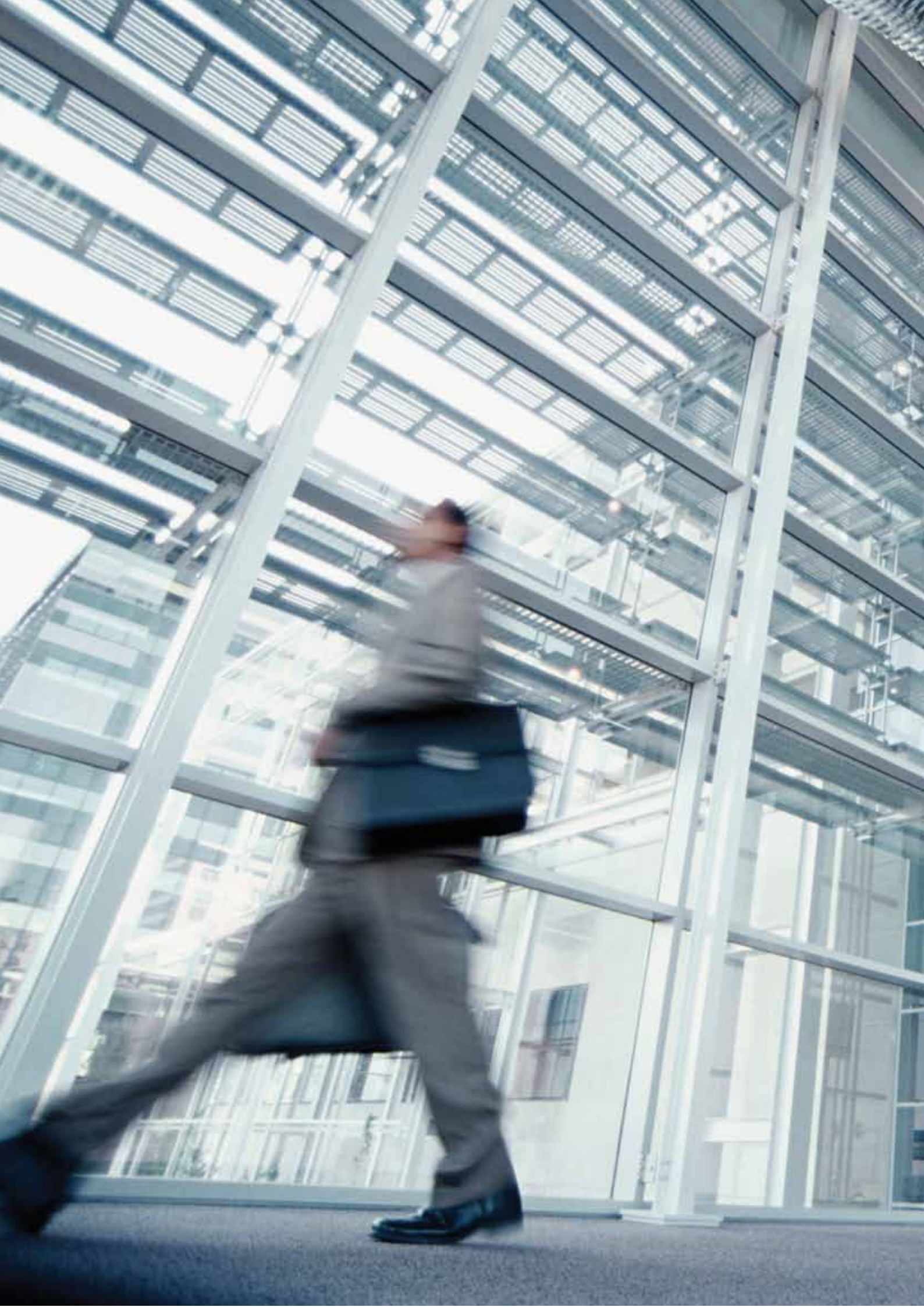


# Making strides in financial services risk management

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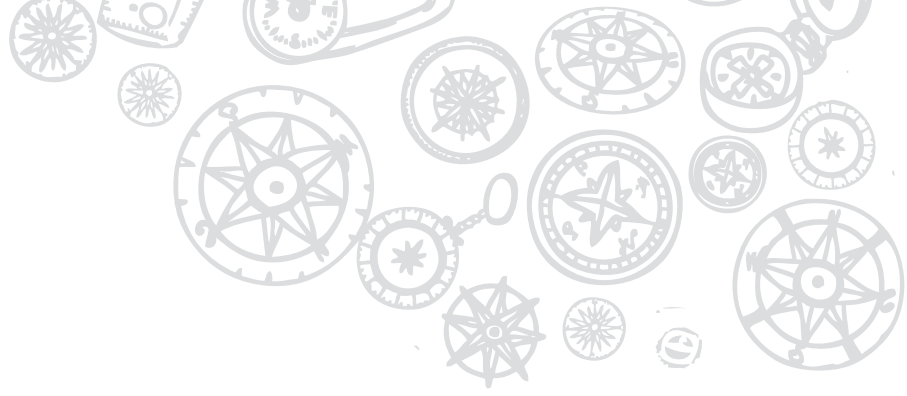






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# Executive summary

The financial services industry is very aware of the lessons of the crisis: the importance of managing liquidity; the need to strengthen and institutionalize an appropriate risk culture; and the imperative to always be prepared for the unexpected. Accordingly, boards and senior management have a host of initiatives underway to elevate and strengthen risk governance principles, practices and systems.

In 2008, The Institute of International Finance (IIF) issued a broad set of principles of conduct and sound practice recommendations to provide guidance and support to the industry as it corrects course and continues to navigate through the evolving economic, market and regulatory environment (see appendix for list of recommendations). In March 2009, the IIF asked Ernst & Young to conduct a survey of financial executives to identify gaps and barriers faced by firms as they worked to implement the recommendations. This contributed to the update of the recommendations in 2009. In 2010, the IIF once again asked Ernst & Young to carry out a survey of the changes to risk management practices, and this report, *Making strides in financial services risk management*, presents the findings from this latest research.

In the 2009 study we found that firms had made progress with a variety of initiatives to improve risk governance. In almost all cases, firms reported board- and CEO-sponsored top-down, firmwide assessments to identify gaps against recommendations from the IIF, as well as the guidelines from the Senior Supervisors Group, the Counterparty Risk Management Group and the Basel Committee on Banking Supervision. Based on these gap analyses, areas for improvement had been targeted and prioritized, a number of improvements had already been realized, and plans were being developed to effect others, with resources mobilized and deployed to implement initiatives. Areas being addressed ranged from reinforcement of specific risk governance practices and processes to a complete overhaul of enterprise-wide philosophies, frameworks, methodologies and systems to manage risk.

