taking. Yet, only about half of the institutions, 49 percent, said their board of directors reviews the compensation plan to consider the alignment of risks with rewards; this percentage increased in 2012 from 35 percent in 2010. Other actions related to compensation planning were reported more often: 83 percent of institutions said they use multiple incentive plan metrics, 73 percent require that a portion of the annual incentive be tied to overall corporate results, and 58 percent have deferred payouts linked to future performance. More institutions also reported using clawback provisions—41 percent in 2012, versus 26 percent in 2010.



**Enterprise risk management.** Sixty-two percent of institutions reported having an ERM program, up from 52 percent in 2010, while 21 percent are currently implementing one. Almost 60 percent of institutions said they expect to increase their ERM budgets during the next three years.

**Eurozone crisis.** Seventy-nine percent of institutions have taken actions in response to the Eurozone crisis, including more than 90 percent of large institutions. By far the most common action taken was to evaluate counterparties more closely (89 percent), followed by ceasing trading with specific counterparties (42 percent) and preparing for the potential unwinding of the euro (33 percent). However, while 58 percent of institutions in the United States/Canada reported having taken action in preparation for the possible unwinding of the currency, only 33 percent of institutions in Europe and 22 percent of those in Asia Pacific have done so.

**Basel II and III.** Institutions subject to Basel II reported they had made significant progress in implementing these requirements, with roughly three-quarters saying they had either completed or largely completed the work on Basel II's three pillars: I (Minimum Capital Requirements), II (Supervisory Review Process), and III (Market Discipline Requirements). Institutions have made less progress on meeting the requirements of Basel III: 45 percent had largely completed the work for Pillar I: Enhanced Capital Standards, while 35 percent had made equal progress on Pillar I: Enhanced Risk Coverage. Roughly 30 percent of institutions said they had largely completed the work on Basel III's requirements regarding the Liquidity Coverage Ratio, Leverage Ratio, or Net Stable Funding Ratio.

**Solvency II.** For insurance institutions subject to Solvency II, 92 percent said they plan to focus over the next 12 months on Own Risk and Solvency Assessment (ORSA), while many institutions also said they are intending to work on issues related to review of data quality (77 percent) and documentation/reporting (69 percent).

**Stress testing.** Stress testing has become a more commonly used tool to help institutions assess their ability to withstand severe economic and market conditions. Further, periodic stress tests are required by a number of regulatory authorities. Many institutions reported using stress testing in their planning processes, saying that it enables a forward-looking assessment of risk (80 percent), informs the setting of risk tolerance (70 percent), and feeds into capital and liquidity planning procedures (66 percent). However, the most common uses of stress tests were for regulatory compliance—assessing the adequacy of regulatory capital (86 percent) and responding to inquiries from regulators (84 percent).

**Economic capital.** Roughly 80 percent of participating institutions reported calculating economic capital and roughly 60 percent said they use economic capital, for credit risk, market risk, operational risk, and interest rate risk of the balance sheet.

**Impacts of regulatory reform.** More institutions reported an increase in the cost of compliance (65 percent, up from 55 percent in 2010) and said it had caused them to revise product lines or business activities (48 percent in 2012, a doubling from 24 percent in 2010). Many institutions also said that regulatory reform resulted in their maintaining higher levels of both capital (54 percent) and liquidity (37 percent).

**Operational risk.** Roughly 60 percent of institutions rated their operational risk methodologies as well developed for both risk assessments and for their internal loss event database. However, in these and other areas, operational risk methodologies were not more fully developed than had been reported in 2010; constancy here may be the result of heightened focus by regulators on other areas such as governance, stress testing, and liquidity risk in recent years.

**Risk technology systems and data.** As was true in the 2012 survey, the need for significant improvement in risk management technology and infrastructure was reported by many institutions. Less than one-quarter of institutions rated their systems as extremely effective or very effective in data management/maintenance, data process architecture/workflow logic, or data governance. The leading concern regarding risk technology continues to be the quality and management of risk data, where 40 percent of respondents were extremely or very concerned about the capabilities at their institution, followed by roughly one-third who said the same about the ability of their risk technology to adapt to changing regulatory requirements and the lack of integration among risk systems. The highest priorities for investment in risk technology systems were for improvements to risk data quality and management (cited by 63 percent in the current survey, versus 48 percent in 2010) and enterprise-wide risk data-warehouse development (mentioned by 51 percent now versus 35 percent in 2010).

## Key implications for management

As in past years, Deloitte's risk management survey examined a wide range of issues including governance, management of diverse risk types, methodologies, regulatory requirements, and risk data and technology infrastructure. The findings from the current survey suggest a number of important issues that financial institutions should examine.

- **Managing regulatory change.** The unrelenting pace of regulatory change is having important impacts on financial institutions through new requirements in many jurisdictions in areas such as regulatory capital, liquidity, restrictions on proprietary trading, and the use of exchanges for most derivatives trades. There has been a particular focus on those institutions designated as systemically important, with requirements for higher capital levels, living wills, and enhanced regulatory reporting, among others. The stricter regulatory requirements are demanding more attention from management, affecting the profitability of different lines of business, and increasing the costs of compliance. Financial institutions should consider how their business models will be affected by current and potential future new requirements, and whether their risk management programs have the ability to respond flexibly to the ongoing process of regulatory change.
- **Strengthening governance.** Given the strategic implications of risk management, it has become even more important that the board of directors and senior management provide strong leadership and promote a risk-aware culture throughout the organization. The board of directors has the final responsibility for approving the organization's risk policy and risk appetite and for providing oversight of the risk management program. Many financial institutions have also recognized the value provided by a CRO position—a senior-level executive responsible for overseeing the risk management activities of the organization and who can advise the CEO and the board of directors on the organization's risk profile and risk appetite, the effectiveness of the risk management program, and the risk implications of strategic decisions.
- **Examining incentive compensation.** Ultimately, an institution's risk profile is the result of the many decisions made each day as employees seek to accomplish business objectives. Although the risk management function sets standards and provides oversight, employees in the business units are on the front line in terms of taking and managing risk. For this reason, institutions should consider reviewing their performance management and incentive compensation plans to ensure their alignment with the organization's risk appetite.
- **Managing a wider range of risk types.** Institutions should consider whether they have sufficient capabilities to manage a wide range of risk types in addition to more common risks such as market and credit risk. Developments in financial markets during the credit crisis raised the priority of managing liquidity risk. The pace of regulatory change has increased the importance of regulatory risk. Institutions are paying more attention to reputational risk given the potential for negative publicity and reputational damage if an institution fails to comply with regulatory requirements or becomes the target of an enforcement action. A varying series of management breakdowns at major financial institutions has also underscored the impacts from operational risk events. Finally, many institutions are also giving a higher priority to managing model risk.
- **Improving stress testing capabilities.** The increased emphasis on stress testing for banks and certain systemically important financial institutions, especially among U.S. regulators, will require risk management programs to have the capabilities to employ this technique on scenarios stipulated by their regulators as well as on their own scenarios. An effective stress testing program requires governance structures and controls to oversee data integrity, the selection of stress testing models, and model validation. Financial institutions may also consider their capabilities in stress testing macroeconomic variables and forecasting potential losses at the loan level. When stress testing is used to assess capital adequacy, institutions should consider whether it is part of a broad, well-documented internal capital adequacy assessment process.
- **Upgrading risk data quality and technology infrastructure.** Managing risk effectively requires institutions to be able to aggregate and analyze risks on a consistent basis across the organization in order to provide timely reporting to management and regulatory authorities. Institutions should consider whether they may need to improve the quality and consistency of risk data and also upgrade their risk technology systems in order to gain such an enterprise-wide view of risk.

Despite the time that has passed since the global financial crisis, the risk management challenges facing financial institutions remain daunting. Financial institutions that have the ability to respond flexibly to the continuing series of regulatory changes, coupled with effective risk governance, strong analytical capabilities, and clear and consistent risk data, may be better placed to steer a steady course through the ever-shifting risk management landscape.

# Introduction

Deloitte's *Global risk management survey, eighth edition*, assessed the risk management programs, planned improvements, and continuing challenges at 86 financial institutions representing a range of geographic regions, asset sizes, and industry sectors. (See "About the survey.") The survey was conducted in the second half of 2012, at a time of continuing change in the financial industry and the broader economy.

**Slow economic recovery.** At the time this report was written, most regions continued to recover slowly from a period of prolonged economic weakness, although significant concerns remain. In the United States, the economy resumed modest growth and equity markets posted record nominal highs, but the unemployment rate remained at a historically high level. The Eurozone was in recession as it struggled to manage the debt crisis in several of its member states including Greece, Cyprus, and Ireland, as well as address concerns about the fiscal health of Italy and Spain. In Japan, Prime Minister Shinzo Abe's economic stimulus policies, called "Abenomics," fueled faster economic growth in early 2013 and higher share prices, while the yen lost value.<sup>4</sup> Economic growth slowed somewhat in China, although rising demand and increasing labor shortages led to worries about increasing inflation.<sup>5</sup> Several other important emerging markets, such as India and Brazil, have also seen economic growth slow.<sup>6</sup>

**Some monetary stimulus continues.** Countries have been winding down the financial assistance programs for financial institutions implemented during the global financial crisis. While direct financial assistance to financial institutions has largely been eliminated, central banks in the United States and Europe continue to maintain historically low interest rates in an effort to stimulate the economy. The U.S. Federal Reserve announced in September 2012 that it would maintain short-term interest rates near zero until at least mid-2015, and that it would not consider raising rates until unemployment had dropped below 6.5 percent.<sup>7</sup> In an effort to spur growth, the U.S. Federal Reserve has also pursued less traditional measures. In 2012, it announced that it would continue its policy of quantitative easing (QE3) until employment had "substantially" improved.<sup>8</sup>

**Ongoing euro crisis.** Although some concerns have lessened, the euro crisis continues and its ultimate resolution remains unclear. The European Union (EU) and the International Monetary Fund (IMF) have provided bailout packages to Ireland, Portugal, Greece, and Cyprus. The EU also provided a financial assistance package to four major Spanish banks, requiring them to layoff staff and close offices.<sup>9</sup> The ongoing debt crisis, coupled with weak economic conditions throughout the continent, has led

many European financial institutions to retrench: European banks have reduced their cross-border lending by US\$3.7 trillion since the financial crisis, and the IMF predicts they may cut their assets by US\$2.8 trillion in 2013.<sup>10</sup>

**Unfolding impact of regulatory reform.** In the United States, the 2010 Dodd-Frank Act constituted the greatest change to U.S. financial regulation since the 1930s. Yet, substantial uncertainty remains over the impact of Dodd-Frank because the process of issuing the estimated 398 rules required by the legislation has proceeded slowly.<sup>11</sup> In the EU, EMIR came into force in August 2012 and requires the central clearing of standardized OTC derivatives<sup>12</sup>, the reporting of derivative transactions to trade repositories, and risk mitigation measures for all non-centrally-cleared OTC derivatives. The EU is also considering providing the European Central Bank (ECB) with increased supervisory responsibilities for banks, although concerns have been raised about providing it with these additional powers.<sup>13</sup> In the United Kingdom, in April 2013, a reorganization of regulatory oversight went into effect, with the Financial Services Authority (FSA) being abolished and its prudential regulatory responsibilities being assumed by a subsidiary of the Bank of England (Prudential Regulatory Authority), while a new Financial Conduct Authority was created to address consumer protection.

**Pressures on profitability.** While returns on equity (ROE) for the financial industry once ranged from 20 to 25 percent, ROE for the largest investment banks has dropped to an estimated 10 percent in Europe and 13 percent in the United States, and may decline further due to new regulatory restrictions on lines of business and regulatory requirements for higher levels of capital.<sup>14</sup> Dodd-Frank prohibited proprietary trading by banks (Volcker Rule), which Standard & Poor's estimates could reduce pretax earnings for the eight largest U.S. banks by up to \$10 billion annually.<sup>15</sup> Restrictions on proprietary trading could have substantial impacts on the business strategies for financial institutions that operate in the United States, potentially leading institutions to close their proprietary trading desks and divest their hedge funds and private-equity subsidiaries. New rules on derivative trading in Dodd-Frank and in EMIR will require more centralization and clearing of derivatives trades on exchanges and fewer over-the-counter trades, which are typically more profitable for financial institutions.

**Increased focus on systemically important institutions.** Regulators have placed increased attention on large banks and financial institutions considered to be systemically important—those having the potential to threaten the stability of the financial system as a whole if they should fail. Dodd-Frank imposes additional reporting requirements

on institutions designated as systemically important, and also requires that these institutions create recovery and resolution plans. In December 2011, the U.S. Federal Reserve proposed enhanced prudential standards for systemically important financial institutions that included new risk-based capital and leverage requirements, liquidity requirements, and limits on credit exposure to a single counterparty.<sup>16</sup> The U.S. Federal Reserve also issued similar proposed rules increasing oversight for U.S. operations of foreign banks with total U.S. assets of US\$50 billion or more.<sup>17</sup> Internationally, the G20 tasked the Financial Stability Board (FSB) with developing a policy framework to address issues related to systemically important financial institutions. The Basel III framework includes the requirement that systemically important financial institutions<sup>18</sup> be required to hold additional capital.

**Stricter regulatory capital requirements.** In an effort to increase the safety and stability of the financial system, regulators are also requiring institutions to maintain higher levels and quality of capital. Required capital levels in Basel II are based on risk-weighted assets, either using a standard formula or internal models for larger banks. Basel III, which will be implemented in a phased approach from 2013 to 2019 (subject to national regulator timelines), will further increase capital requirements. Basel II is fully implemented among European, Canadian, and Japanese banks, but adoption has been slower in other countries such as the United States, China, and India. To define adequate levels of capital, the U.S. Federal Reserve and the Office of the Comptroller of the Currency conduct a program that requires annual stress tests by major financial institutions to assess their ability to withstand a severe recession, and this requirement is being expanded in 2013 to include all banks with assets greater than US\$10 billion.

For European insurers, Solvency II introduces risk-weighted capital requirements similar to those in Basel II. The implementation of Solvency II has been subject to various proposals and review periods, delaying its effective date, which is now expected to occur in 2016.<sup>19</sup>

While institutions with a larger capital base will be better able to withstand a severe downturn, they will also tend to have lower shareholder returns. Higher capital requirements—whether as the result of Basel III or stress tests—may cause banks to re-evaluate their strategy. For example, some institutions may decide to shrink or exit their capital markets-related businesses due to the higher capital requirements associated with these activities and focus instead on wealth management and asset management.

**Liquidity requirements.** For the first time, Basel III introduces two liquidity ratios. Under the Liquidity Coverage Ratio (LCR), banks will be required to maintain a specified level of cash and liquid assets that would be available to survive a 30-day severe downturn that prevents them from accessing funding markets. In January 2013, the Basel Committee responded to concerns over the impact of these new requirements by extending the effective date from 2015 to 2019, counting a wider range of assets as highly liquid, and assuming a less drastic withdrawal of deposits and income over a 30-day period during a “stress situation.”<sup>20</sup> Basel III also includes a net stable funding ratio (NSFR) designed to promote more medium- and long-term funding of banking organizations by ensuring that long-term assets are funded with “at least a minimum amount of stable liabilities in relation to their liquidity risk profiles” and by limiting “over-reliance on short-term wholesale funding during times of buoyant market liquidity.”<sup>21</sup>

**Limits on executive compensation.** Following the government assistance provided to financial institutions in recent years, there has been public criticism against what has been perceived as lavish executive compensation, as well as a belief among many that compensation practices had encouraged excessive risk taking. In March 2013, the EU moved to limit the bonuses that can be paid to bank executives to no larger than the executive’s salary or else no more than double the salary if shareholders explicitly agree.<sup>22</sup> In March 2013, Swiss citizens approved a referendum that gave shareholders a binding say on the overall pay of executives and directors, and prohibited companies from awarding bonuses when executives joined or left the company, or when the company was acquired.<sup>23</sup>

**Operational risk events.** The importance of strengthening risk management capabilities within financial institutions has been underscored by a series of events that have resulted in substantial financial losses and legal settlements. These include legal settlements resulting from enforcement actions, major losses from failed investment strategies, misuse of client funds, computer malfunctions, and cyberattacks that incapacitated websites.

Several years after the global financial crisis, regulatory change remains one of the key drivers of risk management. Financial institutions are facing increased costs of compliance as regulatory requirements and reporting become more stringent, especially for large, systemically important institutions. Institutions are being required to maintain more capital, which can increase stability in the case of a severe downturn but can also depress returns.



Risk-weighted capital requirements, coupled with new restrictions on proprietary trading, derivatives trading, and other lines of business, may lead institutions to revise their business models in an effort to reduce the amount of capital they are required to hold.

Financial institutions had traditionally focused their risk management programs on market, credit, and operational risk. The recent breakdowns at several institutions have highlighted the need to upgrade operational risk management at many institutions. In addition to reexamining their approaches in these traditional areas, institutions are also now devoting more attention to a wider range of risks including liquidity risk, regulatory risk, and reputational risk.