*“During the crisis, we probably learned more about risk in our company than we had in the previous 10 years. I’m sure everyone felt the same way.”*

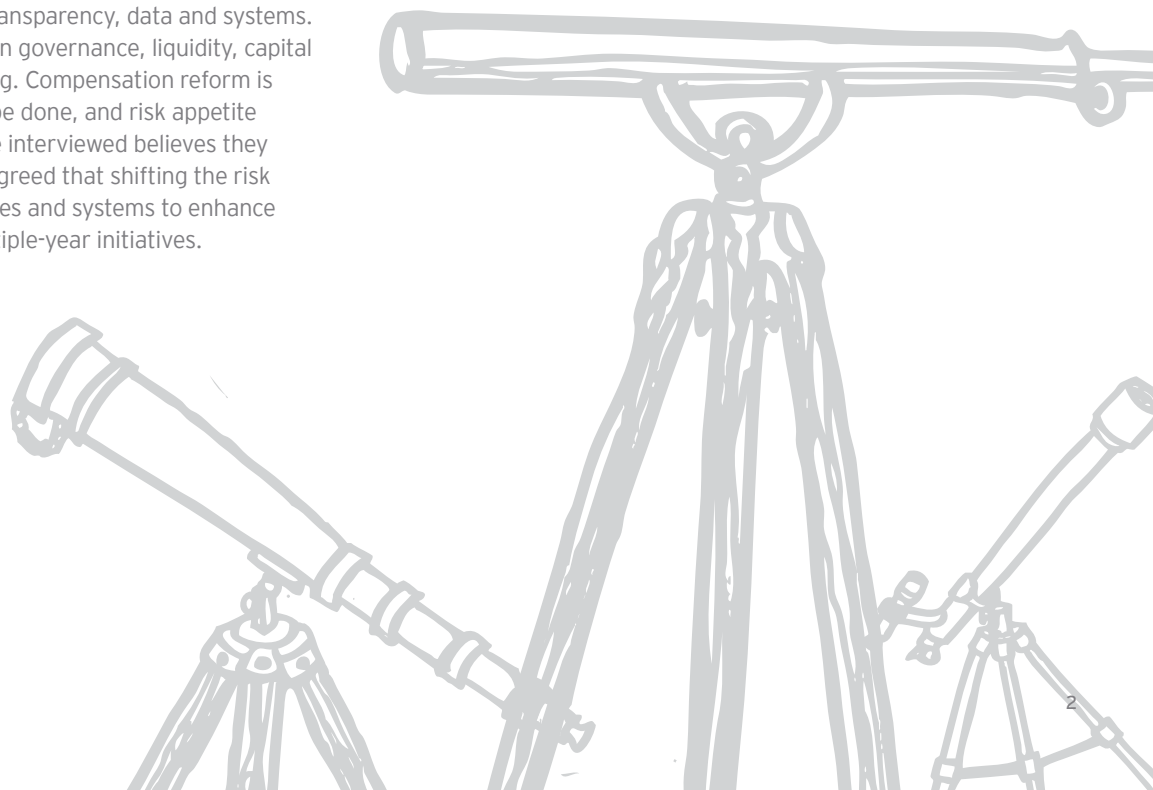
This year’s study found organizations in various stages of progress against the plans developed in 2008 and 2009. Without a doubt, firms continue to recognize the shortfalls in past practices and are committed to driving and sustaining change. The firms surveyed reported clear progress in strengthening risk management practices in line with recommendations from the IIF and the regulatory guidelines. However, despite significant advancement on many fronts, the reform programs are a considerable way from completion. Many improvements, if they are to prove durable, require deep cultural transformation and significant investment in management time, people and finances to successfully execute and institutionalize. As one executive summed up, “This is a long-term journey and we are in it for the long haul.”



# Progress against recommendations

Across the board, firms have embraced the IIF's principles, and the process of achieving compliance against recommendations is well underway with virtually 100% of the respondents reporting progress against goals. Not surprisingly, the firms in North America – specifically the US – and Europe that sustained the most substantial losses in the crisis were the most highly motivated to launch aggressive change programs and timelines, and as a consequence, reported more rapid progress towards compliance. Firms in a number of countries, including Australia, Canada, and Japan as well as those in Latin America, which were significantly affected by previous periods of stress in the early 1990s and 2002, felt they had already revised and strengthened risk governance practices and had fewer gaps to tackle. In addition, all firms, even in the affected countries, found that there were a number of areas where they were already fully compliant with many of the IIF recommendations, and due to the nature and range of businesses across institutions, not all recommendations are applicable to all organizations.

The study collected firms' views of progress across a number of key areas of risk management: culture; roles and responsibilities; compensation; liquidity risk; capital management; risk appetite; stress testing; and transparency, data and systems. Improvements were reported in governance, liquidity, capital management and stress testing. Compensation reform is underway but more needs to be done, and risk appetite is being addressed, but no one interviewed believes they are near completion. And all agreed that shifting the risk culture and upgrading processes and systems to enhance internal transparency are multiple-year initiatives.





# Areas of greatest progress

**Roles and responsibilities.** Risk governance is perhaps the most significant area of change. There was strong agreement that effectively managing risk across the enterprise requires both top-down oversight and bottom-up involvement. Many firms have conducted a reassessment of the roles and responsibilities of all key professionals – from board members to business unit heads and their teams – to re-evaluate, clarify and articulate expectations for risk management. Firms reported that boards are more actively engaged and involved in risk policy setting and governance, and are spending more focused, higher-quality time on risk issues. In addition, the responsibilities and influence of Chief Risk Officers (CROs) have been elevated and strengthened with most CROs now actively participating in business strategy and planning.

**Capital management.** Many firms reported that they have reassessed their capital structure across all of the businesses to more appropriately analyze the costs of capital and determine how those costs are calculated and allocated to each business to more accurately reflect risk.

**Liquidity risk.** Liquidity management continues to be a major focus for the industry and regulators. Firms have learned the lessons of the crisis and highlighted that they have revised approaches to strengthen the management and control of liquidity risk. Changes reported ranged from fundamental shifts in philosophy and governance – particularly for firms most impacted by the crisis – to more tactical efforts to refine specific areas where more progress still needs to be made.

**Stress testing.** Firms have made considerable progress in the development and strategic use of stress testing. New, more sophisticated methodologies, models and systems are being put in place to provide a more holistic view of potential risks and their impact on the organization. However, there is still work to be done to establish a consistent enterprise-wide approach to stress testing.

**83%** *increased board oversight of risk*

**89%** *strengthened the role of the CRO*

**65%** *made adjustments to allocating capital across business units*

**92%** *changed approaches to liquidity risk management, and 82% instituted more rigorous internal pricing*

**93%** *implemented new stress testing, but most firms continue to see significant challenges*



# Areas where more progress still needs to be made

**78%** *revised compensation schemes*

**Compensation.** In response to regulatory guidance, the majority of firms surveyed have made revisions to their governance, metrics, measurements, systems and reporting processes to better align pay to risk-adjusted performance, but progress still needs to be made on several fronts.

**92%** *increased attention on risk culture, but only 23% report a significant shift*

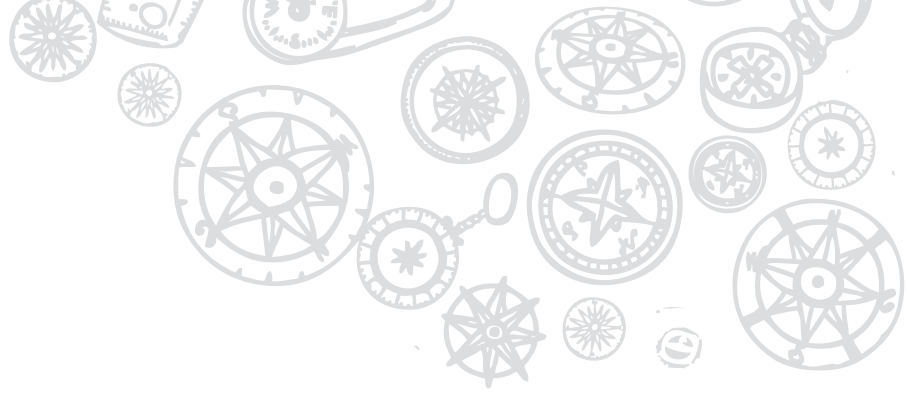
**Culture.** Shifting the organizational culture to instill a mindset of awareness and ownership of risk is a challenging task requiring a significant commitment of senior management time to establish policies and monitor progress, and substantial investment in processes and systems to support fundamental change. Executives interviewed understand the need to strengthen the culture and most have a host of initiatives underway to institutionalize comprehensive, consistent and collaborative approaches to risk. All agree that cultural change is a multiple-year journey, and there is still much to be done.