Although major revisions to laws and regulations were instituted soon after the crisis, many of the necessary related changes have not yet been fully implemented. How rules are written during the current implementation phase may well have as great an impact on financial institutions as the reforms that were initially signed into law or announced by regulatory authorities.

### About the survey

This report presents the key findings from the eighth edition of Deloitte's ongoing assessment of risk management practices in the global financial services industry. The survey gathered the views of CROs or their equivalents at 86 financial services institutions around the world and was conducted from September to December 2012.

- The institutions participating in the survey represented the major economic regions of the world, with most institutions headquartered in the United States/Canada, Europe, or Asia Pacific (Figure 1). Most of the survey participants were multinational institutions, with 65 percent having operations outside their home country.
- The survey participants represented a variety of financial sectors, with the largest concentrations among integrated financial institutions, commercial banks, retail banks, and insurance companies (Figure 2).
- The institutions had total combined assets of US\$18.7 trillion and represented a range of asset sizes (Figure 3). Among the survey participants, 53 percent provided asset management services, with a total of US\$9.2 trillion in assets under management.

The previous edition of this risk management survey report series was released in early 2011, based on a survey conducted in the third quarter of 2010. Where relevant, this report compares the current results with those from the 2010 survey.

Figure 1. Participants by headquarters location

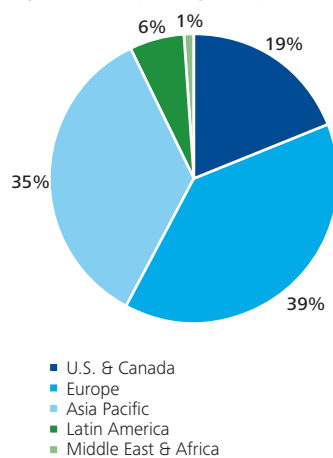


Figure 2. Participants by primary business

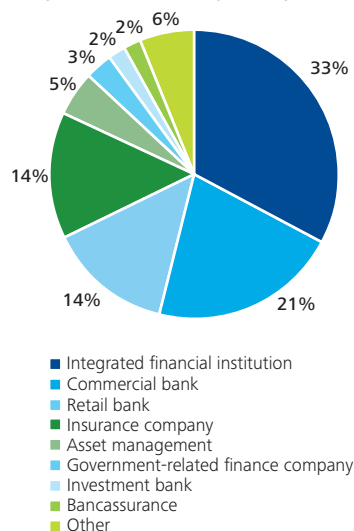
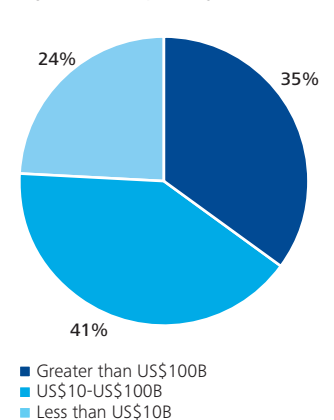


Figure 3. Participants by asset size



### Analysis by asset size

In this report, selected survey results are analyzed by the asset size of participating institutions using the following definitions:

- Small institutions = Institutions with total assets of less than US\$10 billion
- Mid-size institutions = Institutions with total assets of US\$10 billion to less than US\$100 billion
- Large institutions = Institutions with total assets of US\$100 billion or more

# Risk governance

## Role of the board of directors

Regulators are paying increased attention to the role of the board of directors in risk governance, i.e., providing direction to and approval of the institution's risk appetite and risk policy, and overseeing their implementation by management.

In October 2010, the Basel Committee on Banking Supervision issued principles for enhancing corporate governance that addressed such issues as the role of the board of directors, the qualifications of board members, and the importance of an independent risk management function.

In the United States, the proposed enhanced prudential standards issued by the U.S. Federal Reserve requires that systemically important financial institutions and bank holding companies with more than US\$50 billion in assets and publicly-traded bank holding companies with more than US\$10 billion in assets must establish a risk committee of the board of directors that will be responsible for overseeing enterprise-wide risk management practices.<sup>24</sup> In addition, the board risk committee is required to include at least one independent director and at least one risk management expert.

As an indication of the increasing importance of the board's risk management responsibilities, 94 percent of the institutions surveyed said their board of directors devoted more time to the oversight of risk compared to five years ago, with 67 percent saying it committed considerably more time than before. None of the institutions participating in the survey said their board spent less time on the oversight of risk management than it did five years ago.

Most institutions also reported that their boards of directors took an active role in oversight of risk management (Figure 4). For example, 98 percent of institutions said their board of directors or board risk committee(s) reviews regular risk management reports, up from 85 percent in the 2010 survey, and 81 percent said it reviews and approves the institution's overall risk management policy and/or ERM framework (up from 78 percent in 2010). Seventy-five percent of institutions said their board of directors reviews individual risk management policies, e.g., for market, credit, liquidity, or operational risk, up from 65 percent in 2010.

A written enterprise-level statement of risk appetite for an organization (or a more specific one written for a major line of business) is a key document that can inform individual business decisions regarding how much risk the organization is prepared to assume in pursuit of its

business objectives. The importance of board approval of the risk appetite statement is reflected in the higher proportion of the institutions that reported this to be the case, 78 percent of the institutions surveyed, up from 67 percent in 2010.

There has been increased scrutiny of whether compensation plans are aligned with the institution's overall risk tolerance and whether they may encourage excessive risk taking. Although there has been progress in this area since 2010, only about half the institutions reported that their board of directors considers the risk implications of the incentive compensation plan. In 2012, 49 percent of institutions said their board of directors reviews the compensation plan to consider alignment of risks with rewards (up from 35 percent in 2010). The increasing number of boards of directors that review compensation plans from a risk perspective suggests that some boards are taking a more active role in assessing the potential relationship between compensation and risk taking.

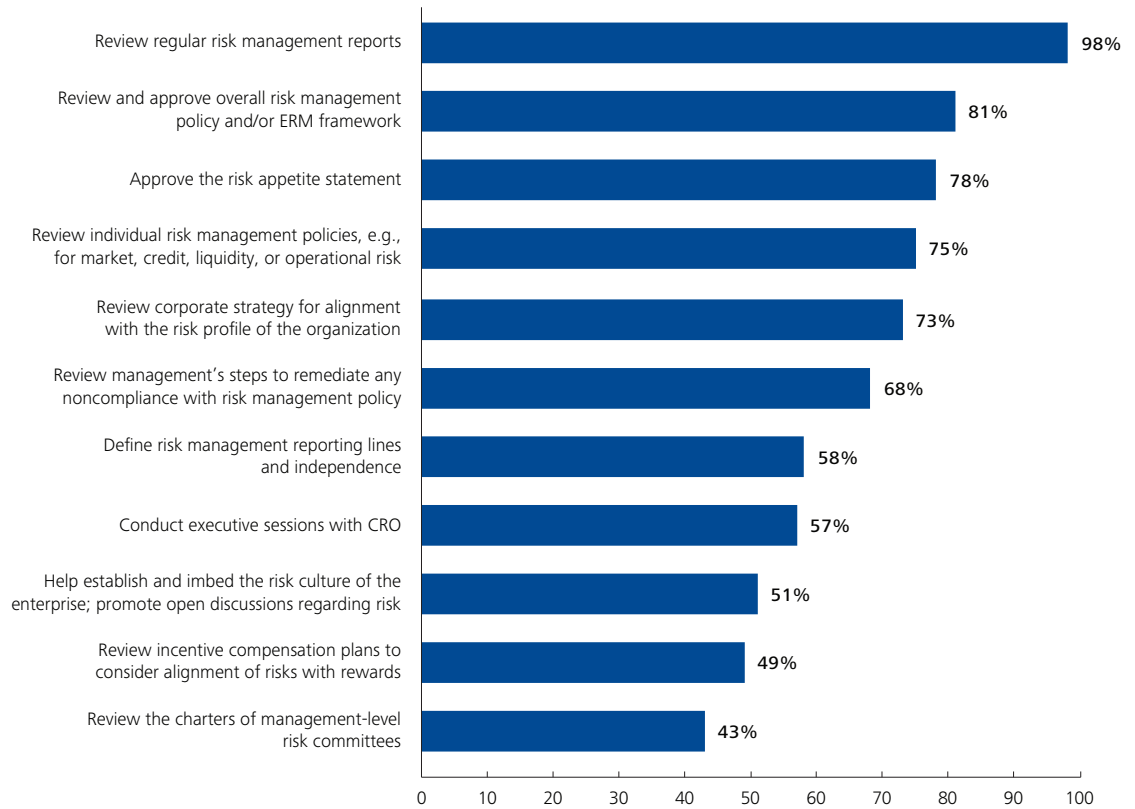
As the expectations for the board's role in risk management have increased, many management teams have responded by providing their boards with additional information. In some cases, these enhancements have resulted in greater insights, while in others more data has simply been provided in the name of transparency. Some boards may find the volume of risk-related information to be overwhelming, lacking in context, or too granular to be useful. Deciding what information to provide to the board—and when to provide it—remains challenging for many financial services companies.

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**We've been running more training sessions for the board to give them a better view as to what expectations are: outside of regularly scheduled meetings, we are focused on providing tutorials to keep them up to speed on the changes that are taking place within our risk infrastructure and to help them fulfill their obligations.**

**CRO, large global financial institution**

Figure 4. Which of the following risk oversight activities does your company's board of directors or board risk committee(s) perform?



### Board risk committees

When it comes to how boards of directors assign the primary responsibility for risk oversight, only 24 percent of the institutions surveyed reported that this is the responsibility of the full board of directors. Instead, most institutions (62 percent) assign this responsibility to one or more board committees that oversee risk management, including risk policies and the organization's risk appetite. The most common approach, adopted by 43 percent of the institutions surveyed, is to place the responsibility for risk oversight with a risk management committee of the board. Other approaches taken were assigning responsibility to the audit committee (7 percent), making it a combined responsibility of both the risk committee and the audit committee (7 percent), and assigning it to an individual member of the board (8 percent).

Large institutions were more likely to have a board risk committee, with 53 percent of large institutions having one compared to 24 percent of small institutions. Institutions in the United States/Canada were also more likely to have such a committee: 71 percent reported having a board risk committee, compared to 39 percent in Europe and 37 percent in Asia Pacific. This is likely due to the fact that Dodd-Frank requires publicly-traded bank holding companies with total assets of US\$10 billion or more and systemically important publicly-traded nonbank financial companies to have a board risk committee.

Fifty-four percent of institutions said their board risk committee was chaired by an independent director, and 55 percent reported that it contained at least one identified risk management expert. These are considered leading industry practices and are required by U.S. enhanced prudential standards regulatory rules that are currently in draft. Including independent directors was more common among large institutions. While 67 percent of large institutions had at least one independent director on their board risk committee and 59 percent had their risk committee chaired by an independent director, only 29 percent of small institutions had an independent director.

Structural changes appear to have created a need for better coordination among committees and the full board. For example, discussions by the compensation committee related to executive remuneration programs need to be informed by the actions and activities of the risk committee. In addition, the full board needs to remain diligent and risk-aware, resisting the urge to delegate all its responsibilities to one or more committees. Acknowledging the need for more formalized communication is an important first step. Beyond that, boards can consider cross-committee membership, periodic joint committee meetings, and robust committee reports to the full board as options for improving coordination.

### **Risk policy**

The board of directors should be responsible for providing input to management in setting the organization's risk management policy and for providing oversight over its implementation. Some topics are widely accepted as areas where the board risk committee (or equivalent) should provide oversight. For example, most institutions reported that their board risk committee had defined responsibilities for risk oversight (81 percent), risk appetite (69 percent), and risk management policies (68 percent). Risk appetite is an important area for board risk committees to provide input, oversight, and ongoing monitoring, but this can be challenging for non-financial risks which are less readily quantifiable. Reviewing and overseeing risk policies is a core function of a board risk committee, and one would expect more risk committees to perform this function over time.

Reviewing and approving management risk committee charters is another important role of a board risk committee, and it is notable that only 45 percent of institutions reported this as one of their committee's responsibilities. Only 24 percent of United States/Canadian institutions cited management risk committee charters as a responsibility of their board risk committee, compared to 53 percent in Europe and 44 percent in Asia Pacific. These results suggest that the United States/Canadian institutions have more work to do in this area.

### **Risk framework and risk appetite**

In the survey, 73 percent of institutions reported having an ERM framework and/or an ERM policy. The importance of board input on the ERM framework and/or ERM policy was reflected in the fact that 59 percent had it approved by their board of directors while another 17 percent had it approved by their management risk committee. In addition, another 20 percent of institutions said they did not have an ERM framework/policy but plan to develop one.

In creating a statement of risk appetite, the most common approach was to define risk appetite both quantitatively and qualitatively, which was reported by 79 percent of institutions. The percentage of institutions that used only a quantitative approach declined from 22 percent in 2010 to 12 percent in 2012, with a corresponding increase in the percentage that use a mix of both methods.

Institutions use a variety of quantitative methods to define risk appetite, with the most common methods being acceptable loss levels (76 percent), system of risk limits (71 percent), economic capital (69 percent), and regulatory capital (69 percent). Although adoption increased for many quantitative methods compared to 2010, the use of net

income/loss levels dropped from 50 percent in 2010 to 41 percent in 2012; this is a positive sign because this method is considered a less sophisticated method to define risk levels.

Defining risk limits for specific categories of risk can help make a risk appetite statement operational. Roughly three-quarters of institutions said they establish risk limits at an enterprise level for market risk, credit risk, operational risk, liquidity and funding risk, and asset/liability management risk. Institutions are less likely to establish such limits at a business level or at the level of the trading desk (or equivalent). For example, 44 percent said they establish risk limits for liquidity risk at the business level but only 22 percent at the trading desk level. For operational risk, 52 percent establish risk limits at the business unit level and 17 percent at the trading desk level. Operational risk limits can be especially difficult to define. Once an institution has decided to compete in a line of business, it inevitably assumes operational risk that is subsequently not easy to limit.

Although the use of risk limits was roughly the same compared to 2010 for most risk categories, the use of risk limits for insurance increased for the enterprise level to 53 percent in 2012 from 43 percent in 2010, and to 67 percent from 49 percent at the business level.

### **Management oversight**

An effective risk management program starts with senior management leadership. Senior management should explore ways to communicate throughout the organization the importance of managing risk and establish a culture in which considering and managing risk is an integral element in all business decisions. Some of the specific steps senior management can take to help develop a risk-aware culture include establishing appropriate management risk committees, balancing the roles of the central risk management function and the individual business units, and establishing a senior-level CRO position.

### **Use of management risk committees**

Many institutions reported having a variety of management-level risk committees: asset liability management (74 percent), credit risk (59 percent), enterprise risk management (59 percent), operational risk management (44 percent), market risk management (44 percent), and investment risk (42 percent).

Large institutions were more likely to have a variety of management risk committees, which is understandable because their activities and risk profiles are likely to be more complex. For example, 72 percent of large institutions reported having a management-level operational risk management committee, compared to 43 percent of mid-size institutions and 33 percent of small institutions.

Of course, the types of financial services an institution provides will have an important impact on which management risk committees it needs. For example, institutions that are active in securities trading or insurance will have a greater need for market risk or insurance risk committees.

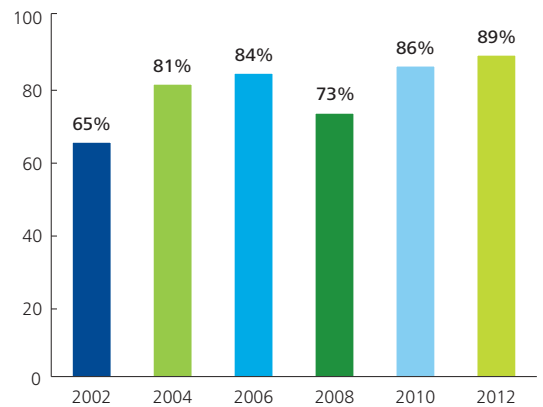
### Key role of the CRO

The CRO can play a key role as a senior executive with overall responsibility for oversight of risk management—helping to increase senior management and board attention to risk considerations and implement consistent risk management policies and practices across the organization. Although the prevalence of a CRO has varied in past Deloitte global risk management surveys, it has generally increased, and in 2012 89 percent of institutions reported having a CRO or equivalent position, up from 65 percent in 2002 (Figure 5). Even 81 percent of small institutions reported having a CRO or equivalent position, along with 97 percent of large institutions. In addition, 93 percent of integrated financial institutions, which tend to have more complex operations and risk challenges, reported having a CRO. Some financial institutions have also created the Chief Compliance Officer (CCO) as a senior-level position, in some cases hiring former regulators to fill these positions.

The CRO reports to the CEO at 71 percent of the institutions surveyed, while reporting to the board of directors or a board committee at 43 percent.<sup>25</sup> The CRO reports to either the CEO or the board (or both) at roughly 80 percent of the institutions. Having the CRO report to the board of directors as well as to management is considered a best practice, to provide the board with an independent source of information and reporting on the operation of the organization’s risk management program. However, even among large institutions, 50 percent said the CRO did not report to the board, indicating there may be more work to do in strengthening CRO reporting.

Most institutions cited a wide range of responsibilities for their CRO and independent risk management group. More than 80 percent of institutions said these responsibilities included escalating risk issues to the CEO and/or the board of directors, identifying risk concentrations, and identifying new and emerging risks. At many institutions, the CRO and risk management function also have more strategic responsibilities, indicating their higher profile in the organization: assisting in developing the firm-wide risk appetite statement (87 percent), participating in executive sessions with the board of directors and/or board risk committee (79 percent), providing input into business strategy development and the periodic assessment of the plan (79 percent), and approving new business or products (63 percent).

Figure 5. Percentage of institutions with CRO or equivalent



### Striking a balance between centralized risk management and business unit risk management

Most institutions reported that they followed a centralized approach to risk management. For example, roughly two-thirds of institutions said counterparty risk limit excess approval and credit policy exception approval were determined by independent risk management, while only about 10 percent said these were determined by their business units; the remaining institutions said they were a shared responsibility.

However, there were several areas where institutions were more likely to report their business units played a leading role. For trading transaction approval, 54 percent of institutions said this was determined by their business units compared to 28 percent who cited independent risk management; for new transaction approval, 34 percent said this was determined by business units, while 32 percent said independent risk management took the lead.

### Three lines of defense risk governance model

Using a “three lines of defense” governance model for risk management has become increasingly accepted as a recognized practice in risk management in the financial services industry. The three lines of defense governance model comprises the following:

1. Business units take and manage risks
2. Independent risk management function monitors the activities of the business units
3. Internal audit function audits the activities of the business units and of the risk management function

In the survey, 88 percent of institutions reported using a three lines of defense governance model, including 97 percent of large institutions. When asked how their ERM and internal audit functions work together, 77 percent said the internal audit function audits the activities of the ERM program, as identified by this approach, while 55 percent said internal audit and ERM use common risk categories and definitions. In addition, less than half of the institutions (46 percent) said that internal audit develops a coordinated risk-based internal audit plan. It appears that there is additional opportunity to expand the alignment of internal audit with ERM, which can lead to enhanced effectiveness and efficiency of these programs.

Among small institutions, 56 percent said the internal audit function audits the activities of ERM, compared to more than 80 percent for large institutions. On the other hand, small institutions were more likely to report that internal audit and ERM use common risk categories and definitions, 72 percent compared to roughly half for large institutions. This might reflect the relative ease of coordinating somewhat smaller internal audit and ERM functions in small institutions compared with the larger and perhaps more siloed organizations in large institutions.

Institutions said the biggest challenge they faced in using this governance model was defining and maintaining the distinction in roles between line 1, the business, and line 2, risk management (45 percent). Defining the specific distinction in responsibilities between business unit risk management and enterprise risk management can be difficult.

Another challenge cited often was getting buy-in from line 1, the business (38 percent). Although the risk management function plays a central role in setting policy and overseeing the program, business units remain the front line where risks are taken, and it is important that they understand and take responsibility for managing risk.

#### **Model validation**

The need for risk models to assess severe movements in credit and other markets has made the validation of risk models more important. Validation of models is also becoming a more common regulatory requirement. The U.S. Federal Reserve and the Office of the Comptroller of the Currency have both released updated guidance on model validation.

However, 33 percent of the institutions surveyed reported not having an independent model validation function. While it might be expected that 48 percent of small institutions would not have this function, it was notable that 20 percent of large institutions also lacked one. Among institutions that did have this function, roughly three-quarters said it resides in the independent risk management function, while 16 percent had placed it in the internal audit function.

#### **Incorporating risk management into incentive plans**

There has been increased attention paid to the relationship between compensation plans and risk management to help increase alignment between incentive compensation and the institution's risk appetite. As a result, it has become a leading practice to incorporate risk management considerations into performance goals and compensation decisions.

Fewer than half the institutions reported that reviewing the compensation plan was a responsibility of the CRO, although this practice was more common than in the previous survey. In 2012, 45 percent of institutions indicated that reviewing the compensation plan to assess its impact on risk appetite was a responsibility of the CRO and the independent risk management function, up from 34 percent in 2010. This was somewhat more common at large institutions (52 percent) than at small institutions (29 percent).

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**A key step in compensation plan development or change now is approval by the risk function—that's before it goes to the board. We have introduced what we call key risk takers, and when it comes to their annual assessment process, for every key risk taker there's mandatory input from at least one senior member of legal and compliance or risk in assessing that person's performance. And within the divisions, the CRO has input along with the CEO as to how the bonus pool is apportioned to different businesses.**

**CRO, large global financial institution**

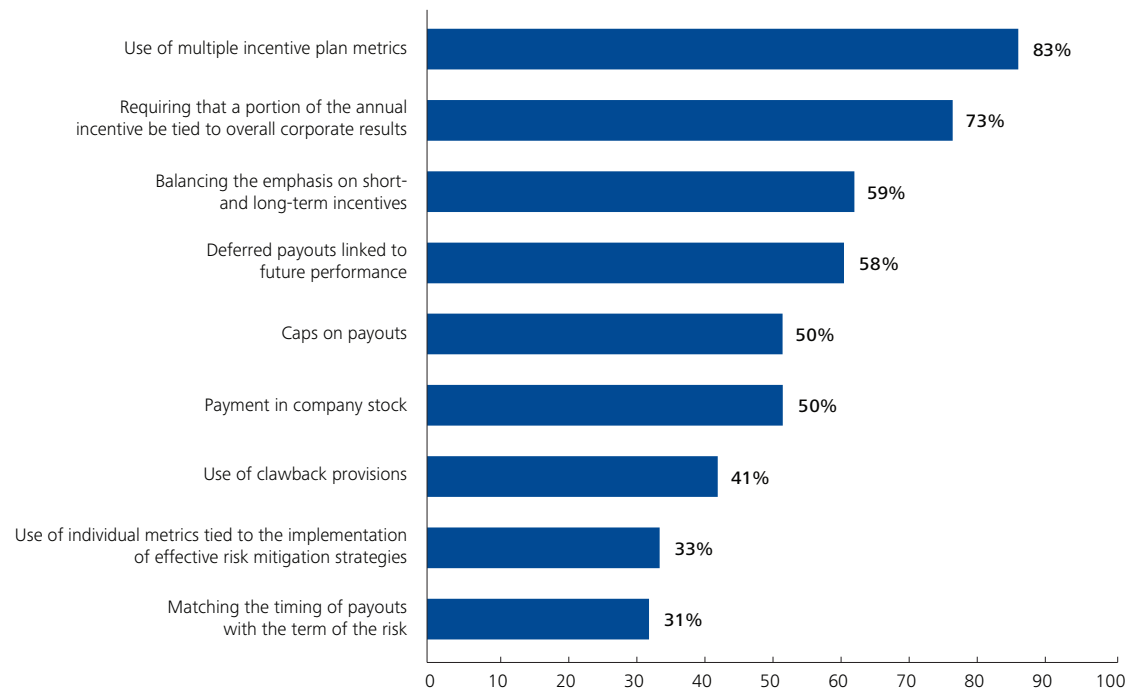
The survey found that about half of the institutions incorporate risk management into performance goals and compensation for compliance personnel (61 percent) and senior management (55 percent), while fewer do so for business unit personnel (35 percent), finance personnel (34 percent), or middle management (34 percent). Further, the percentages of institutions that incorporate risk management into performance goals and compensation plans for different groups of employees have not increased significantly since the 2010 survey. This is an area where many institutions can continue to make progress.

However, many institutions reported that they had taken several steps to incorporate risk management into incentive plans for senior management. These include use of multiple incentive plan metrics (83 percent), requiring that a portion of the annual incentive be tied to overall

corporate results (73 percent), deferred payouts linked to future performance (58 percent), and balancing the emphasis on short- and long-term incentives (59 percent). The use of clawback provisions has become more common, with 41 percent of institutions reporting in 2012 that these are used for senior management, compared to 26 percent in 2010.

The use of many of these methods of incorporating risk management considerations into the incentive plans for senior management was more common among large institutions than at small institutions: use of clawback provisions (55 percent versus 14 percent), matching the timing of payouts with the term of the risk (41 percent versus 14 percent), deferred payouts linked to future performance (73 percent versus 29 percent), and payments in company stock (69 percent versus 14 percent).

Figure 6. Which risk management considerations does your company incorporate into its incentive plans for senior management personnel?



# Enterprise risk management

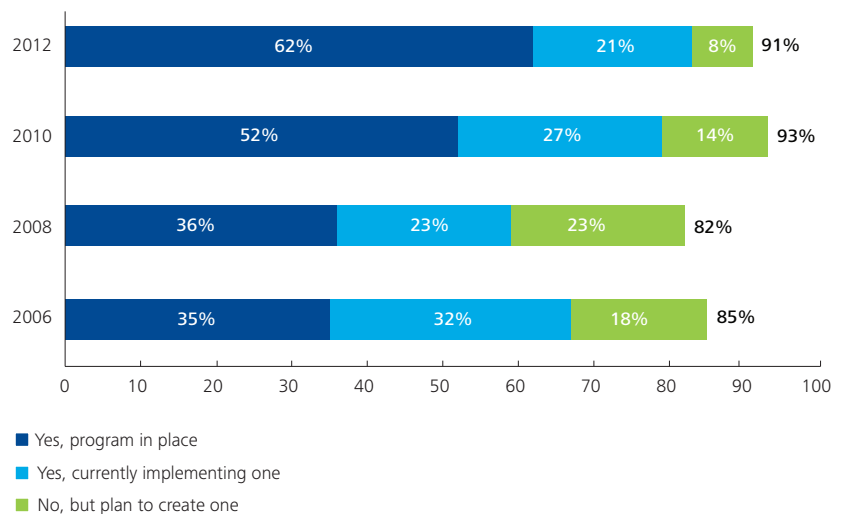
An ERM program is intended to provide an institution with an overall framework and methodology for managing the risks that could prevent it from achieving its business objectives. ERM assists organizations to identify and manage significant risks and to then clarify their risk appetite and risk profile. Because ERM examines risks across the organization, it can help identify dependencies and interrelationships among risks that had not been recognized.

Regulators are pushing large, and increasingly mid-size, financial institutions to establish ERM programs, link these programs to the strategic planning process, and engage the board of directors in considering their findings. In order for the program to be most effective, the ERM function should be kept independent of the business units and report into the CRO or an equivalent position. Regulators are also examining the quality and effectiveness of ERM programs and are communicating with institutions where they believe these programs need to be enhanced.

The adoption of ERM has increased steadily over the years that Deloitte has conducted its risk management survey series. In 2012, 83 percent of institutions reported that they either had an ERM program in place or were currently implementing one (Figure 7). These institutions include 62 percent with an ERM program in place, up from 52 percent in 2010. This is a sign of progress as more institutions implement a comprehensive organization-wide approach to setting risk and managing risk. In 2012, an additional 8 percent of institutions said they were planning to create an ERM program.

Adoption of ERM was most common among institutions in the United States/Canada, where 71 percent said they had a program in place, compared to 67 percent in Europe and 55 percent in Asia Pacific. Integrated financial services institutions tend to have more complex business models and risk management issues, and 82 percent of these institutions reported having an ERM program in place, more than for any other sector.

Figure 7. Does your organization have an ERM program or equivalent?



## ERM program coverage

Institutions reported their ERM programs cover a variety of risk types. Eighty percent or more said their ERM framework addressed operational risk (96 percent), market risk (94 percent), credit risk (93 percent), business continuity/IT security risk (89 percent), and counterparty risk (88 percent). Liquidity risk has emerged as an important issue, and 82 percent of institutions said their ERM framework covered it. Model risk can be an important source of risk, and 61 percent of institutions said it was included in their ERM programs, including 76 percent of large institutions.

## Risk management budgets

Most institutions reported having relatively small ERM operations. Twenty-nine percent of institutions had ERM operations with 10 full-time employees or fewer, while 46 percent had operations with 11 to 100 full-time employees. As might be expected, the headcount in ERM operations varied by size of the institution. While 39 percent of large institutions reported having more than

I think the biggest challenge we face is making sure that the concept of risk appetite is integrated into both our strategic and tactical planning sessions, and that the lines of business are working with their risk partners to ensure that plans, individually and collectively, fit within the bank's overall risk appetite statement.

CRO, large global financial institution



250 full-time employees in their operation, this figure was 13 percent for mid-size institutions; none of the small institutions had ERM operations this large. Among insurance companies, 90 percent reported having 100 or fewer employees in their ERM function, which may be the result of a lower level of development.

Many institutions said they had expanded their ERM programs. Over the prior 12 months, 46 percent of survey respondents had increased headcount in their risk management function, while only 6 percent had decreased the number of employees.

Looking ahead, most institutions plan to expand risk management budgets. Over the next three years, 58 percent of the institutions surveyed expected to increase annual spending on risk management, with 17 percent anticipating annual increases of 25 percent or more. This figure is down from the 78 percent of institutions in 2010 who expected to increase spending. Some institutions may feel they have already increased their risk management budgets sufficiently in recent years in response to developments in the financial markets and the recent wave of regulatory change.

Institutions in the United States/Canada were more likely to report increases in headcount and to expect spending to increase. Sixty percent of the United States/Canadian institutions reported adding employees over the past 12 months, compared to 42 percent in Europe and 38 percent in Asia Pacific. Similarly, 75 percent of institutions in the United States/Canada expected increases in risk management spending over the next three years, compared to 62 percent in Europe and 40 percent in Asia Pacific. These differences may be the result of the pace and extent of regulatory requirements driving risk management that has occurred in this region, especially in the United States where Dodd-Frank is still in the process of being implemented.

Although large institutions may have greater risk management challenges, only 40 percent of these institutions expected to increase their annual spending, compared to 66 percent of mid-size institutions and 72 percent of small institutions. This may be due to the fact that a number of new regulatory requirements were applied first to the largest institutions but are now cascading downward and being applied to smaller institutions.

### **Risk reporting**

Most institutions said their board of directors receives a wide range of risk information (Figure 8). The most frequent type of risk information provided to the board concerns stress testing, which is provided at 83 percent of institutions, up from 72 percent in 2010, when it was the third most frequent type of report. Stress testing has become more important among both regulators and financial institutions as a method of assessing the ability to withstand a severe recession and a downturn in financial markets. Other types of risk information frequently provided to boards of directors were risk concentrations (79 percent), utilization versus limits (73 percent), compliance-related matters (71 percent), new and emerging risks (70 percent), and risk assessment results (70 percent).

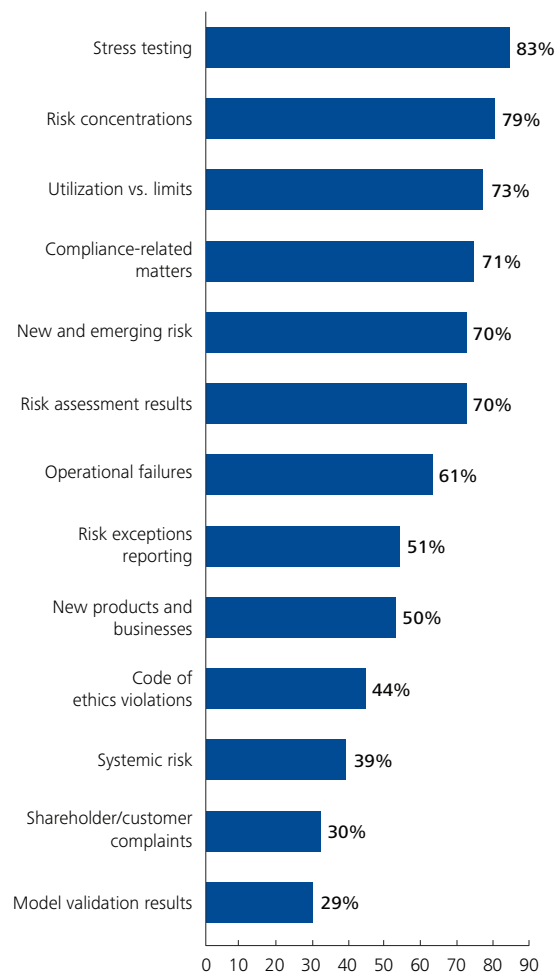
### **Assessing new business initiatives**

The decision on which businesses to enter and which types of products to bring to the market can have a profound effect on the level and nature of risk that an organization assumes. As a result, financial institutions have focused their attention on how risk is considered when making these decisions.

Most institutions reported considering a wide range of risk types in their business and product approval process. Leading the list of risk types considered, each by 90 percent of institutions, were regulatory, legal, and operational. In making these decisions, roughly three-quarters of institutions also considered market risk and credit risk. Many institutions reported that they also consider other risk types such as systems ability (72 percent), staffing needs (70 percent), and technology (69 percent). Large institutions were more likely to consider some factors than small institutions, including systems ability (83 percent versus 63 percent), product volumes (76 percent versus 47 percent), and tax capacity (69 percent versus 37 percent).