**96%** *increased focus on risk appetite, but only 25% report a link to business decisions*

**Risk appetite.** Risk appetite, identified by both the industry and the regulators as a high priority, is very much a work in progress for most all of the 62 firms who participated in this year's study. Interest and motivation is high to tackle the topic. While many firms reported progress in developing, articulating and enforcing a risk appetite framework, there is still no clear industry consensus on sound practices, particularly in linking risk appetite to business decisions. Many are looking for guidance from regulators and the identification of sound practices by the IIF to assist in this area.

**59%** *enhanced risk transparency, but only 26% have as yet made significant changes*

**Internal transparency, data and systems.** Improving internal transparency of information is another significant area of focus for both the industry and the regulators. Most participants said they face major challenges extracting and aggregating appropriate data from multiple siloed systems and applications, which translates into fragmented management information on the degree of risk facing the organization. Many firms have already undertaken significant IT projects to address these challenges. These projects, however, require multiyear investments of management time, people and finances to further improve the processes and IT systems to support more effective risk management.



# Challenges

While the executives interviewed remain committed to their plans to improve risk management, competition for senior management time and attention is high across a number of fronts:

- ▶ **Recovering from the crisis.** Almost 50% the firms surveyed indicated their firms were severely impacted by the crisis (see Exhibit 1). The challenges for the senior teams in those firms most severely jolted by the crisis have been intense, requiring dedicated front-line fire fighting to stem losses, clean up distressed assets and assess the longer-term damages. Thirty-two percent of respondents reported that they are still working to recover from the crisis; and while a majority (65%) indicated that they are essentially “back to business” (see Exhibit 2), many cautioned that doing business in the post-crisis world is a “completely new ball game” requiring caution, judgment and an immense amount of senior management focus.
- ▶ **Navigating the still-fluid economy.** While most agree that the downturn is behind us, and the economy is showing signs of recovery in most parts of the world, many are still apprehensive about the continued volatility of the markets. More than 33% of interviewees cited “fluid market factors” as one of their top areas of concern, and many agreed that the uncertain market environment is making business planning and decision making – both short and longer term – extremely difficult. Volatility and uncertainty have increased since the survey was conducted because of the political unrest in the Middle East and the tragic earthquake and aftermath in Japan.

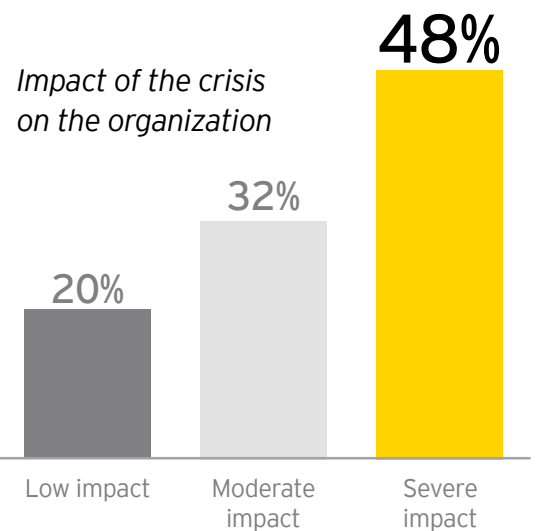
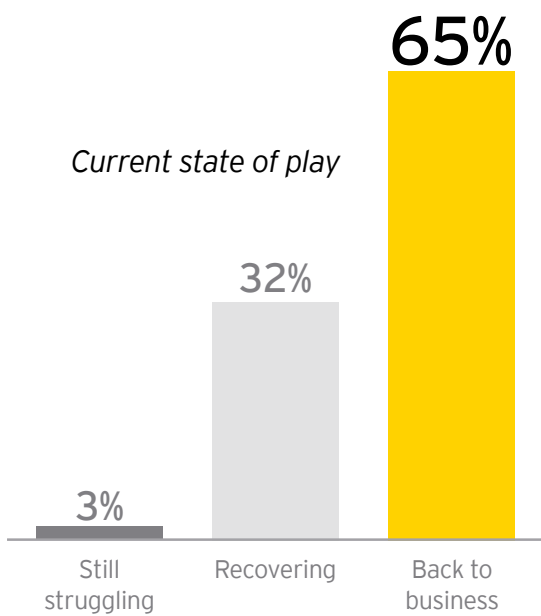


Exhibit 1: Impact of the crisis on the organization



*Exhibit 2: Current state of play*

- ▶ **Dealing with the regulatory environment.** The ongoing discussions about future rules and regulations were a recurring theme throughout the survey. While most executives fundamentally believe that stricter regulations are needed to prevent another crisis, frustrations are high surrounding the still-developing, and sometimes contradictory, regulations across countries and jurisdictions and the need for clear and consistent interpretations of a large amount of new requirements. Mapping a course through this new and still often murky landscape is extremely challenging and intensely time consuming for internal teams. Firms are committing a significant amount of senior time to meet and work with regulators, redeploying teams of people to deal with the growing requirements, and investing in new systems and processes to comply with and keep abreast of anticipated changes.
- ▶ **Finding the right people.** Survey respondents consistently expressed the view that companies underestimated the vital importance of the human factor in managing risk. Human judgment, insight and experience must be valued more highly and leveraged more fully throughout the organization – from the front lines through to the back office functions. As the responsibilities and size of risk teams expand, compliance requirements escalate, and projects to upgrade processes and systems launch, firms are competing to build teams of talented professionals to drive and support more effective and efficient risk management.

*“The uncertainty in the environment and how you manage for that strategically and in the day to day are my biggest concerns.”*



# Research methodology and demographics

From October through December 2010, Ernst & Young, on behalf of the IIF, surveyed IIF member firms around the world using two methods. The first was an online quantitative questionnaire distributed to the top member firms by asset size. The second was through telephone interviews with CROs and senior risk executives of firms serving on the Steering Committee on Implementation of the IIFs recommendations regarding improvements in risk management. Sixty-two firms participated in the study online and (or) by telephone, which resulted in 60 online survey responses and 35 interviews.

**Africa/Middle East**

Arab Banking Corporation  
 Bank Audi  
 FirstRand Bank  
 National Bank of Kuwait  
 Qatar National Bank  
 Standard Bank of South Africa

**Asia Pacific**

ANZ Banking Group  
 Bank of China  
 CIMB Group  
 Commonwealth Bank of Australia  
 ICICI Bank  
 Mitsubishi UFJ Financial Group  
 Mizuho Corporate Bank  
 National Australia Bank  
 Norinchukin Bank  
 Westpac Banking Group  
 Woori Financial Holdings

**Europe**

Alpha Bank  
 Bank of Ireland  
 Barclays  
 BBVA  
 BNP Paribas  
 Caja Madrid  
 Commerzbank  
 Credit Suisse  
 Danske Bank  
 Deutsche Bank  
 DZ Bank  
 DnB NOR  
 Erste Group Bank  
 Garanti Bankasi  
 Grupo Santander  
 Handelsbanken  
 HSBC  
 ING  
 Intesa Sanpaolo  
 Nordea Bank  
 Piraeus Bank Group  
 Royal Bank of Scotland  
 SEB  
 Société Générale  
 Standard Chartered Bank  
 Swiss Reinsurance Company  
 UBS  
 UniCredit  
 Zurich Financial Services

**Latin America**

Bancolombia  
 Banco de Crédito del Perú  
 Itaú Unibanco  
 Mercantil Servicios Financieros

**North America**

Bank of America  
 Bank of Montreal  
 BNY Mellon  
 CIBC  
 Citi  
 JPMorgan Chase  
 Morgan Stanley  
 PNC Financial Services  
 Royal Bank of Canada  
 Scotiabank  
 State Street Corporation  
 TD Bank