Beyond entering new businesses or introducing new products, institutions should consider which other types of initiatives should be subject to their approval process. Almost 90 percent of institutions said they require approval of major changes to existing business/products, and many institutions include changes to business/product risk profile (57 percent) and business/products in new jurisdictions or to a new client base (54 percent). Many institutions also review the potential risks associated with new systems needed to implement products or businesses (57 percent).

**Figure 8. Which of the following types of risk information does your organization currently report to the board of directors?**



### Systemic risk

Both Dodd-Frank and Basel III include provisions for financial institutions designated as systemically important. Among the institutions surveyed that received this designation, 48 percent felt that significant preparation will be required for them to comply with potential increased regulatory requirements. There has been a greater focus by regulators in the United States/Canada and Europe on systemically important financial institutions than in Asia Pacific. This may explain why 47 percent of these institutions in Asia Pacific felt that they would require minimal preparation to comply with increased requirements compared to only 22 percent in United States/Canada and 29 percent in Europe.

Roughly half of the institutions participating in the survey said they have a recovery and resolution plan (“living will”) or a local equivalent, of which 32 percent said it had been approved by their board of directors. This requirement for large institutions is now being phased in by regulators in the United States, Canada, and Europe. Although this is coming to be considered a leading practice, it is typically not yet a step that most institutions would decide to take on their own without a requirement by their regulators.

### Responses to the Eurozone crisis

Institutions were asked how they had responded to the ongoing crisis in the Eurozone. Seventy-nine percent of the institutions reported having taken actions in response to the crisis, with larger institutions much more likely to have taken action. Among large institutions, 93 percent had taken actions in response to the crisis, compared to 82 percent for mid-size institutions, and 52 percent for small institutions. It is likely that more large institutions conduct business in Europe, or with European counterparties or clients, and hence are more affected by the crisis.

Among institutions that took action, by far the most common response was evaluating counterparties more closely (89 percent). The second most common action also concerned counterparties: cease trading with counterparties (42 percent). Other responses mentioned often were preparing for potential euro currency unwind (33 percent) and selling sovereign debt (27 percent).

There were several notable differences in how institutions in different regions responded. For example, 58 percent of institutions in United States/Canada said they were preparing for a potential unwinding of the Euro, compared to 33 percent among European institutions, seeming to indicate confidence among European institutions that the EU would eventually resolve the crisis. Among institutions in Asia Pacific, only 22 percent said they were preparing for the possible unwinding of the currency. Institutions in this region were less likely to take any of these actions, suggesting they may have fewer European business relationships.

On the other hand, 58 percent of European institutions said they had ceased trading with certain counterparties compared to 25 percent in the United States/Canada and 39 percent in Asia Pacific. This may be due to the fact that more European institutions have important counterparty relationships with institutions in Europe that had been adversely affected by the crisis, such as those in or impacted by Greece, Cyprus, Ireland, and Portugal.

# Regulatory and economic capital

Many large financial institutions calculate the amount of economic capital they need as a buffer in troubled economic times. In order to enhance the measurement of economic capital many regulators and financial institutions are relying more on alternative measures of capital adequacy.

European banks, securities firms, and asset management firms are employing Basel II to assess whether they have sufficient capital reserved. In contrast, in the United States, only the largest banking institutions have been required to comply with Basel II, which they are in the process of implementing. For larger U.S. banks, the program of annual stress tests mandated by Dodd-Frank and managed by the U.S. Federal Reserve provides the key assessment of capital adequacy.

The survey assessed the state of implementation of Basel II and III, the use of stress tests, and calculation of economic capital. The survey also asked insurers about their implementation of Solvency II.

## Basel

Basel II was designed to implement a risk-based standard of regulatory capital, while improving the measurement and management of credit, market, and operational risk. Larger banks tend to use advanced approaches for Basel, and many large U.S. banks are currently in “parallel run,” reporting both Basel I and Basel II results to the regulators. In China, the regulators are implementing Basel II and III simultaneously.

Basel III is designed to provide the financial system with higher levels of tangible capital, more liquidity, and greater transparency.<sup>26</sup> Among other provisions, it will require banks to hold Tier 1 capital of 7 percent of risk-weighted assets, create a more stringent definition of Tier 1 capital, introduce a liquidity coverage ratio in an effort to provide institutions with sufficient liquid assets to survive a 30-day period of a severe recession and stress in the capital markets, and

implement a NSFR designed to encourage institutions to employ more medium and long-term funding. Basel III is scheduled for implementation in a phased approach from 2013 to 2019 (subject to national regulator timelines).

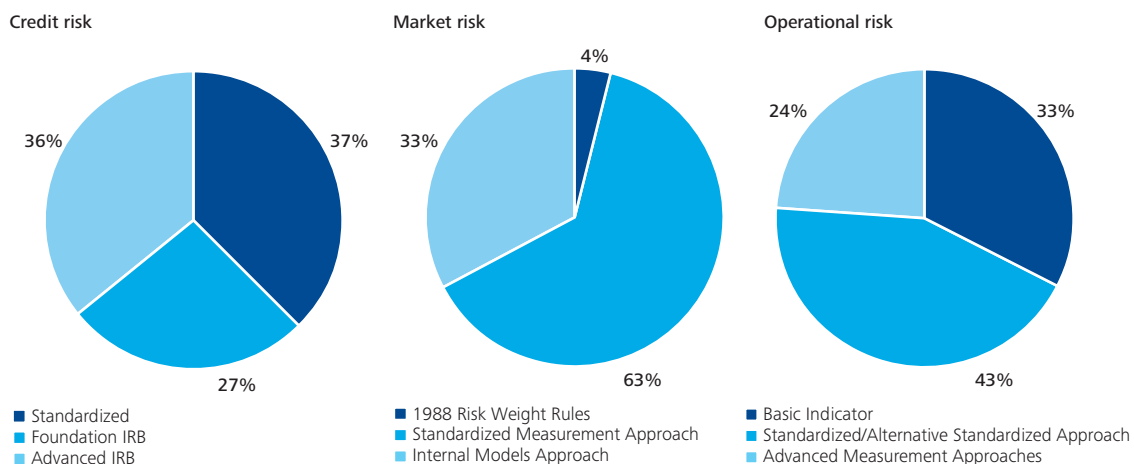
Among the institutions surveyed, 51 percent were subject to Basel II/III regulatory capital requirements, while an additional 17 percent were not subject to these requirements but have voluntarily adopted them. Sixty percent each of institutions in Europe and in Asia Pacific said they were subject to Basel II/III requirements, compared to only 18 percent of U.S. institutions.

Institutions subject to Basel II regulatory capital requirements were asked which approach they were using, or intending to use, for credit, market, and operational risk (Figure 9).<sup>27</sup> Compared to the 2010 survey, some institutions reported using somewhat more advanced approaches.

**Credit risk.** The approaches used by institutions for credit risk were fairly evenly split among Standardized (37 percent), Foundation IRB (27 percent), and Advanced IRB (36 percent). Compared to the 2010 survey, the use of Foundation IRB increased (36 percent in 2012 versus 18 percent in 2010) while the use of Standardized declined (38 percent in 2012 versus 52 percent in 2010). This suggests that institutions are migrating to somewhat more advanced approaches for credit risk under Basel II.

**Market risk.** Most institutions use the Standardized Measurement Approach (64 percent) for market risk, followed by the more advanced Internal Models Approach (33 percent) and the more basic 1988 Risk Weight Rules (4 percent). The Standardized Measurement Approach increased to 64 percent from 51 percent in 2010, while the percentage using 1988 Risk Weight Rules declined from 13 percent to 4 percent.

Figure 9. Which approach does your organization currently use or intend to use for Basel II on a consolidated basis for credit risk, market risk, and operational risk?



**Operational risk.** For operational risk, 33 percent of institutions reported using the Basic Indicator approach, while the somewhat more advanced Standardized/Alternative Standardized Approach was employed by 44 percent. Again, more institutions reported using advanced approaches than in the prior survey. The use of Advanced Measurement Approaches increased to 24 percent from 15 percent in 2010, while the percentage using the Basic Indicator approach declined to 33 percent from 45 percent in 2010.

Large institutions were more likely than small institutions to use the most advanced approaches. For example, 50 percent of large institutions used Advanced IRB for credit risk compared to 20 percent for small institutions, while 67 percent of large institutions reported using the Internal Models Approach for market risk compared to 11 percent for the small institutions.

When asked about the Internal Capital Adequacy Assessment (ICAAP) for Basel II Pillar II, 58 percent of institutions reported using the Economic Capital Approach, while 22 percent used the Pillar I Plus Approach and 13 percent used the Expert Judgment Approach.

Counterparty credit risk is receiving significant attention from regulators and financial institutions: roughly three-quarters of the institutions surveyed have adopted (or intend to adopt) the current exposure method/standardized method for OTC derivatives (77 percent) and for securities financing transactions (70 percent) in Basel II/III, while 14 percent have adopted the Internal Model Method (IMM) for OTC derivatives and 12 percent have adopted it for securities financing transactions. The Internal Model Method for OTC derivatives is a more advanced approach that requires regulatory approval.

Institutions appear to have made significant progress in implementing Basel II (Figure 10). Most institutions said they had completed or largely completed their work on the three pillars of Basel II—Pillar I: Minimum Capital Requirements (81 percent), Pillar II: Supervisory Review Process (78 percent), and Pillar III: Market Discipline Requirements (71 percent).

Institutions reported less progress on Basel III, with less than 20 percent having completed work in any area. However, slightly more institutions said they had either completed work or had little work remaining on Basel III in the following areas—Pillar I: Enhanced Capital Standards (49 percent), Pillar I: Enhanced Risk Coverage (35 percent), and Liquidity Standards: Liquidity Coverage Ratio (LCR) (31 percent).

Institutions have to decide how to organize their efforts to manage and implement Basel III, and most survey respondents said they were basing their efforts on their existing Basel II efforts—mostly leveraging the existing Basel II program office structure (47 percent) or enhancing the existing Basel II program office structure (14 percent). Only 11 percent of institutions indicated that they setting up a separate program office structure for Basel III.

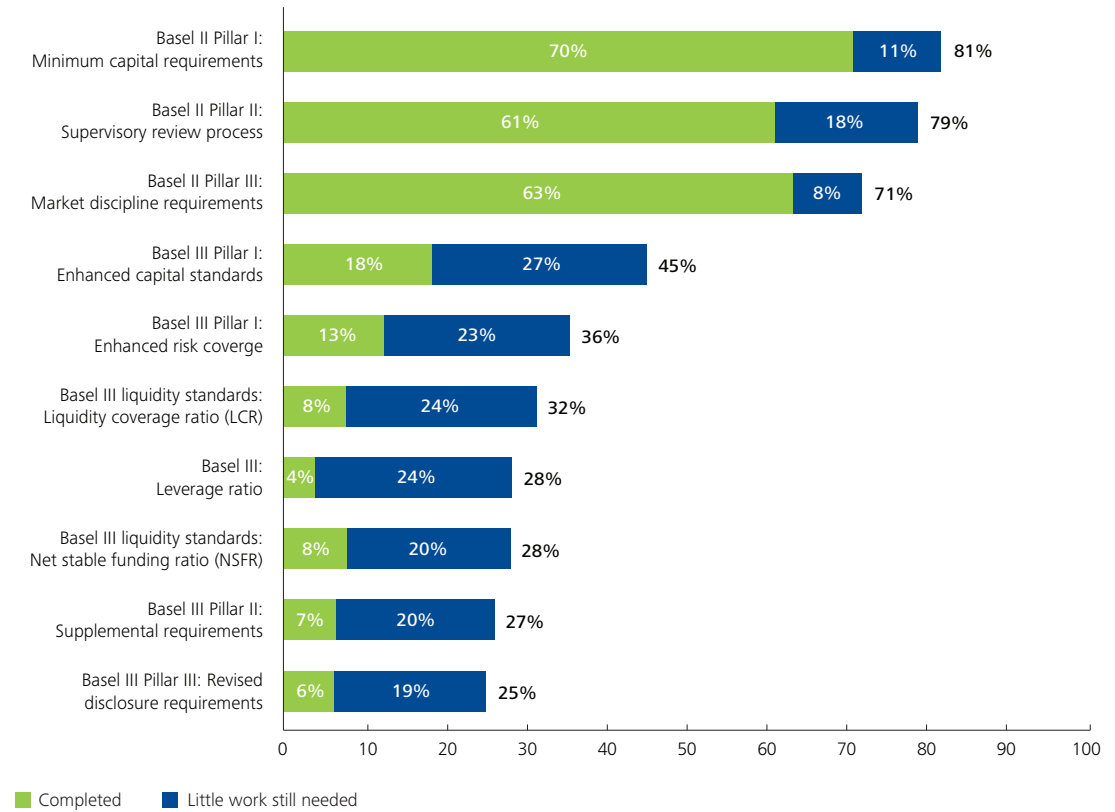
Beyond organization, Basel III presents a number of challenges. The issues most often cited as extremely or very challenging in implementing Basel III were clarity/expectations of regulatory requirements (53 percent), internal resources and capabilities and budget (52 percent), data management (50 percent), and technology infrastructure (45 percent).

Institutions were asked to estimate the percentage of their total regulatory capital requirements for different risk types. For Basel II, institutions estimated that their regulatory capital was allocated among counterparty credit risk (37 percent), other types of credit risk (48 percent), operational risk (11 percent), and market risk (4 percent). For Basel III (pro forma), the percentages estimated were similar to those for Basel II.

Although the requirement to comply with Basel III is being phased in, some observers believe there is a market expectation that institutions should comply sooner rather than later. In fact, some large institutions already calculate Basel III regulatory capital and publish the results in their communications to investors and analysts, stressing they are already in compliance. In the survey, 59 percent of institutions reported that they currently meet the minimum capital ratios of Basel III, while an additional 22 percent expect to meet these minimum capital ratios well before the deadlines.

Basel III has more stringent capital requirements than Basel II and will require institutions to analyze the impact on required capital of their assets. When asked which actions their organization has taken, or is intending to take, to mitigate adverse capital impacts from Basel III, the most popular action was to improve ongoing balance sheet management (59 percent), while another common response was to scale back on capital-intensive portfolios (43 percent). Many institutions also said that Basel III would lead them to reconsider their business strategy, citing they would adjust business models (49 percent), or exit or reduce an existing business area (22 percent).

Figure 10. What level of progress has your organization made with respect to implementing each of the following areas of Basel II/III?



### Solvency II

Solvency II is a capital adequacy regime developed by EU regulators for insurers. As with Basel II, Solvency II uses a risk-based approach and employs a three-pillar approach across a range of risks, in this case market, credit, liquidity, operational, and insurance risk. Solvency II has experienced a series of delays and is not expected to be implemented in full before 2016.<sup>28</sup>

Twenty percent of the institutions surveyed were subject to Solvency II or to similar revised regulatory capital requirements. These institutions were asked how they were complying with these new requirements.<sup>29</sup>

When asked how much flexibility their business units had in implementing the organization’s strategy to meet the requirements of Solvency II, roughly two-thirds of institutions said they have some flexibility, while only 13 percent said they have substantial flexibility. Compared with 2010, the percentage that gave their business units substantial flexibility declined (13 percent in 2012 versus 29 percent in 2010), while the percentage that gave them some flexibility rose (69 percent in 2012 versus 46 percent in 2010). This may be due to the fact that institutions have

completed two more years of implementation, and they are now more involved in the details of implementation than in the overall design of how they plan to comply.

In deploying the resources needed to comply with Solvency II, half of the institutions said they had a dedicated internal risk team in place, up significantly from 35 percent in 2010. In addition, half said that the relevant functions were aware of Solvency II developments and that individuals had been designated to take on the required responsibilities once Solvency II is closer to being implemented, while 36 percent said they were using external assistance to prepare to comply.<sup>30</sup>

Under Solvency II, institutions can either use a standard formula for assessing capital adequacy or instead rely on internal models. Forty-six percent of institutions said they intended to pursue either full or partial internal model approval, a decline from 64 percent in 2010, while those intending to use the standard formula approach rose from 36 percent to 50 percent. It appears that some institutions are switching from internal models to the simpler approach of using a standard formula.

Looking ahead, when asked which areas their organization was planning to focus on over the next 12 months related to Solvency II, the area cited most often was Own Risk and Solvency Assessment (ORSA) (92 percent). Progress appears to have been made on ORSA, although many institutions have work remaining. For example, one-quarter said that some material risks had not yet been considered, down from one-half in 2010; 58 percent said that risk mitigation and transfer arrangements (e.g., reinsurance and derivatives) had been addressed, up from 33 percent in 2010; and 42 percent said the business plan and planning processes had been linked into the ORSA, up from 21 percent in 2010.

Many of the other highly-rated items regarding Solvency II concerned aspects of data collection and reporting: review of the quality of the data used (77 percent), documentation (69 percent), management information (46 percent), data infrastructure and data handling processes (31 percent). Institutions often underestimate the challenges in improving data quality and documentation, and addressing these issues can place an increasing burden on management focus and resources. Another issue cited frequently was validation (54 percent). Institutions are now further along in the process of preparing to comply with Solvency II and are confronting the work involved in improving data quality, reporting, and validation of their models.