# Risk culture

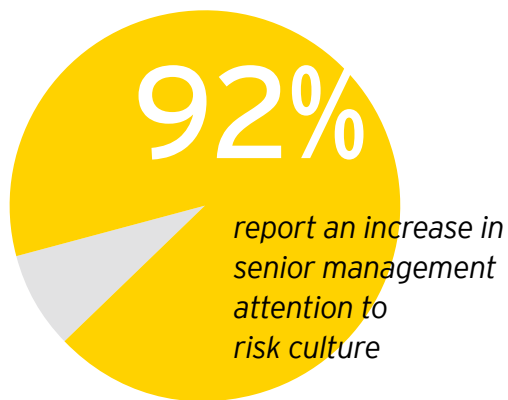
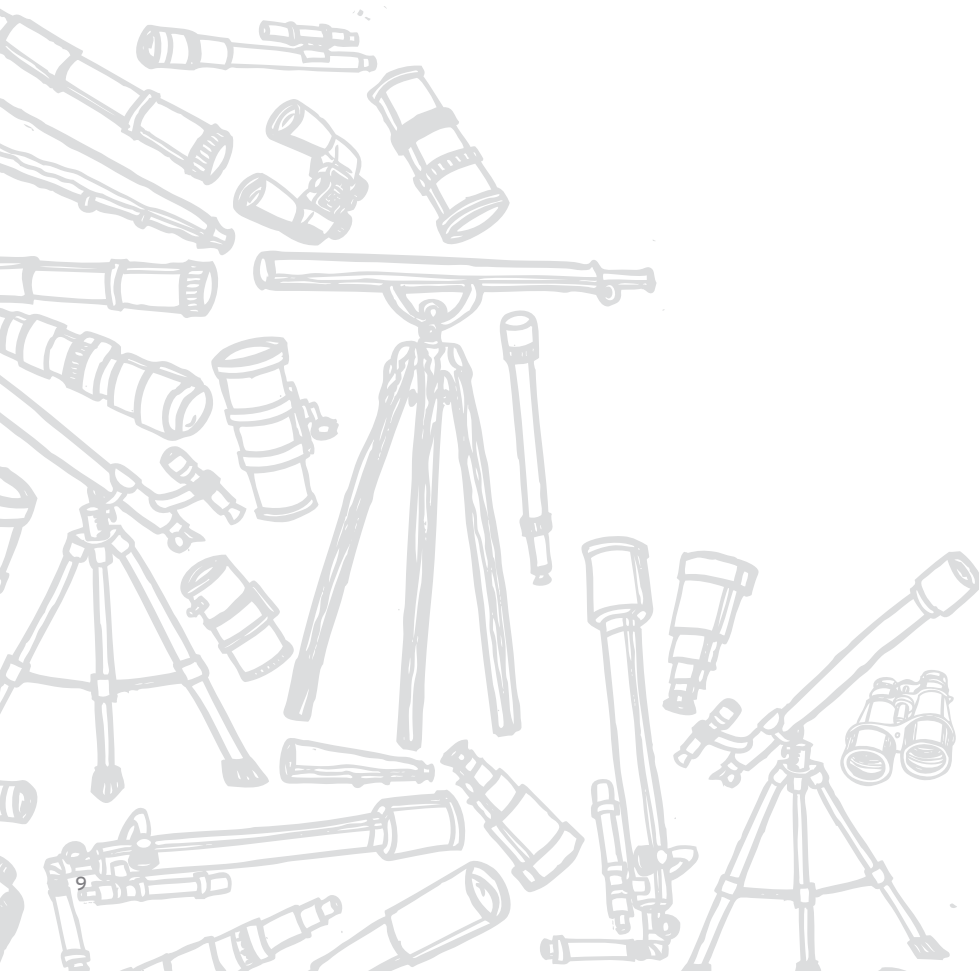


Exhibit 3: Management attention to risk culture

## Firms are on a journey to instill awareness and ownership of risk

There is widespread agreement among the executives surveyed that creating and embedding an effective risk culture supported by a sustainable risk and control framework is one of the top agenda items for senior management. In separate studies conducted by Ernst & Young in 2008 and 2009, shifting the culture ranked second in top challenges – behind tightening controls in 2008, and regulatory uncertainty in 2009. In the 2010 IIF Report, the focus remains strong, with 92% of interviewees reporting an increase in senior management attention on strengthening the risk culture (see Exhibit 3).

The changes required to institutionalize a strong risk culture are fundamental and far reaching. For many firms, making risk “everyone’s business” represents a significant shift in mindset, policies, systems and processes, and involves a long-term commitment and investment. Seventy-three percent of interviewees indicated they are making progress in their efforts to institutionalize an appropriate risk culture throughout the organization, but only 23% believe they are close to the end of the process (see Exhibit 4).





While discussions on methods to embed a risk culture varied, opinions on sound practices essentially coalesced around four critical activities:

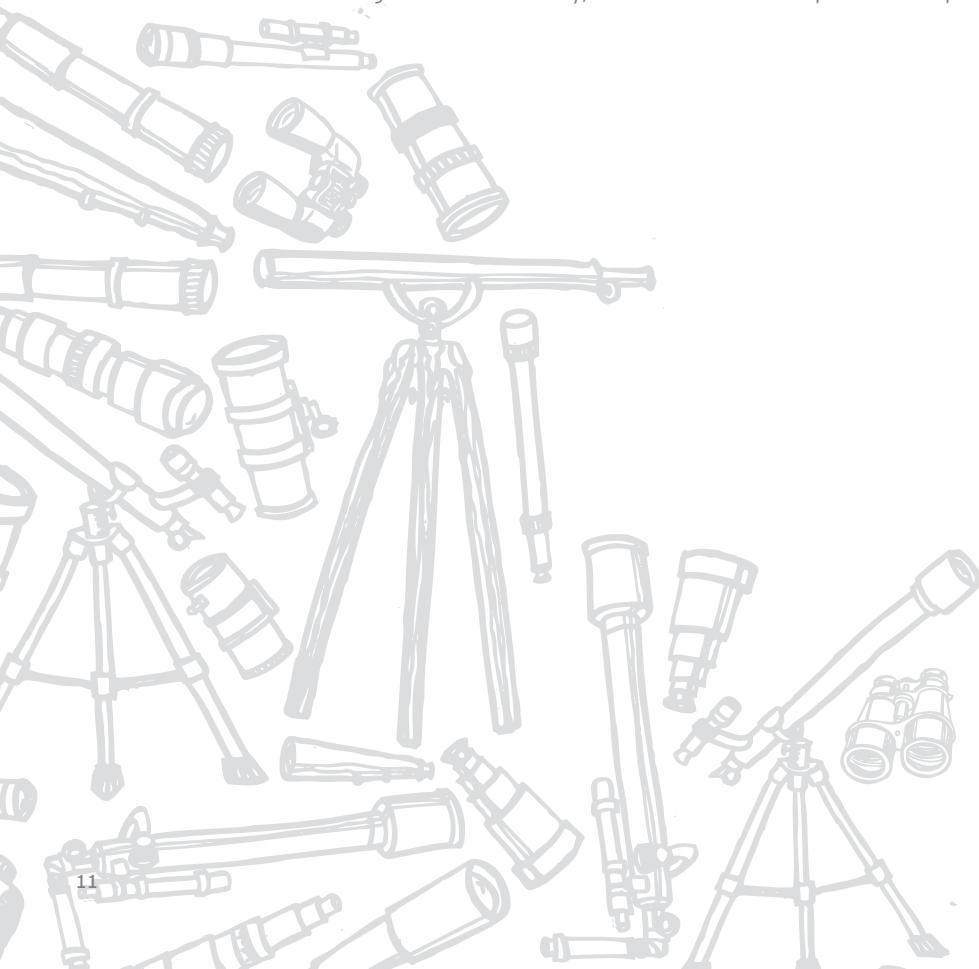
1. **Start at the top.** Executives agreed that commitment to cultural change must start at the top. Boards and the senior management team must set the stage by deciding on how the firm fundamentally wants to do business and how it wishes to be perceived by customers, shareholders, employees, supervisors and rating agencies. The amount and type of risk an organization is willing to accept varies from firm to firm depending on its management philosophy, growth goals, business focus and geographic reach. The organizational risk appetite (see page 23 for further discussion), reflects this management vision and establishes the rules of the road regarding risk for the entire enterprise. Once the risk parameters have been set, the focus and discussions around risk culture must be continuous and steady, or as one respondent described it, "The topic of culture must be constant and pervasive in both board and senior team meetings."
2. **Clearly define roles and responsibilities.** Changing deeply ingrained attitudes toward risk requires significant attention to the "people factor" in the risk equation. In their post-crisis assessments, many firms found gaps in processes and assignments around risk management and confusion around risk oversight expectations. Several executives expressed the opinion that this, in fact, is one of the most important weaknesses exposed by the crisis. Accordingly, firms reported that they have been strengthening and clarifying roles and responsibilities for key positions in the organizations, including boards, the CEO, CFO and CRO, and business unit leaders.




Exhibit 4: Shifting the culture

3. **Establish accountability.** Most agreed that repositioning and redefining responsibilities is meaningless without accountability. The most effective shifts in attitude and behavior occur when expectations are clearly communicated and understood, performance measurements and review processes are established and adhered to, and performance against goals is tied to compensation. Several respondents described enhanced review processes to reinforce responsibilities. For example, one firm now requires that everyone in the business who is governed by the risk framework be reviewed by his or her line manager during the appraisal process to assess adherence to risk parameters. As the interviewee explained, "There is a lot of discussion about how to keep pushing the culture consistently down through the firm – this is another step in this process." Compensation plays a key role in shifting the culture and, as further discussed beginning on page 15, firms reported revising remuneration policies and processes to better align pay to performance.
4. **Reinforce change with communication and training.** Constant and varied communication and both informal and formal training are cited as critical tools used to instill values and reinforce culture. As one executive told us, "It is an ongoing journey, a never-ending drum beat of communication, education and management." Some firms reported that they have "stepped up the risk discussions" in regular team meetings, and others have launched formal training initiatives to increase the knowledge and awareness of risk throughout the organization.

Respondents are well aware of the many challenges to truly embedding a risk mindset in their organizations. Among the major barriers cited were organizational silos, decentralization of resources and decision making, lack of integrated data management and delivery, and the inherent complexities of operating globally.





## Ongoing training: an important tool to shift the culture

Training was repeatedly mentioned by many firms as one of the most effective tools for shifting the culture. Several discussed the development of programs ranging from informal team discussions about risk and accountability to structured firmwide programs to educate the staff on risk.

One firm, which rated itself as moderately impacted by the crisis, began its training initiative in 2008. The risk team worked with human resources to create an ongoing program to increase the knowledge and understanding of risk throughout the organization. Topics addressed include risk types, market and economic influences and impact, compliance roles and responsibilities, and lessons from the crisis. The firm initially focused on the people in the organization most involved with risk management – unit leaders and those in positions most sensitive to and exposed to risk. But over the years they have expanded the program to include a broader range of levels of responsibility. As the CRO explained, “As the professionals who were in place during the crisis retire or leave the firm, we need to continuously restore and preserve the many organizational and industry lessons we have learned navigating through the past couple of years.”

# Governance roles and responsibilities

## Boards strengthen oversight while CROs expand influence

Most respondents agreed that effective, involved boards make an important difference to the performance of their organization. Overall, 83% of respondents reported an increase in board oversight of risk (see Exhibit 5) – with 42% indicating a significant increase in board involvement. The majority stated that their boards are more actively engaged and involved in risk policy setting and governance, spending more focused, higher-quality time on risk issues (see Exhibit 6). In particular, board members have become better informed on risk-related topics. Respondents credit enhanced training programs to keep the board abreast of emerging issues impacting risk; increased transparency, quality and frequency of reporting; more regular meetings; and more in-depth discussion of enterprise-wide risk.

Many firms said that setting strategic direction and playing a key role in the development, approval and oversight of risk appetite are now considered to be board responsibilities; and emerging issues such as capital allocation, new business risks and compensation have become higher priorities on the board's agenda. The majority of the firms surveyed (86%) have separated risk from their audit committees and established a distinct risk committee to ensure independence and an adequate focus on each of those critical areas (see Exhibit 7). Firms reported that boards are conducting deeper dives into matters that in previous years did not reach their agendas – requiring more sophisticated, in-depth, and more frequent reports and analysis.

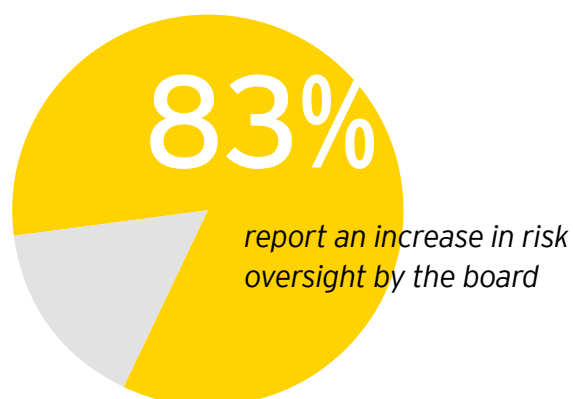


Exhibit 5: Board oversight

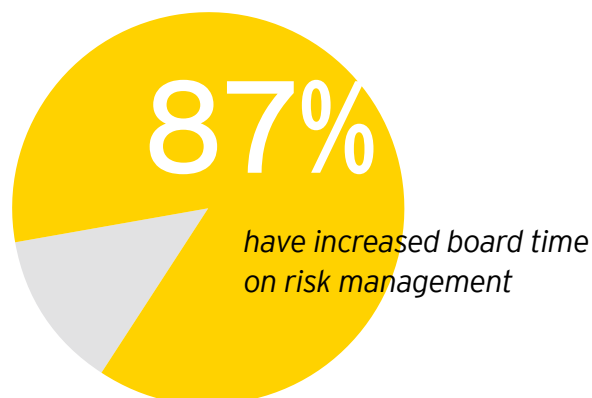


Exhibit 6: Board time on risk

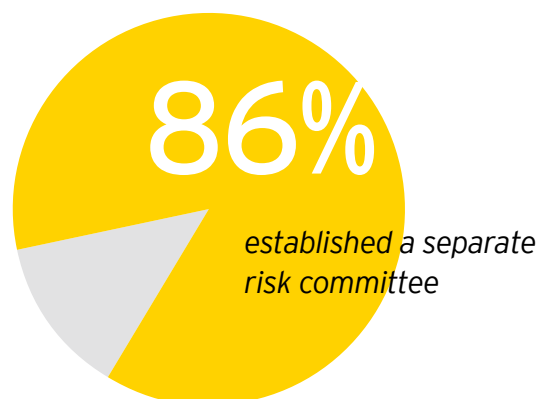


Exhibit 7: Separate risk committee

*"Board oversight of risk is an area of constant conversation and focus."*

*“The risk function is not in place to manage risk, but to make sure that risks are managed.”*

With risk now playing a major strategic role in business decision making, firms reported that the responsibilities and influence of the risk teams have continued to evolve and grow in importance. Eighty-nine percent of executives interviewed indicated that the role of their CRO has been strengthened since the crisis (see Exhibit 8), with more than 33% reporting a significant increase. As an indication of their stature, over 50% of CROs in the organizations studied report directly to the CEO, and 22% have a dual reporting line to both the CEO and the board risk committee (see Exhibit 9).