### Economic capital

Economic capital may be used to assess an institution's risk profile and provide a tool for allocating capital and assessing risk-adjusted performance. Roughly 80 percent of institutions reported calculating economic capital. Institutions were most likely to calculate economic capital for credit risk (65 percent), market risk (65 percent), operational risk (61 percent), interest rate risk of the balance sheet (60 percent), and counterparty credit risk (54 percent) (Figure 11). Fewer institutions did so for other risk types: liquidity risk (25 percent), strategic risk (21 percent), and systemic risk (12 percent).

Given the focus on the adequacy of capital structures and the use of economic capital in Pillar II for Basel II and Solvency II, one might have expected that the use of economic capital would have grown. However, the percentages of institutions that calculate economic capital for different risk types were similar in 2012 and 2010.

Institutions were asked to estimate the percentages of their total Pillar II capital requirement for different risk types. On average, credit risk accounted for 47 percent of the capital requirement, with much lower portions due to other risk types such as market risk (12 percent), operational risk (9 percent), and interest rate risk of the balance sheet (8 percent).<sup>31</sup>

Institutions use a variety of methods to aggregate risk in order to gain a comprehensive assessment across their organizations. The most common risk aggregation approach was summation, which was used by 61 percent of the institutions participating. Other methods were used much less frequently, including the variance/covariance approach (20 percent), copulas (18 percent), hybrid approach (square root of sum of correlated squares) (14 percent), and square root of sum of squares (6 percent).<sup>32</sup> Large institutions were more likely than small organizations to use more advanced approaches. For example, 38 percent of large institutions used the variance/covariance approach compared to 8 percent of mid-sized institutions and 7 percent of small institutions.

More institutions have their board of directors take an important role in economic capital. In the current survey, 66 percent of institutions said their board of directors was responsible for reviewing economic capital results, up from 47 percent in 2010. Another 20 percent of institutions said senior management was responsible for reviewing economic capital, similar to 2010. As more institutions place this review responsibility with the board of directors, fewer gave the review responsibility to functional areas: risk management (7 percent versus 15 percent in 2010) and finance (2 percent versus 7 percent in 2010). This is a positive trend, suggesting that economic capital reporting and oversight is going to higher levels in most organizations, typically to the board of directors.

Large and mid-size institutions were even more likely to place this review responsibility with the board of directors: roughly 70 percent of these institutions did so compared to 50 percent of small institutions.

Although there has been criticism of the use of economic capital, many institutions continue to use it as an important input to decision-making. The most common uses of economic capital among the institutions surveyed were at the enterprise level to evaluate/allocate economic capital (60 percent), at the board/senior management level for strategic decision-making (55 percent), and at the business unit level to evaluate risk-adjusted performance (52 percent).

Regulators in many jurisdictions are requiring financial institutions to maintain higher regulatory capital reserves than before. This is reflected in the 2012 survey in which 49 percent of institutions said regulatory capital at their institution was greater than economic capital, while only 28 percent reported that economic capital was greater. This is a shift from 2010 when only 26 percent said regulatory capital was greater than economic capital while 63 percent said economic capital was greater.

### Stress testing

Stress testing has become increasingly popular as a tool that financial institutions can use to assess their ability to withstand extreme, but rare, events. The U.S. Federal Reserve and the Office of the Comptroller of the Currency both manage a program that requires annual stress tests of large banking institutions. In 2013, this program will be expanded to include all banks with US\$10 billion or more in assets. More than 90 percent of the institutions surveyed reported that they use stress testing.

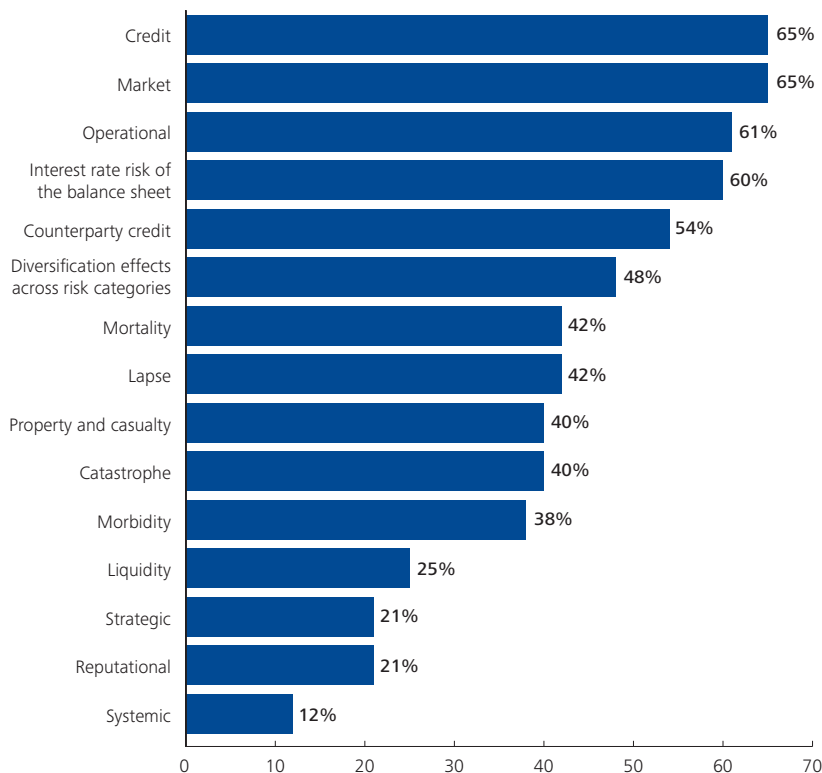
### Implementation of stress testing

Most institutions surveyed have put in place various steps needed to implement an effective stress testing program. For example, most institutions reported they had in place—either fully or partially—written policies governing the stress testing program (74 percent), detailed documentation of the methodologies, processes, and procedures for conducting stress tests (81 percent), senior management committees (such as Risk Committee or Asset-Liability Committee (ALCO)) that oversee the stress testing process (77 percent), and review and approval of stress testing results by senior management and the board of directors (78 percent), which is a regulatory requirement. Some of the items that are more difficult to implement were somewhat less common, although still in place at more than half the institutions: independent reviews by internal audit of the stress testing process, annually or more often (59 percent), and active engagement by senior management and the board of directors in setting stress testing objectives, defining scenarios, and challenging methodologies and assumptions (67 percent).

### Uses of stress testing results

Among institutions that use stress testing, most said they use it in planning and setting strategy within their risk management framework: stress testing enables forward-looking assessments of risk (80 percent), informs setting of risk tolerance (70 percent), and feeds into capital and liquidity planning procedures (66 percent). More tactical uses of stress testing were cited less often, e.g., supports the development of risk mitigation and contingency plans (57 percent) and mitigates limitations of models and historical data (54 percent).

Figure 11. For which of the following risk types do you calculate economic capital?



Large institutions were more likely than small institutions to use stress testing in several areas: to enable forward-looking assessments of risk (89 percent for large institutions versus 67 percent for small institutions), support internal and external communication (89 percent versus 67 percent), to feed into capital and liquidity planning procedures (71 percent versus 47 percent), and to address organization-wide risk concentrations (64 percent versus 27 percent).

Some of the most common uses of the results of stress tests were for regulatory compliance—assessing adequacy of regulatory capital (85 percent) and regulator inquiries (84 percent) (Figure 12). This is consistent with the fact that 61 percent of institutions said that the regulatory guidance within their jurisdiction requires them to incorporate stress testing into a formal, periodic forward-looking capital and/or planning exercise that had a significant impact on their organization’s use of this tool. Regulatory guidance in this area appears to have had more impact for institutions in the United States/Canada (76 percent) than for those in Europe (60 percent) or Asia Pacific (54 percent), which may be due to the fact that U.S. regulators have been active in requiring stringent annual stress tests. Large institutions (75 percent) were also more likely to say that regulatory guidance had a significant impact than were mid-size (56 percent) or small institutions (44 percent).

Beyond responding to regulators, most institutions also use stress testing as a management tool, with 86 percent using stress testing for reporting to senior management, reporting to the board, and understanding their firm’s risk profile.

Eighty-five percent of the institutions said they used stress testing for their enterprise overall, including 55 percent who said it was used extensively in this way. Large institutions (71 percent) were much more likely than small institutions (39 percent) to use stress testing extensively at an enterprise-level. Many institutions also use stress testing for individual business units (65 percent) and for individual portfolios (64 percent), although fewer said they used it extensively at these levels (22 percent and 24 percent, respectively).

**Figure 12. To what extent are the results of stress tests used by your organization for each of the following purposes?**





### Frequency of stress testing

The timetable for stress testing varied. Institutions most often run macroeconomic scenarios provided by their regulators annually (77 percent) because many regulatory jurisdictions examine stress tests annually (although the United States requires large institutions to conduct stress tests semi-annually).

For stress tests on scenarios provided by third parties (e.g., consultants or rating agencies) and for reverse stress tests, roughly 60 percent of institutions conduct these annually, although roughly 30 percent do so quarterly. For internally-defined hypothetical macroeconomic scenarios, most institutions either conduct them annually (48 percent) or quarterly (43 percent). This is a use of stress testing that institutions can control themselves and is done using their own estimates and assumptions on macroeconomic scenarios.

For several risk types, annual stress testing is most common: business and reputational risk (58 percent), property and casualty risk (55 percent), catastrophe risk (53 percent), and operational risk (52 percent). As expected, for more volatile items, stress testing is conducted more frequently. For example, for the trading book, 44 percent of institutions conduct stress testing daily, and 26 percent conduct daily stress testing for structured products. Falling between these extremes, insurance risks are often stress tested monthly such as mortality risk (50 percent), morbidity risk (50 percent), and lapse risk (54 percent).

Interest rate risk in the banking book is most often subject to stress testing monthly (40 percent), which may be due to the fact that many asset-liability committees meet on a monthly schedule.

The time required for organizations to produce consolidated results for their enterprise-level stress tests, beginning with sourcing input data through validation of results and delivery of reports, also varied widely. While 29 percent of institutions said this required less than two weeks, and 30 percent said two to four weeks, 27 percent said it required six weeks or longer. Regulatory requirements, such as the expected level of

modeling granularity or reporting specifications, can have a significant impact on the complexity of stress tests and the time required. Institutions in the United States/Canada reported they required more time to complete consolidated results for enterprise-level stress tests than those in Europe: only 8 percent of institutions in the United States/Canada said they typically can complete these in less than two weeks compared to 41 percent in Europe. Not surprisingly, large institutions also require more time: only 14 percent of large institutions said they completed enterprise-level stress tests within two weeks compared to 59 percent of small institutions.

### Stress testing inputs

The economic inputs to stress testing are most likely to include interest rates (91 percent), followed by GDP (63 percent), housing prices (59 percent), and share price indices (57 percent). Other inputs were used less often such as commercial real estate prices (50 percent), unemployment (47 percent), consumer prices (41 percent), and commodity prices (26 percent).

Some stress testing regimes have regulatory requirements regarding the inputs to be used, which vary by country. In the United States, for example, banks are required to include unemployment and housing prices as inputs. Given these regulatory requirements, one might have expected more institutions to have used these inputs.

### Level of granularity

Institutions were asked to identify the lowest level of granularity for stress tests in their retail credit and their wholesale credit business. For the wholesale credit business, 51 percent of institutions said the lowest level for projecting losses was at the loan level, compared to 19 percent for the retail credit business. It is easier to achieve a more granular view in wholesale credit, where the number of individual loans is fewer and the size of each loan is greater. For retail credit, 23 percent of institutions project losses down to the risk pool level, while 33 percent only project losses to the portfolio level. Even for wholesale credit, however, one-third of institutions only project losses to the portfolio level.

# Management of key risks

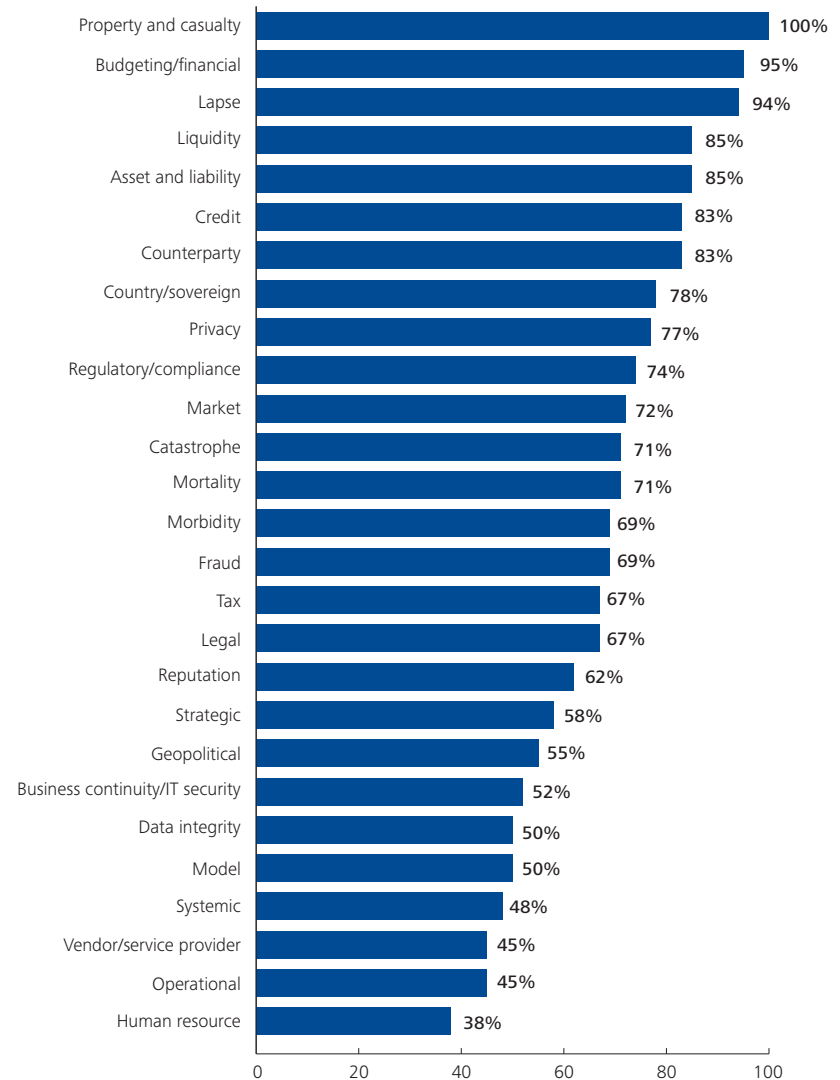
Financial institutions have recognized that their risk management programs may need to expand beyond the traditional focus on market, credit, and operational risk to encompass a broader range of risk types such as liquidity, regulatory, and reputational risk, among others. Beyond addressing new types of risk, they are also reexamining their approach to traditional risk types in the light of recent experience and revised regulatory requirements for capital adequacy and risk reporting.

Overall, 72 percent of the institutions rated themselves as extremely or very effective at managing risk, up somewhat from 66 percent in 2010, with similar ratings by institutions of different sizes. This increase may reflect both the results of several years of effort strengthening risk management programs as well as the memory of the credit crisis somewhat receding. When asked about their effectiveness at managing specific risk types, most institutions rated themselves as extremely or very effective in managing liquidity risk (85 percent), credit risk (83 percent), counterparty risk (83 percent), and market risk (72 percent) (Figure 13). However, they were less confident in their ability to manage other risk types, such as business continuity/IT security risk (52 percent), model risk (50 percent), and data integrity risk (50 percent).

It is notable that relatively few institutions gave themselves a high rating for managing operational risk, which is one of the most important risk categories and is included in Basel II. For operational risk, 45 percent of institutions rated themselves as extremely or very effective, similar to the figure of 47 percent in 2010. Operational risk management has been a continuing challenge, both due to the lack of ability to directly measure operational risk and also to the complexity of the operational processes at many financial institutions.

In the current survey, institutions more often rated themselves as extremely or very effective in managing several risk types than in 2010, including liquidity risk (85 percent in 2012 versus 77 percent in 2010), credit risk (83 percent in 2012 versus 71 percent in 2010), country/sovereign risk (78 percent in 2012 versus 54 percent in 2010). At first glance, it is surprising that institutions rated themselves as more effective at managing country/sovereign risk since this has been a major concern due to the sovereign debt problems in Europe over the last several years. But despite these issues, most financial institutions surveyed believe they are able to effectively manage these risks.

Figure 13. How effective do you think your organization is in managing each of the following types of risks?



## Credit risk

Although credit quality has improved in many locations in recent years, significant issues remain. In the United States, the credit quality of large loans by U.S. banks improved in 2012 for the third consecutive year, with the volume of criticized loans declining 8.1 percent compared to 2011.<sup>33</sup> Although the U.S. unemployment rate remains at a historically high level, among consumers the ratio of debt payments to disposable personal income declined 26 percent from the fourth quarter of 2007 to the fourth quarter of 2012.<sup>34</sup> Financial institutions in Europe face a continuing recession as well as ongoing sovereign debt concerns. In China, discussion of a potential asset bubble has lessened somewhat due to slower growth.