There was strong agreement that the CRO and the risk teams have become more aligned with the businesses, actively participating in business strategy and planning as opposed to having only veto power over decisions that adversely impact risk. As one CRO explained, “There has historically been the idea that the business team defined the strategy, and then the CRO determined if the investments were suitable. Now we are gaining a seat at the table.” When asked to discuss their areas of responsibility and committee participation, most CROs

described wide-ranging responsibilities and involvement in diverse areas of the business including strategy, risk appetite, product development, acquisitions and compensation. Eighty-two percent reported an increase in CRO involvement in compensation strategy – evaluating the risk dimensions, designing the remuneration framework, developing policies and pay structures, and providing metrics for scorecards.

In addition to becoming more influential, the firms indicated that the risk teams have increased in size – particularly those most impacted by the crisis. Seventy-one percent of firms reported an increase in the size of the group risk function and 59% reported an increase in the size of business unit risk functions (see Exhibits 10 and 11, respectively). Of those reporting increases, more than 33% indicated headcounts of up to 20% larger than before the crisis. As the expectations and roles continue to evolve, the need for more sophisticated risk professionals grows. Industry-wide, companies are competing to recruit and train a strong corps of seasoned risk executives with the appropriate stature and credibility to anticipate and act on risk issues.

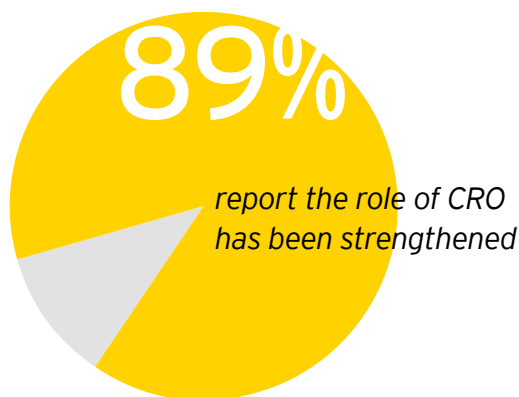


Exhibit 8: CRO role strengthened

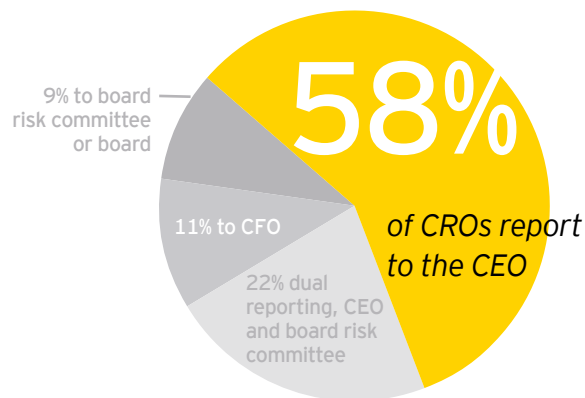


Exhibit 9: CRO lines of reporting

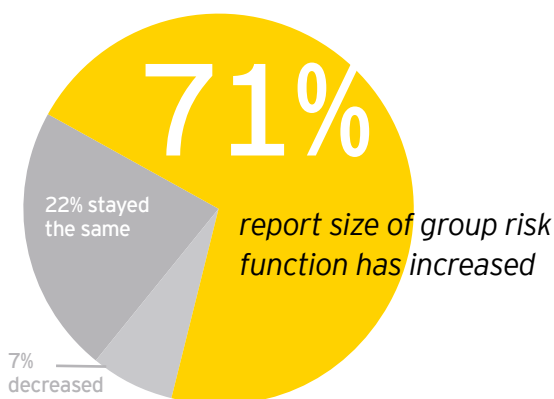


Exhibit 10: Group risk function size

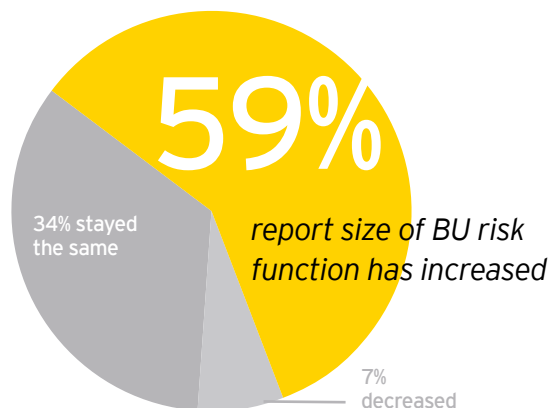


Exhibit 11: BU risk function size

# Compensation

## Firms are working to align pay to risk-adjusted performance

Regulatory and public pressure continue to drive compensation reform in the industry. The results of this year's survey indicate that progress to revise remuneration policies and frameworks has been made on many fronts. Overall, 78% of executives reported they have made revisions to their programs (see Exhibit 12) – up from 58% in the 2009 IIF report – and 30% indicated these changes represent significant shifts to compensation systems. Of those who reported minimal revisions, the majority were smaller firms not severely impacted from the crisis.

As is the case for many of the topics in this report, systemic changes are a multiyear process. Firms reported progress in important areas of compensation management such as governance, strategic plan reviews, risk-adjusted metrics, performance measurement and deferred payment structures. However, interviewees agree that there is still work to be done to appropriately tailor risk adjustments and performance measures to individual business units, establish systems and reporting structures to support the new processes, and of course, shift the attitude and culture around remuneration. Fifty percent of interviewees indicated that changes to their compensation systems were well underway, and 40% said they were close to completion of their initial rounds of revisions (see Exhibit 13).

The majority of firms reported a significant strengthening in the governance of remuneration policies and practices. In particular, boards have increased their involvement in policy setting and oversight, and the remuneration committees' roles and responsibilities have been enhanced to include compensation policy reviews, performance metrics, oversight of bonus pool allocations, approval of compensation plans and in general, retention of more discretion over payments.

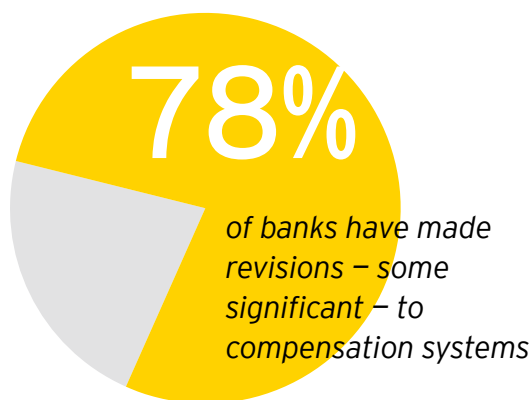


Exhibit 12: Compensation revision

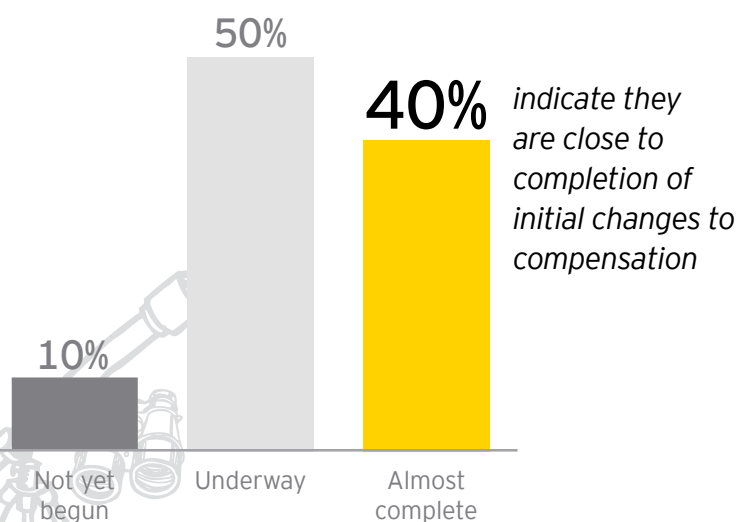


Exhibit 13: Compensation changes



Many firms reported that the CRO and risk teams are increasingly involved in remuneration, providing input into the compensation framework and processes to ensure that risk is factored into compensation decisions. In addition, risk functions are more closely involved in offering opinions on existing compensation plans, establishing new policies, providing metrics for scorecards for business units and individuals and in some cases reviewing the compensation proposed for the top people in the organization. Several firms reported adjustments to the remuneration of the control functions – reducing and distancing the variable aspects of their salaries tied to front office results and adjusting performance measures to reflect their increased responsibilities.

Several firms indicated they have launched risk reviews of all of their compensation plans to benchmark processes, pinpoint areas to be improved and develop guiding principles that must be incorporated into every plan. As one CRO explained, “We created seven guiding principles that every plan has to have, and then we remediated every plan. We report to the board twice a year, and any new plan or modification has to be approved by risk to make certain that the principles are upheld.”

Close to 75% of respondents listed the lack of regulatory consistency together with competitive pressures as their top challenges to changing remuneration policies. Many say that compliance will require geographically consistent implementation of standards by regulators over the next few years to create a “level playing field” and stabilize what is now a “moving target” of regulations for the industry. The fear is that any stark differences in pay structures between companies and (or) countries will make it difficult to retain employees in search of better compensation.

Aligning performance metrics to risk appetite and business strategy and embedding these metrics in compensation decisions is difficult. And finally, revising compensation policies represents a significant cultural shift for many organizations and presents a formidable change management challenge (see Exhibit 14). The IIF will issue a separate, detailed report on compensation practice reform reflected in firms’ 2010 results in mid-2011.

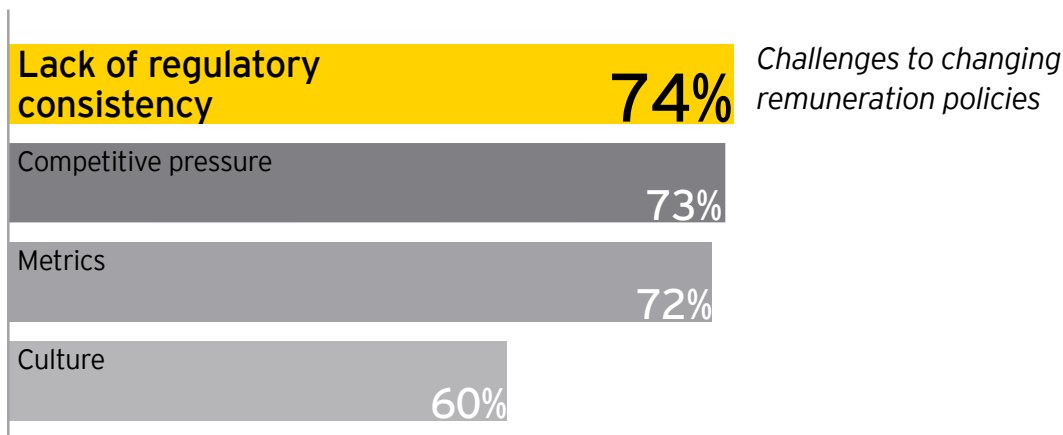


Exhibit 14: Challenges to changing remuneration

*“We have a formal [compensation review] process and a real in-depth analysis of the performance of businesses and their changing risk profiles.”*

# Liquidity risk

## Firms are strengthening policies, governance and processes to better manage liquidity risk



Exhibit 15: Changes to managing liquidity risk

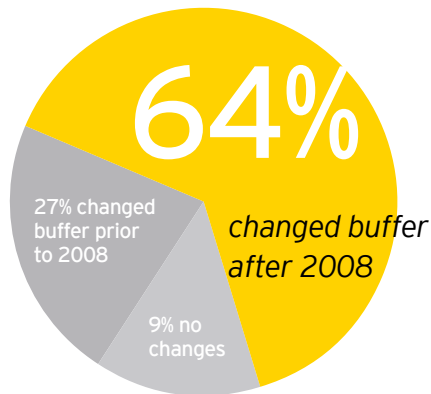


Exhibit 16: Liquid asset buffer

In a separate study conducted by Ernst & Young in 2009, 88% of respondents viewed the need to focus more on liquidity management as the single largest lesson learned from the crisis. Not surprisingly, the results of this year's study indicated that firms are indeed addressing the liquidity lesson. Ninety-two percent of respondents report that, post-crisis, they have made changes to managing and controlling liquidity risk (see Exhibit 15), an increase from 61% in the 2009 IIF report. And of those reporting no change in approach, most indicated they had already begun to update liquidity risk management prior to the crisis.

The changes reported included both fundamental strategic shifts in philosophy and governance and more tactical efforts to refine specific practices, along the lines of IIF and Basel Committee recommendations published in 2007, 2008 and 2009. Firms in North America and Western Europe, which generally were most severely impacted by the crisis, reported the most significant adjustments in approach, and several emphasized that both capital and liquidity management are key components of their plans to ensure more resiliency from now on. Respondents are all aware that the global economy remains unstable, and they understand that another major credit event would undoubtedly test even the most successful firm. The lesson learned by most is that liquidity management should not be treated as a short-term operational issue, but as an integral part of long-term enterprise strategy, risk management and planning.

Ninety-one percent of firms interviewed reported that they have increased their buffers of liquid assets to comply with, and in some cases exceed, the requirements (see Exhibit 16). As one interviewee explained, "We are trying to be less and less dependent on the short-term market for refinancing."

From a strategic standpoint, a number of organizations indicated they have conducted system-wide reviews of their liquidity framework to profile, calculate and document liquidity risk appetite parameters and thresholds to be maintained across the organization. Several discussed the development of liquidity early-warning triggers to spot potential difficulties in the market or within their firm. In addition, liquidity frameworks are formally reviewed by ALCOs (asset and liability committees) and risk committees at least annually,

*"We are much more focused on liquidity management. It is evolutionary."*



with several reporting monthly intense reviews of the liquidity profile and early-warning triggers. Several are in the process of fine-tuning liquidity contingency plans.

A number of firms reported that they have changed their governance structures – elevating the discussion and approval of liquidity risk appetite and contingency planning to the board level and giving the risk team more responsibilities and involvement in liquidity management. As one executive told us, “Liquidity risk management in the past has very much been done by the asset liability management and treasury function, while now the rules are being set by the risk management team.” Risk functions are increasingly involved in discussions on liquidity appetite, modeling of risks, and stress-testing processes and analysis. One firm reported that they have separated liquidity risk from the funding team and now have a separate risk management group responsible for capturing and monitoring all of the contractual and contingency obligations across the organization. Another firm described a new risk committee composed of people from a variety of functions including treasury, training, market risk, and group risk that meets weekly to review liquidity issues. While different firms have taken different approaches to these changes, they feel they are consistent with the thrust of the Basel and IIF principles and recommendations.

Firms indicated that reporting is becoming more transparent, frequent and comprehensive, starting with in-depth reports at the board level, cascading to more thorough weekly and even daily reports on liquidity positions for the management team, CRO and risk teams, treasury functions and funding desks. Stress testing is becoming a critical tool to manage liquidity, with 92% of firms reporting they have changed their approach to liquidity stress testing, strengthening their processes to incorporate more sophisticated modeling techniques to better understand and reflect market volatility (see Exhibit 17). One firm in North America performs in-depth quarterly liquidity stress tests combined with weekly tests that incorporate both market-wide events similar to what was seen in 2008, and idiosyncratic events specific to its businesses. These results are then integrated into the enterprise-wide stress testing plans.

Many firms reported that they have instituted a more rigorous liquidity charging structure both internally with businesses and externally with counterparties and customers. This is consistent with IIF recommendations going back to 2007, and with findings that many firms did not charge internal businesses realistically for liquidity usage before the crisis. Eighty-two percent cited introduction of intra-company charging processes to more appropriately charge the business units for liquidity risk (see Exhibit 18).