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One of the biggest risk challenges facing the industry right now is in the conduct, behavior, and operational risk areas of risk management. As a CRO, my focus is on instilling the right mix of culture and controls for the organization to help manage integrity and behavior.

CRO, large global financial institution

#### Credit rating agencies

Dodd-Frank in the United States prohibits the use of rating agency ratings for regulatory purposes, and accordingly the reliance appears to be diminishing in the United States. In February 2013, the U.S. Justice Department filed civil fraud charges against one of the major rating agencies, alleging that it intentionally inflated its ratings of mortgage-related securities in the years.<sup>35</sup>

In response to these actions, many of the institutions participating in the survey are taking a more active role in the credit oversight process. More than half of the institutions cited several actions or methodologies they have employed in an effort to reduce their reliance on ratings by credit rating agencies: more review of current financial performance of underlying entity (69 percent), more monitoring of current credit trends and exposures (67 percent), development of internal credit rating methodology (63 percent), more loan underwriting due diligence (56 percent), and more review of economic impacts on underlying assets that could impact performance (50 percent).

There appears to be more momentum in the United States/Canada and Asia Pacific for decreasing the use of rating agencies than in Europe. For example, more than 80 percent of institutions in the United States/Canada and in Asia Pacific said they were conducting more review of the financial performance of the underlying entity in their credit business, compared to 48 percent among European institutions.

#### Credit risk management roles and responsibilities

The institutions surveyed cited a variety of roles as primary responsibilities of their independent credit risk management function. Leading the list of responsibilities was developing and implementing risk management framework, methodologies, and standards (87 percent). Roughly three-quarters of institutions also named several

other primary responsibilities including risk identification, analytics, quantification, and reporting (75 percent), overseeing and participating in risk committees (78 percent), monitoring of risk exposures versus limits (79 percent), and escalating risk issues to the CEO and the board of directors (76 percent).

Given the important role that counterparty credit risk has played in recent years, more organizations appear to see managing this risk as an important responsibility of their credit risk management function. In the current survey, 72 percent of institutions said counterparty rating and limit determination was a primary responsibility, an increase from 62 percent in 2010.

Institutions are also giving their credit risk management function more strategic responsibilities such as developing and implementing risk management framework, methodologies, and standards (87 percent, up from 76 percent in 2010) and escalating risk issues to the CEO and the board of directors (76 percent, up from 71 percent in 2010).

#### Credit risk stress testing

In using stress testing for credit exposures, the factors that institutions most often reported testing were default rates (86 percent), followed by recovery rates (51 percent), and interest rates (48 percent). Not surprisingly, large institutions were more likely than small institutions to stress test factors such as default rates (100 percent for large institutions versus 59 percent for small institutions) and recovery rates (62 percent for large institutions versus 24 percent for small institutions).

#### Counterparty credit risk

Managing counterparty credit risk has been an area of focus for both regulators and financial institutions. In its proposed enhanced prudential standards, for the first time the U.S. Federal Reserve has established counterparty risk limits. The standards prohibit covered companies from having an aggregate net credit exposure to any single counterparty in excess of 25 percent of its regulatory capital and limit the counterparty credit exposure of one banking holding company with total assets of US\$500 billion or more to another bank of this size to no more than 10 percent of regulatory capital. In addition, many financial institutions are working to standardize their counterparty agreements for derivative transactions in an effort to reduce legal costs and also gain more transparency into counterparty risk.<sup>36</sup> Roughly 90 percent of institutions assign responsibility for monitoring counterparty credit risk to their credit risk management or market risk management functions, either singly or in combination. Thirty-eight percent of institutions said this was the responsibility of credit risk management only, 22

percent assigned it to market risk management only, while 29 percent said it was shared by both functions. Because small institutions typically have less involvement in trading activities, market risk is less often involved in overseeing counterparty credit risk at small institutions (38 percent) than at large institutions (54 percent).

#### **Internal Capital Adequacy Assessment Process (ICAAP)**

With the release of the “Comprehensive Capital Analysis and Review 2013,” the U.S. Federal Reserve further detailed supervisory expectations on the required elements of a sound internal capital adequacy process.<sup>37</sup> When asked which items were included in their ICAAP self-assessment process for setting and assessing capital adequacy goals related to credit risk, institutions were most likely to cite capital planning and stress testing (79 percent) and risk tolerance/appetite (77 percent). This reflects a continued focus from both regulators and institutions on incorporating appropriate controls into the stress testing and capital planning process to make it repeatable, on articulating capital triggers and buffers as part of a sound risk framework, and on evaluating stress testing results relative to these triggers and the institution’s stated risk tolerance/appetite. In addition, roughly half the institutions include risk translation and capital adequacy duration in their ICAAP process. This tends to reflect the focus on capturing all material risks and their translation into loss estimates over adverse scenarios and on measuring capital adequacy over an adverse scenario of nine quarters.

#### **Market risk, liquidity risk, and asset liability management**

##### **Value at Risk (VaR)**

VaR has been both a widely used and also widely criticized tool to assess risk. Despite the criticisms of VaR, most institutions reported using it for many major asset or risk classes including fixed income (79 percent), foreign exchange (75 percent), equity (72 percent), and asset-backed securities/structured products (61 percent). Interestingly, the asset class where the use of VaR increased since 2010 was asset-backed securities/structured products (61 percent in 2012 versus 47 percent in 2010).

When institutions use VaR to measure and monitor market risk, roughly half reported the methodology they use is historical simulation: full revaluation. This methodology often generates more intuitive results for management to review since it calculates the results based on previous actual market activity. Also, it is seen as a methodology that requires less judgment and hence is less susceptible to bias. Roughly one-quarter each of institutions said that their VaR methodology employs historical simulation: sensitivity based and Monte Carlo simulation: full revaluation.

##### **Liquidity risk and asset liability management**

Basel III introduces a liquidity framework that mandates institutions comply with quantitative and qualitative liquidity standards. To meet the new liquidity requirements, institutions felt significant investment would be required in development of cash flow projections and regular stress testing of the projections (40 percent), pure technology enhancements to capture data across the enterprise and enhance analytical view (38 percent), and preparing the board of directors to meet regulatory expectations relative to liquidity oversight (30 percent).

The strategies most often rated as among the top two strategies for compliance with the liquidity coverage ratio in Basel III were building additional reserves of liquid assets (such as high-rated bonds) (53 percent), increasing funding via deposits (42 percent), and modifying the composition of the balance sheet to reduce long-term assets (33 percent).

Roughly half of the institutions reported they conduct analyses for asset liability management purposes monthly for a series of items including sensitivity analysis of net interest income, sensitivity analysis of economic value of equity (EVE), earnings at risk, and equity at risk. This may be due to the fact that many asset liability management committees also meet monthly. Roughly one-quarter to about one-third of institutions conduct each of these analyses quarterly.

##### **Independent price verification**

When markets function normally and instruments are frequently traded, values can be assigned by using market prices. When markets lack liquidity, however, there may not be sufficient buyers or transactions to determine market prices. Valuation challenges, such as with structured products, highlight the need for an independent price validation function to assess whether values are reasonably estimated using market information.

Eighty percent of the institutions reported they had an independent price verification function. However, institutions follow a variety of approaches on where this function is located. What is important is that the price verification function be located in an independent function rather than with the business. Institutions said they located their independent price verification function in the risk management organization (36 percent), product controller/finance area (27 percent), middle office (16 percent), or back office (11 percent).

### Operational risk

The inclusion of operational risk in the Basel II capital framework made it a higher priority, and many institutions have created or expanded their programs for managing operational risk. But such regulatory-driven efforts may focus more on measurement and capital than on helping institutions identify and manage operational risk. A number of recent management breakdowns and cyberattacks on financial institutions have underscored the important impacts that operational risk events can have on an institution's reputation.

Financial institutions face significant challenges in implementing a program to monitor the management of operational risk at the business unit. In addition to periodically testing and monitoring business unit management of operational risk, risk management needs to embed quality assurance and quality control procedures into the testing process so that it can demonstrate its effectiveness. Audits of the management of operational risk should not only address the lines of business but also encompass the monitoring procedures used by the risk management function.

At many institutions, an operational risk management program is still under development. Most institutions have either fully or substantially implemented some of the basic steps in an operational risk management program by identifying risk types (81 percent) and gathering relevant data, such as key risk indicators and loss data (60 percent). However, no more than about half the institutions had taken other necessary steps: standardizing documentation of processes and controls, developing operational risk mitigation strategies including insurance, developing methodologies to quantify risks, and creating metrics for monitoring each type of operational risk. Put another way, roughly half the institutions had not completed these important aspects of an operational risk management program. Further, there was little change in the percentages of institutions implementing various aspects of operational risk management in the current survey compared to 2010.

One explanation for the lack of progress may be the impact of responding to new demands on risk management in recent years, leading many institutions to increase their focus on governance, liquidity risk, stress testing capabilities, and regulatory risk. The result may have been a shifting of management attention and resources away from operational risk to these other priorities.

In assessing the extent of development of a series of operational risk methodologies at their organizations, institutions were most likely to rate as extremely or very

well developed risk assessments (58 percent) and internal loss event data/database (55 percent) (Figure 14). Risk assessments are simpler to achieve and have traditionally been more common than other approaches, and an internal loss event data/database is a fundamental building block needed by operational risk management programs to develop loss history.

Since some operational risk events are rare, there may be little internal data on their occurrence and thus institutions need to consult external data to assess their frequency and potential impact. In the current survey, 30 percent of institutions said their external loss event data/database is extremely or very well developed (up from 24 percent in 2010), while an additional 36 percent described it as somewhat developed (up from 23 percent in 2010). Developing external data on operational risk can be challenging. More institutions are engaging vendors to provide this information or are subscribing to event databases. As they build a history of data on loss events, external operational loss event databases are gaining acceptance.

A significant percentage of institutions also said other advanced approach techniques were extremely or very well developed at their organization, such as scenario analysis (38 percent, up from 30 percent in 2010) and causal event analysis (34 percent). Three-quarters of institutions reported conducting scenario analysis at the enterprise level, with 66 percent conducting it at the business unit level and 47 percent for product types. Among institutions that conduct scenario analysis, roughly two-thirds employ a mix of quantitative and qualitative scenario analysis, while roughly 20 percent use a quantitative approach.

Only 10 percent of institutions said they employed a qualitative approach to scenario analysis at the enterprise level, down from 26 percent in 2010. This is a positive development because a purely qualitative approach to scenario analysis is not as advanced.

In capital calculations for operational risk management, scenario analysis is a leading practice that helps organizations to assess risks associated with low-frequency, high-severity events. Institutions increasingly conduct tabletop exercises in an effort to assess whether they could have anticipated such an event and whether they would have been able to manage it. For operational risk, institutions said they were most likely to use scenario analysis for ICAAP purposes (59 percent) and to fit external events to the company's environment, considering its business environment and internal control factors (52 percent).

Basel II requires institutions to consider operational risk in allocating regulatory capital, and large institutions will often use their internal models for these calculations. Among large institutions, 43 percent said they used scenario analysis for AMA model calibration and 35 percent as an input to qualitative adjustments to the AMA model. Effective operational risk management depends on having robust technology systems. When asked to assess their institution’s operational risk management technology platform, 48 percent of respondents said their platforms were extremely or very capable for risk assessments. The higher rating given to capabilities in this area is understandable since operational risk technology platforms are often specifically designed to conduct such assessments.

Roughly 40 percent of institutions said their technology capabilities for reporting, data gathering, and operational risk capital calculations were extremely or very capable. Notably, less than half of respondents considered their organization’s operational risk technology capabilities as very capable in any area, and there was little progress compared with the assessments in the 2010 survey.

Although executives from large institutions were more likely than those from small institutions to give high ratings to their technology capabilities, less than half considered their operational risk technology platform to be extremely or very capable. For example, only 48 percent of executives from large institutions said their platform was extremely or very capable in operational risk capital calculations (compared to 15 percent at small institutions), while 45 percent gave themselves this rating for causal event analysis (compared to 9 percent for small institutions).

Institutions were also asked about the inputs they use into their operational risk capital models. The inputs used most often in operational risk capital models were internal loss data (82 percent), risk self-assessments (70 percent), and scenario analysis (63 percent).

There appeared to be progress in the range of inputs being used in these models. As mentioned above, more institutions appear to be employing external loss data in operational risk management, and the percentage that said they employed such data as inputs into their operational risk capital models increased to 55 percent from 39 percent in 2010. The percentage using internal loss data also increased to 83 percent from 74 percent in 2010.

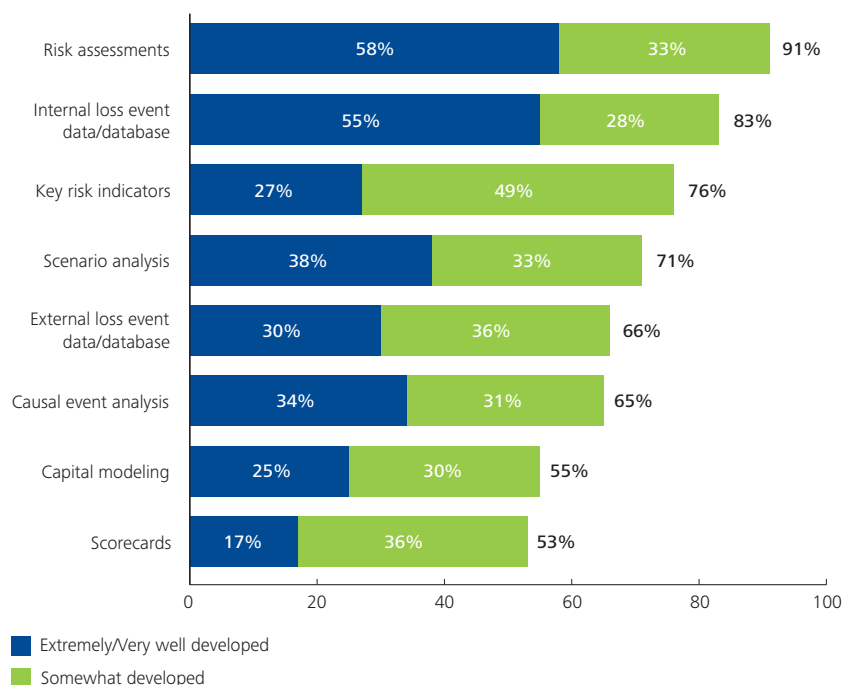
ERM is intended to provide organizations with a comprehensive view and approach to managing all the significant risks they face, including operational risks. Operational risk management should be integrated with ERM rather than being a standalone process.

Most institutions said they have integrated their operational risk management and ERM programs, either completely or in part. Roughly half the institutions said their operational risk management program is a key component of their ERM program and fully integrated, while 28 percent said operational risk management is integrated with select risk management activities (e.g., Sarbanes-Oxley program and regulatory compliance) but not fully integrated into ERM.

Roughly half of respondents said they were extremely or very concerned about managing a series of operational risk event types under Basel II: clients, products, and business practices (52 percent), internal fraud (48 percent), business disruption and system failures (46 percent), external fraud (46 percent), and execution, delivery, and process management (45 percent). For some large operational risk events, multiple operational risk event types are involved, making the classification and management of these events more difficult.

Institutions operating in the United States and the United Kingdom may be especially concerned about operational risks resulting from clients, products, and business practices due to the regulatory requirements being administered by newly-created consumer protection agencies. In the

**Figure 14. How well developed are each of the following operational risk management methodologies at your organization?**



United States, the Consumer Financial Protection Bureau has promulgated new rules on a variety of financial products including mortgages and credit cards. In the United Kingdom, the Financial Conduct Authority has instituted cases that penalize institutions for alleged “mis-selling” of financial products.

### **Investment management risk**

Roughly half of the institutions reported providing investment management services, and these institutions were asked a series of questions about their use of service providers, measurement of investment management risk, and related challenges.<sup>38</sup>

Risk management concerns are a top priority for institutions providing investment management services.<sup>39</sup> Almost 90 percent of institutions said that risk management concerns and issues were either extremely important (27 percent) or very important (61 percent) in their organization’s decision-making processes. In measuring investment management risk, institutions were most likely to use performance against a benchmark (86 percent), absolute return (69 percent), or mandate breaches (69 percent), while the Sharp ratio (41 percent) was used less often.<sup>40</sup>

Most institutions reported using a variety of key risk indicators (KRIs) for their investment management risk program. Not surprisingly, the most common KRI cited was investment risk (e.g., benchmark tracking, mandate adherence, etc.) (84 percent), which was followed closely by credit risk (e.g., counterparty, rating changes, etc.) (77 percent).<sup>41</sup> Several other KRIs were also used by half or more of institutions: market risk (e.g., VaR, Greeks), operational risk (e.g., material losses, errors, exceptions), and business risk (e.g., adherence to business plan).

### **Service providers**

Investment management firms often rely on a complex web of third-party service providers, and institutions providing investment management services reported their reliance on vendors is increasing. Forty-four percent of institutions said their use of distributors and administrators had increased over the last three years, with roughly one-third reporting more use of custodians and prime brokers. Few institutions said they used any of these types of service providers less than before. Many institutions said they were now using custodians more for risk management services (42 percent), such as reporting, and for regulatory services (50 percent), such as compliance with the Foreign Account Tax Compliance Act (FATCA) and filing Form PF with the U.S. Securities and Exchange Commission.

Most institutions said they were satisfied with their service providers. Roughly 80 percent of institutions were extremely or very satisfied with their custodian and with their transfer agent, while roughly 70 percent said the same about their prime broker and their distributor. A relatively small number of larger firms dominate the market for these services. Many service providers are seeking to expand their market share by providing more valuation and risk management services and by broadening their product and geographic coverage.

Institutions face a variety of risks associated with their service providers including a failure to perform, theft or inadvertent release of personally identifying information on clients, dissemination of intellectual property (such as on strategy or trades), and regulatory breaches (such as on anti-money laundering requirements) to name a few. Although most institutions were satisfied with their service providers, some believed they faced a significant risk of non-performance and have strengthened their vendor risk management program accordingly. Forty percent of institutions believed they had high potential exposure to the risk of non-performance by their custodian and 35 percent for their administrator. For other types of service providers, there was less concern. Only 13 percent felt they had high exposure to potential non-performance by their distributor, 20 percent for their prime broker, and 23 percent for their transfer agent.

Many institutions have become more concerned about the impact on their business if their custodian or prime broker were to fail or to become unable to provide services. As a result, many institutions have begun to use multiple providers in these areas. Using multiple service providers can help reduce the potential risks if one provider encounters problems; and by introducing competition among possible providers, institutions are more able to secure favorable pricing or services.

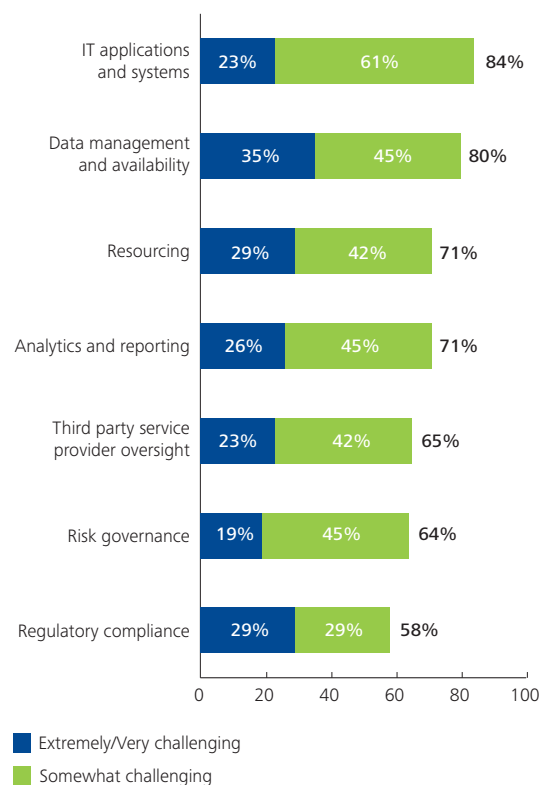
Institutions were divided on their assessments of their oversight of service providers—while half rated themselves as extremely or very effective, the remaining half felt they were only somewhat effective (44 percent) or not effective (6 percent). Given that many institutions do not consider their oversight programs to be especially effective, it is not surprising that almost two-thirds said it was either extremely/very likely (31 percent) or somewhat likely (28 percent) they would make material changes to their oversight program during the next 12 months.

Given resource constraints, investment management firms are finding the importance of taking a risk-based approach to the oversight of their service providers. Many institutions are seeking to understand the key risks associated with each provider and defining metrics and thresholds to focus their oversight efforts on the service providers and specific activities that pose the greatest risks.

### Investment risk management challenges

There is a wide disparity of risk maturity across investment management firms. Less than half of the respondents considered any issue to be extremely or very challenging for their investment risk management function, although most institutions considered these issues to be at least somewhat challenging (Figure 15). The issues most often considered as extremely or very challenging were data management and availability (35 percent), regulatory compliance (29 percent), and resourcing (29 percent). In addition, 23 percent of institutions rated IT applications and systems as a significant challenge.

**Figure 15. How challenging are each of the following for the investment risk management function in your organization?**



Institutions providing investment management services face significant data and infrastructure challenges. Ensuring data quality and consistency can be difficult, especially when institutions maintain separate systems across market, credit, and operational risk. There is a trend to adopt uniform data standards, but institutions can find this to be difficult to achieve when they are pursuing a global strategy to capture market share. Going forward, many institutions may need to invest additional resources to upgrade their IT infrastructure.

Given the importance of risk considerations for board of directors and senior management, the presentation of risk information has become as important as the risk data itself. Many institutions are using aggregation and visualization tools, such as risk maps and dashboards, to present information in formats that can be used more easily by decision-makers.

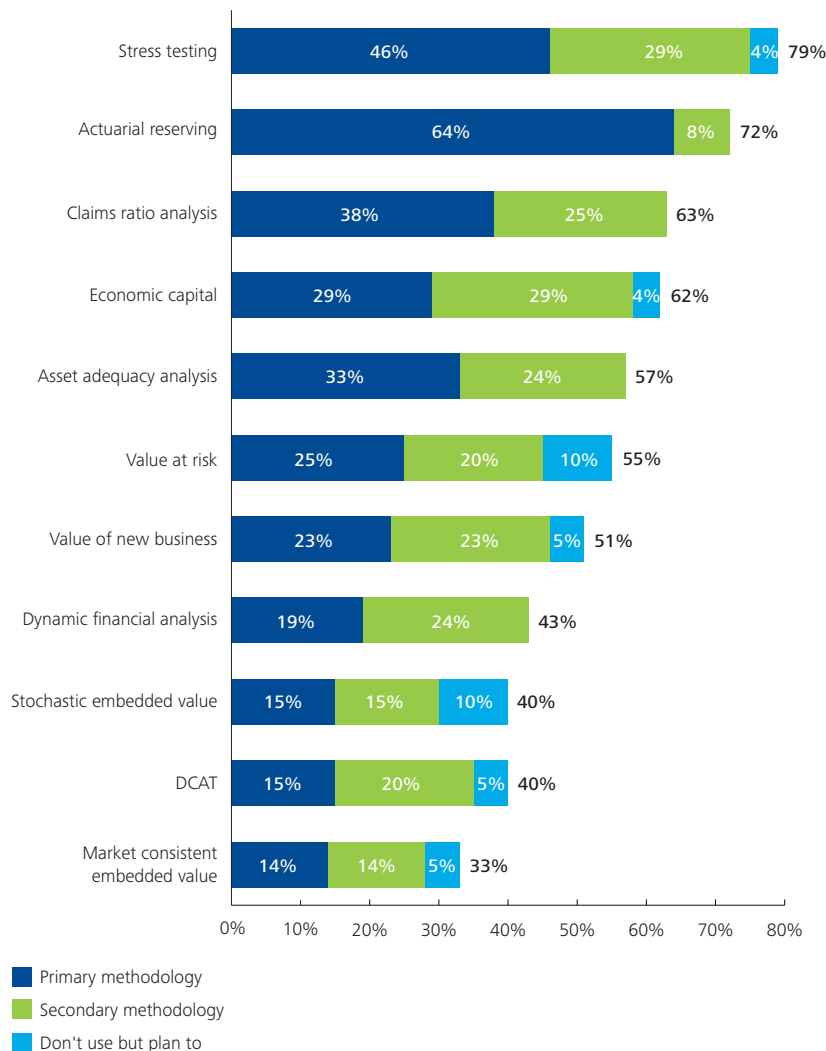
### Insurance risk

Risk management in insurance firms is undergoing significant change, driven in part by numerous regulatory developments. In October 2011, the International Association of Insurance Supervisors (IAIS) issued a set of global standards for effective insurance regulation, which address a variety of issues including broader reporting requirements at the group level, risk-based capital adequacy standards, and requirements to demonstrate the ability to manage risk.<sup>42</sup>

Solvency II, which applies to insurance companies in the EU, is modeled on Basel II and will implement risk-weighted capital adequacy regime addressing a market risk as well as liability risk, with a range of capital charges based on the perceived level of risk in different asset types.<sup>43</sup> Solvency II is not expected to be implemented in full until 2016. There are also similar initiatives in other locations, for example, in the United States, the National Association of Insurance Commissioners (NAIC) launched a Solvency Modernization Initiative in June 2008 that is focused on five key solvency areas: capital requirements, international accounting, insurance valuation, reinsurance, and group regulatory issues.<sup>44</sup> The NAIC's ORSA regulations will become effective in 2015 as states adopt its Risk Management and Own Risk and Solvency Assessment (RMORSA) Model Act. The goals of ORSA are to foster an effective level of enterprise risk management and to provide a group-level perspective on risk and capital to supplement the existing legal-entity review. One of the expected impacts of ORSA is that insurers and their regulators will be assessing solvency needs on a rolling basis, rather than only every few years.<sup>45</sup>



Figure 16. To what extent does your company use the following methods to assess insurance risk?



Regulatory bodies are also focusing more on large insurers considered to be systemically important. The Financial Stability Board published a list of systemically important insurers in July 2013. In March 2013, the IAIS announced that it would not apply a systemic-risk capital charge to the entire balance sheet of systemically important insurers, but only to their “non-traditional” activities such as investments in derivatives, securities lending, and investments in illiquid assets.<sup>46</sup> These capital charges are expected to be applied beginning in 2019.

In the survey, 40 percent of the institutions participating provide insurance services, and these institutions were asked a series of questions concerning how they manage insurance risk.<sup>47</sup> These institutions included 12 percent who said their primary business was insurance, with life insurance being the most common sector (7 percent). In addition, another 28 percent of institutions were in other sectors but also provide insurance services.

Institutions providing insurance services reported using a variety of methods to assess insurance risk, with many institutions using more than one method (Figure 16).<sup>48</sup> The most common method was stress testing, which was used as either a primary or secondary methodology by 75 percent of institutions, compared to 63 percent in 2010. Institutions said they most often conduct stress tests on interest rates (85 percent, up from 78 percent in 2010), lapse (70 percent), and mortality (65 percent).<sup>49</sup> Other methods that were often used in assessing insurance risk included actuarial reserving (72 percent, economic capital (58 percent), and claims ratio analysis (63 percent).

Institutions use a variety of organizational structures for managing different types of insurance risk. For example, the actuarial function most often had the primary responsibility for pricing risk (45 percent) and catastrophe risk (41 percent), while underwriting most often was cited for insurable event risk (33 percent). For several risk types, however, no function was named by more than one-quarter of institutions. For example, the functions cited as having primary responsibility for concentration risk were underwriting (25 percent), ERM (19 percent), actuarial (19 percent), product development (10 percent), and internal audit (5 percent), while 24 percent cited other functions.

The ORSA requirements will provide an opportunity for insurers to more effectively manage this range of risk types by enhancing ERM, risk data, and validation processes, and by aligning risk management with capital planning and business strategy. To create the holistic view of risk that is required, many insurance firms are working to create integrated ERM frameworks and are employing cross-functional teams that include actuarial, risk management, underwriting, and finance. In addition, internal risk models, advanced analytics, and stress testing are becoming more important for managing risk exposures and as inputs into strategic decisions.

## Regulatory risk

Over the last several years, there has been an avalanche of regulatory reform including Dodd-Frank in the United States, the Basel III framework for banks, and Solvency II for European insurers, among other developments. However, the detailed rules and regulations required to implement many of the most important changes have not been finalized. As a result, the pace of regulatory change continues unabated, creating significant uncertainty for financial institutions.

When asked how they had changed how they address regulatory concerns in the jurisdictions where they operate, many institutions said they meet with regulators more often (73 percent) and communicate issues in a more timely manner (55 percent) (Figure 17).<sup>50</sup> With many of the revised regulatory requirements focusing on systemically important institutions, large institutions were more likely to say that they were meeting with regulators more often (93 percent) than were small institutions (56 percent).

Roughly half of institutions also said they enhanced their infrastructure to support heightened scrutiny that has resulted from regulatory reform. This is a sharp increase from the 38 percent of institutions that said they had upgraded infrastructure in the 2010 survey.

Institutions reported a range of approaches in how they structured their relationships with their regulators. One-third of institutions said they have a formal program, while 45 percent do not have a formal program but do have a regulatory liaison function, and 22 percent have neither.

Fifty-three percent of institutions said they meet with their key regulators as needed or requested, while 25 percent meet with them on a predetermined schedule. In addition, 21 percent of institutions have regulatory oversight onsite. In some jurisdictions, such as the United States, the United Kingdom, and Canada, it is common for large institutions in banking and securities to have resident examination teams.

Many institutions cited significant impacts on their organizations as a result of regulatory reform in the major jurisdictions where they operate (Figure 18). It appears these impacts have increased since 2010 as institutions have made the changes required to comply. Regulatory change has resulted in 65 percent of responding institutions noticing an increased cost of compliance an increase from 55 percent in 2010. In addition, the requirements of Basel II/III and mandated stress tests have led institutions to alter their businesses by maintaining higher capital (54 percent, up from 41 percent in 2010), adjusting certain product lines and/or business activities (48 percent, up from 24 percent in 2010), and maintaining higher liquidity (37 percent, roughly the same as in 2010).

In the United States, regulatory oversight has become more extensive and complex with the many provisions of Dodd-Frank (including the Volcker Rule, banning proprietary trading by banks), stress tests conducted by the Federal Reserve, and new rules on mortgages imposed by the Consumer Financial Protection Bureau. This is reflected in the survey results where 88 percent of institutions in the United States/Canada reported an increased cost of compliance compared to 60 percent of those in Europe and 52 percent of those in Asia Pacific.

As noted, many of the new regulatory requirements are focused on large institutions that have more complex operations and are considered systemically important. However, large institutions also have more resources and in many cases more robust infrastructures. In contrast, the new regulatory requirements may impose a greater burden on small institutions since they typically have fewer resources, less specialized expertise, and less developed infrastructures. Further, small institutions cannot benefit from the economies of scale available to large institutions when technology systems have to be upgraded or changes made to business processes or reporting. This may explain why 78 percent of the small institutions participating said they had experienced an increased cost of compliance, compared to 62 percent of the mid-size institutions and 59 percent of the large institutions.

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**A key challenge, for us and for our clients, is changing and increased regulatory expectations: regulators are continuing to raise the bar.**

**CRO, global brokerage firm**

On the other hand, large institutions are more likely to find themselves in capital markets and be engaged in business activities with higher levels of risk. For this reason, 67 percent of large institutions said that regulatory reform had led them to maintain higher levels of capital compared to 39 percent of small institutions; 48 percent of large institutions said they were maintaining higher liquidity compared to 22 percent of small institutions.

What are the key concerns that institutions have about the potential impact to their organizations of new supervisory and regulatory processes? Institutions were most likely to

say they were extremely or very concerned about tighter standards or regulations that will raise the cost of doing existing business (57 percent). Other issues that were often cited as major concerns were more intrusive and intense examinations (42 percent), regulators' increasing inclination to take formal and informal enforcement actions (37 percent), new restrictions or prohibitions on profitable activities that will require a significant change in business model or legal structure (34 percent), and heightened focus on consumer protection compliance systems (32 percent).

Figure 17. In light of market conditions and global regulatory reform, in which of the following ways has your organization changed how it addresses/manages regulatory concerns in the jurisdictions in which it operates?

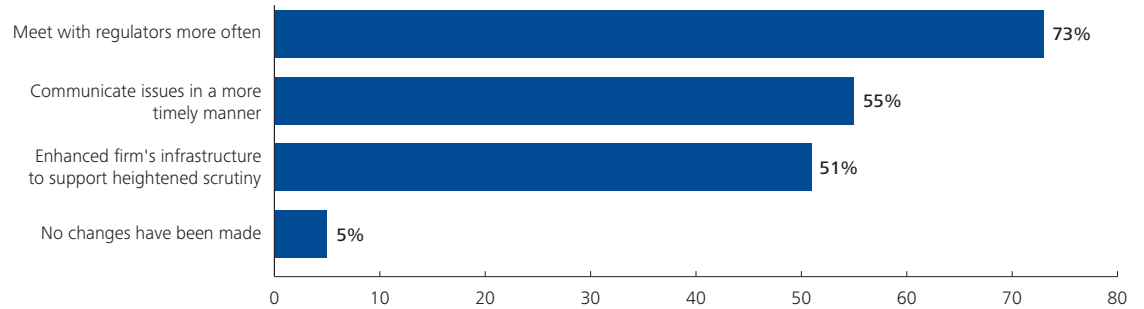
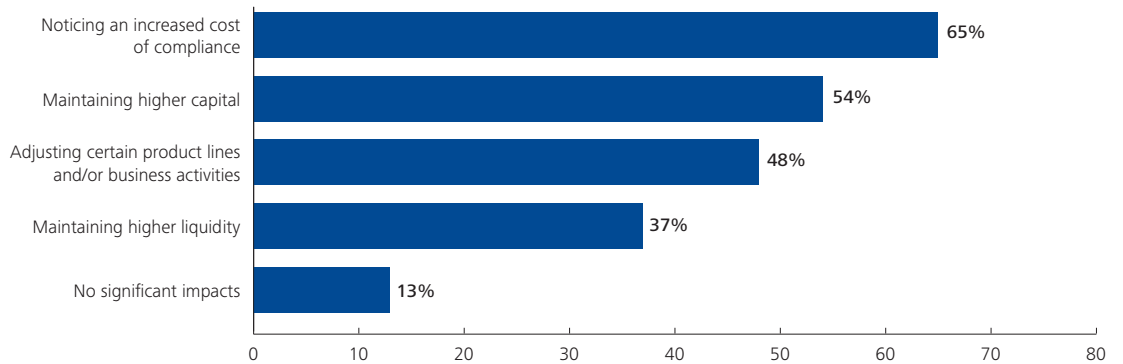


Figure 18. Which of the following impacts on your organization have resulted from regulatory reform in the major jurisdictions where it operates?



# Risk management systems and infrastructure

Robust management information systems provide a foundation for an effective risk management program. Institutions require the ability to quickly gain a comprehensive picture of their overall risk profile, as well as the risks associated with specific counterparties. The importance of a holistic view of risk across an institution, and the difficulty for some institutions to achieve it, was recognized in the October 2009 Senior Supervisors Group report, which cited the complexity of the financial industry's technology infrastructure as a key hindrance in identifying and measuring risk with the financial system.<sup>51</sup>

Risk analytics and management reporting often depends upon access to accurate and granular risk data on such issues as counterparty exposure and individual transactions. At many institutions, achieving these goals will require additional investments in improving data quality and in integrating data in a consistent manner from a variety of sources both within the organization and from external sources such as market data and deal updates. Institutions need to better harness the vast array of available data to generate information that is timely and actionable.

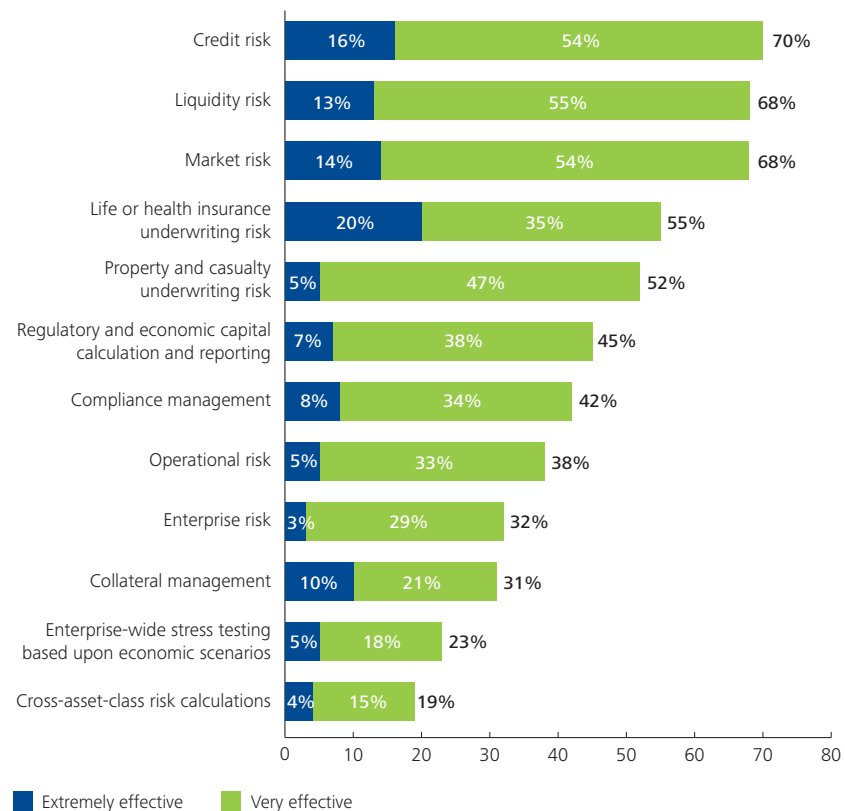
The wave of new regulatory requirements has further increased the demands on risk management infrastructure. To respond, risk management information systems need the ability to generate enhanced reporting, assess regulatory capital, calculate liquidity coverage ratios, and conduct stress tests. As regulators require that more derivatives trading be conducted through central clearing facilities, technology systems will need to be revised accordingly. Further, the ongoing process of rule-making to implement new regulations means that institutions will need to flexibly revise and scale their technology systems as regulations are finalized and compliance dates are established.

Despite the many challenges to risk management information systems, it was surprising that many respondents considered their systems to be very effective in managing some key risk types (Figure 19). For example, more than two-thirds of respondents considered their institution's risk management systems to be extremely or very effective at managing credit risk (70 percent), market risk (68 percent), and liquidity risk (68 percent). However, some important areas received much lower ratings including operational risk (38 percent), enterprise risk (32 percent), and enterprise-wide stress testing based upon economic scenarios (23 percent).

As another indication that significant improvements may be required at many institutions, when asked about the capabilities of their institution's data strategy

and infrastructure, no more than one-third rated their institution as extremely or very effective in any area (Figure 20). Further, in several areas, fewer respondents rated their institution as extremely or very effective in 2012 than did so in 2010: data marts/warehouses (18 percent versus 28 percent in 2010), data management/maintenance (20 percent versus 37 percent in 2010), data process architecture/workflow logic (23 percent versus 33 percent in 2010), and data governance (ownership, accountability, etc.) (28 percent versus 38 percent in 2010). One explanation may be that institutions are now confronting the realities of meeting the increased demands on risk management data from new regulatory requirements. For example, global systemically important banks are subject to the risk data and aggregation principles released by the Basel Committee in January 2013, which are designed to "enhance the management of information across legal entities, while facilitating a comprehensive assessment of risk exposures at the global consolidated level."<sup>52</sup> Complying with these more stringent data aggregation standards may require many institutions to improve their risk data infrastructure.

Figure 19. How effective do you think your risk management systems are in the following areas (whether developed by a vendor or internally)?



Institutions cited a number of concerns about their risk management information technology systems (Figure 21). Leading the list of issues was risk data quality and management, with 79 percent of institutions at least somewhat concerned, including 40 percent who were extremely or very concerned. Creating consistent data standards is a challenge for financial institutions, which often source data from multiple locations with incompatible data formats. Further, departments within an institution may not realize that they both have a relationship with the same counterparty because each may do business with a different business unit or subsidiary. The Financial Stability Board and the U.S. Office of Financial Research have proposed that a Legal Entity Identifier (LEI) be created to uniquely identify entities that engage in financial transactions as a means to increase transparency in the financial system.<sup>53</sup> Implementing an LEI will likely require new internal processes and standards for legal entity definition and will need to be integrated into virtually every system that references counterparty data fields.

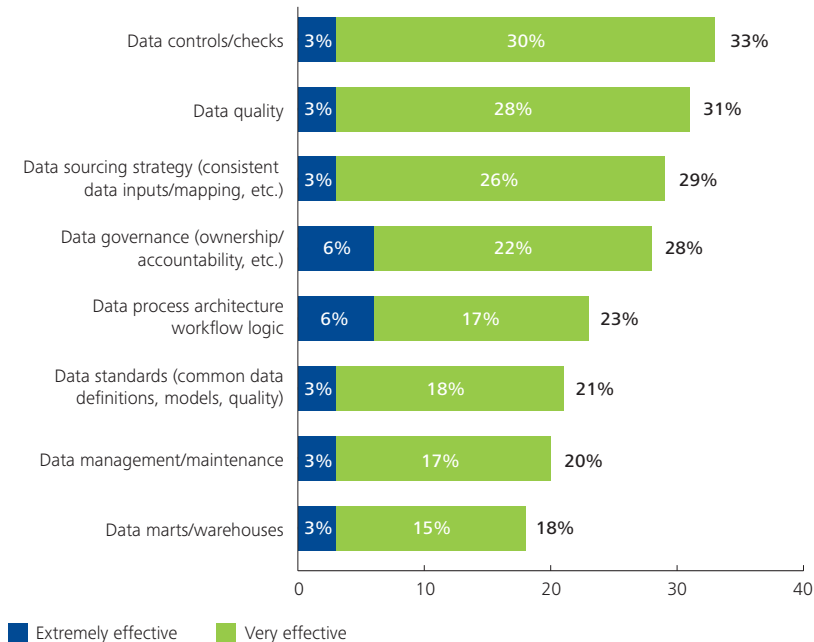
Related to this issue were concerns over a lack of integration among systems (75 percent extremely/very/somewhat concerned) and an inability to integrate risk analytics from multiple risk systems (63 percent extremely/very/somewhat concerned). Many institutions maintain different information systems for specific products or geographies, sometimes due to past acquisitions, and it can be difficult and expensive to combine their output or else to replace them with an integrated information system.

Other top concerns addressed the ability of institutions to easily upgrade or revise their systems: risk technology adaptability to changing regulatory requirements (78 percent extremely/very/somewhat concerned) and lack of flexibility to extend the current systems (70 percent extremely/very/somewhat concerned). The pace of regulatory change has placed a premium on the ability of organizations to have risk systems that can respond quickly to new requirements. This appears to be a concern especially for larger institutions: 40 percent of large institutions said they were extremely or very concerned about the ability of their risk technology to respond to new regulatory requirements, as did 44 percent of mid-size institutions and only 12 percent of small institutions.

Although roughly three-quarters of institutions have strategies to address specific infrastructure deficiencies, few respondents said their strategies were very well developed in several areas related to risk data: data warehousing and transformation (9 percent), data sourcing (6 percent), and risk data quality and management (6 percent).

To address these deficiencies, institutions reported a number of investment priorities to enhance their risk technology capabilities. Investments to improve the quality and consistency of risk data were often cited as priorities, and these were named more often than in 2010: risk data quality and management (63 percent versus 48 percent in 2010) and enterprise-wide risk data-warehouse development (51 percent versus 35 percent in 2010). Many institutions said they planned to make significant investments to improve risk data: 46 percent expected to make a major investment over the next 12 months in risk data quality and management, up from 34 percent in 2010.

Figure 20. How effective do you think your organization is in the following aspects of risk data strategy and infrastructure?

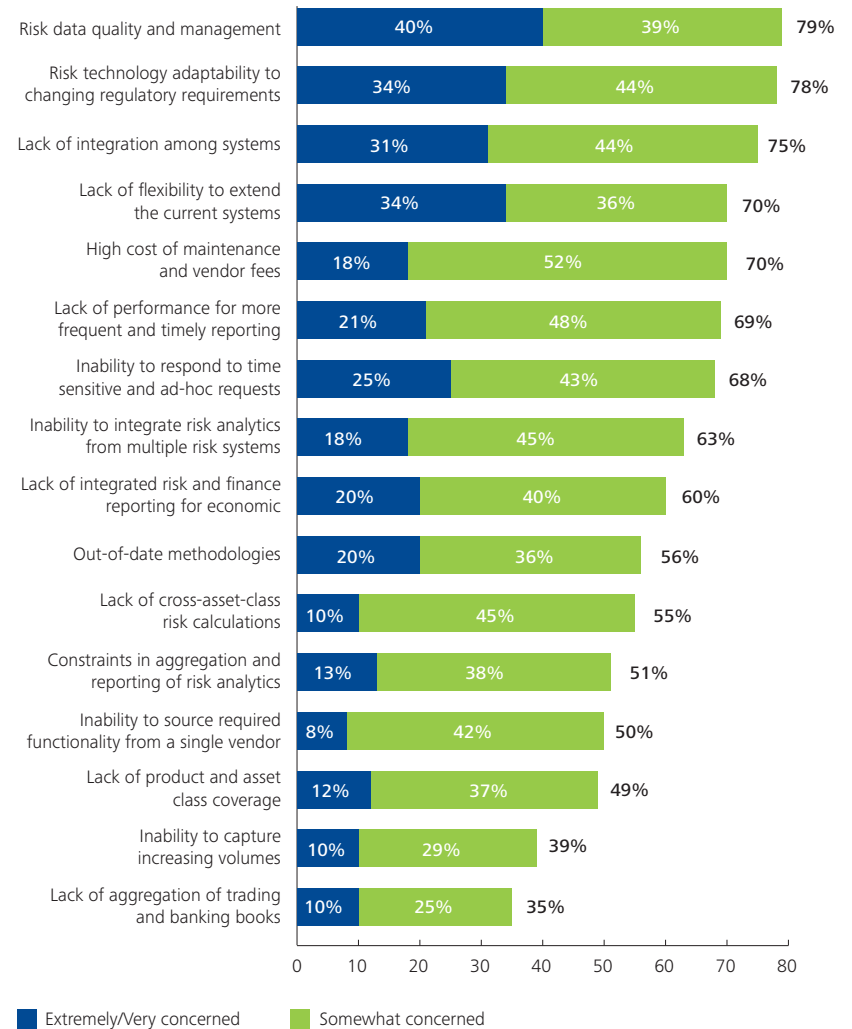


Some of the other top priorities for investment concerned risk analytics and risk reporting—risk analytics (53 percent), real-time risk monitoring (51 percent), and risk dashboards (44 percent).

The introduction of more stringent regulatory requirements for adequate levels of capital and liquidity were reflected in institutions placing a higher priority on investments in these areas than they did in 2010: liquidity risk management systems (44 percent versus 28 percent in 2010) and regulatory capital calculation and reporting (46 percent versus 30 percent in 2010). Other areas cited more often as investment priorities in the current survey included specialized credit risk systems (39 percent versus 22 percent in 2010), specialized market risk systems (35 percent versus 22 percent in 2010), and operational risk measurement systems (35 percent versus 23 percent in 2010).

Institutions favored having risk management technology systems installed in house, whether developed internally or by vendors, rather than hosted externally. Roughly 40 percent of institutions each said they were likely to make a major investment over the next 12 months in internally-developed applications/systems/toolkits (45 percent) and third-party-vendor applications installed in-house (41 percent). Cited less often as a target for major investment were third-party vendor applications hosted by a vendor (20 percent).<sup>54</sup> Data privacy concerns around confidential information being hosted off-site may well be a reason this last approach seems used less often.

**Figure 21. How concerned is your organization about each of the following issues for its risk management information technology systems?**



Our risk data infrastructure has been upgraded quite significantly, and we've made some quite substantial changes to the way we aggregate and access our data, so that it can be applied to help draw risk-based conclusions that drive decision-making; there's been a substantial investment in systems, and these changes and spending are continuing.

CRO, financial market infrastructure firm

# Conclusion

The unsettled market and economic conditions of the last several years have created a new and dynamic environment for financial services. Governments and regulatory authorities responded by introducing major regulatory reforms intended to strengthen the financial system, in large part by seeking to increase the likelihood that individual institutions will have sufficient capital and liquidity to survive a future crisis. These initiatives included the Basel III standards for banking regulation, Dodd-Frank governing regulation of financial services institutions operating in the United States, EMIR regulations on derivatives, and a reorganization of the United Kingdom's regulatory authorities. In addition, the United States and the United Kingdom created agencies with the mandate of consumer protection with respect to financial products and services.

Collectively, these initiatives constituted the most far-reaching changes to financial regulation in decades, with important implications for business models, risk management processes, and compliance costs. Given the complexity and controversy involved in developing the final rules to implement these reforms, financial institutions have come to realize that their introduction marked a first step in what promises to be an extended period of regulatory change. The final rules that are implemented on capital adequacy, liquidity, prohibitions on proprietary trading, and a variety of other important issues will have substantial impacts on the strategy and risk management processes of financial institutions. Financial institutions should consider how the increased capital requirements could affect the profitability of their lines of business and business models.

Risk management will need the flexibility to respond quickly as these and other regulatory requirements evolve: the pace of regulatory change seems unlikely to abate any time soon. This survey's results illustrate that institutions across the financial services industry have enhanced their risk management functions, approaches, models, and tools...but participant responses also suggest that risk management will continue to evolve.

- Effective risk management will continue to involve strong risk governance by the board of directors and management, including the CRO, as well as taking steps to help build a risk culture across all levels of the organization.
- Institutions may need to upgrade their capabilities to conduct stress tests and to assess new risk types, not only to meet regulatory requirements but also to provide risk information to the board of directors and management.
- Many institutions have reexamined the role of risk considerations when establishing performance goals and incentive compensation plans; this seems to be a growing trend.
- Finally, institutions should consider whether they have the right systems and processes and controls in place to help ensure the availability of consistent, high-quality risk data that can easily be aggregated across their organization.

As they respond to regulatory and other market and competitive challenges, financial institutions will need to continue to enhance their risk management capabilities—setting a higher bar.



## Endnotes

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