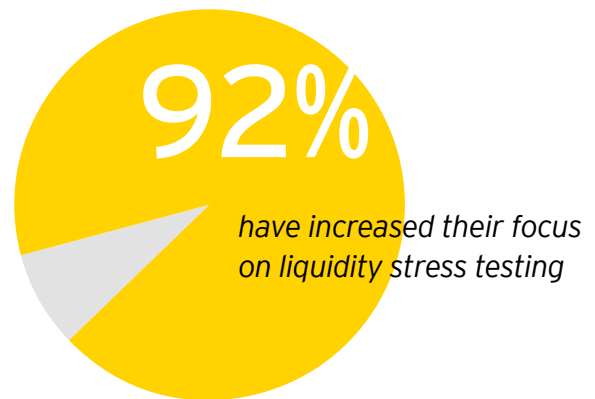


Exhibit 17: Liquidity stress test

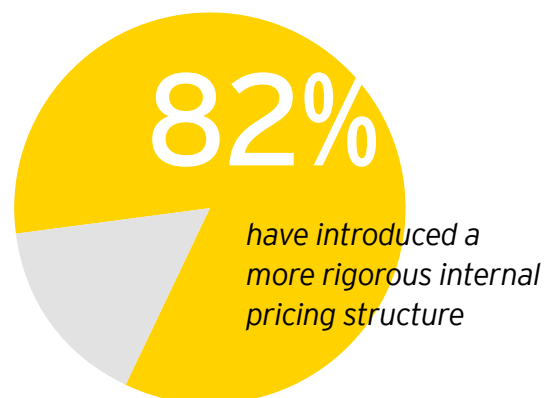


Exhibit 18: Internal pricing structure



*"Pricing liquidity internally has had a real impact on the businesses and has raised awareness of the importance of liquidity management."*



And 69% have changed their approach to counterparty and customer charges for liquidity (see Exhibit 19). Some have concluded they need to correct precrisis pricing practices – where every desk was essentially charged the same funding rate – to more accurately reflect the unique risk potential of each business. Most believe the repricing process has had a positive impact on the units, raising awareness of liquidity risk and its importance to both their business and the organization overall and contributing to improved control of liquidity risk. As one executive explained, “Probably the most important change in liquidity has been the impact of the internal transfer pricing program on the businesses. Now every time the business people make a loan, they pay for their liquidity in the correct way, and they understand the risk they are creating.”

More than 80% of executives cited systems and data quality as key challenges to liquidity management (see Exhibit 20). Several discussed the need for better management information – more detailed data on contingent commitments and liabilities, improved consolidated data across both the structural and trading balance sheets, and enhanced analytics capabilities.

Many executives expressed concern over the impact of the new and “ever-evolving” liquidity regulatory reforms. There was a good deal of discussion on the lack of harmonization of reforms across countries, which many say is at odds with the global, highly integrated nature of most firms’ operations. A particular challenge is managing the discrepancies between home and host countries that require that entities within their jurisdiction have the ability to handle liquidity issues without relying on the parent company. The result can be pools of trapped liquidity and an impaired ability to move those funds around. As one executive told us, “We operate in close to 20 countries, and if we can’t move liquidity beyond the borders, we must maintain 20 mobile crews to manage liquidity, which makes the organization pretty inflexible.” Many also expressed frustration with the lack of consistency in definitions of what is eligible in the composition of the buffer. In addition, and quite significantly, there are inconsistencies and duplications in the reporting and information required by different regulators and a sense that they must minimize them in order to improve data quality and consistency and improve regulatory reporting.

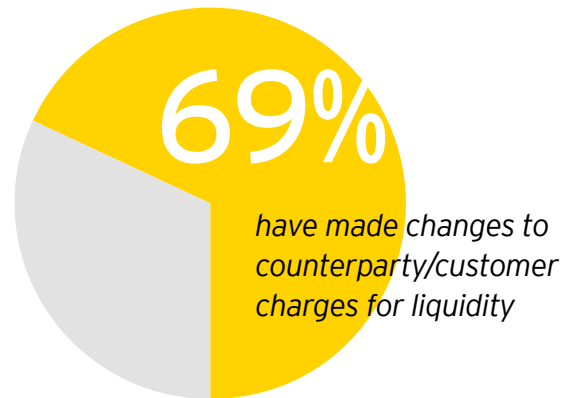
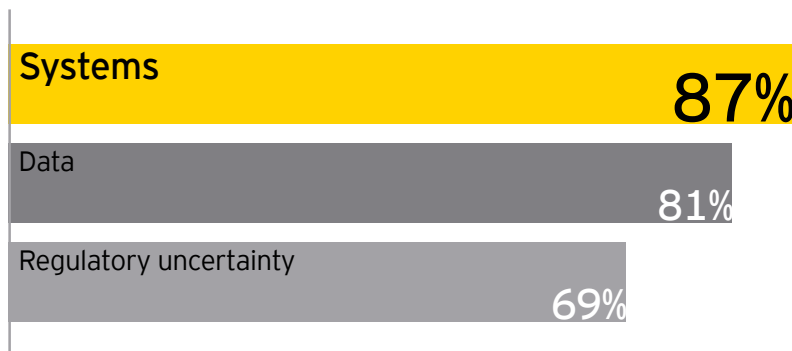
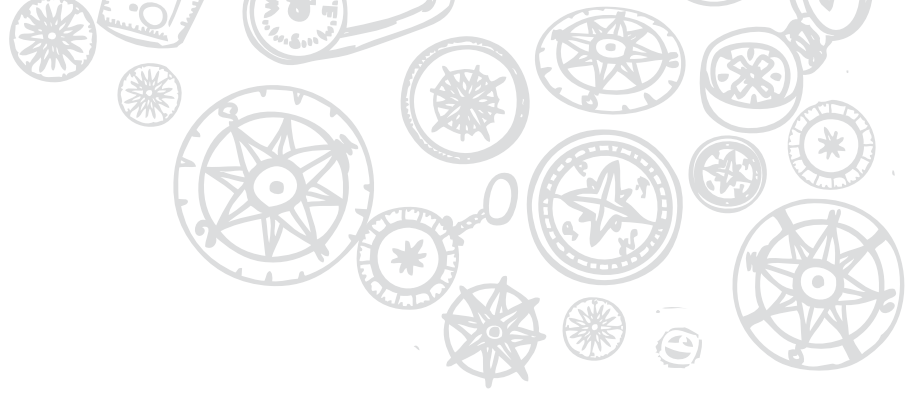


Exhibit 19: Counterparty and customer charges



Challenges to liquidity management

Exhibit 20: Challenges to liquidity management



# Capital management

## Regulatory requirements are driving strategic assessments of the business

The executives interviewed are acutely aware of the potential organizational impact of the new regulatory standards on capital and liquidity imposed by Basel III and the still-evolving reforms across countries. There remains a great degree of uncertainty as to how these reforms will ultimately translate into the actual day-to-day business, and respondents say that it is difficult to develop long-term plans when it is still unclear what the regulatory capital and liquidity requirements will ultimately be for their various businesses. As a consequence, many have adopted a wait-and-see attitude, or as one respondent told us, “We are essentially in a hiatus until we have more clarity from the regulators.”

While many respondents report that they have strong economic capital models in place and have historically taken a conservative approach to capital allocation, 65% did indicate that they have made adjustments to their approaches for allocating capital across business units in line with the new regulations (see Exhibit 21), an increase from 50% in the 2009 IIF report.

The overall management lessons from the crisis together with the new regulatory realities are driving senior management to step back and strategically review their capital management priorities across geographic and political boundaries, legal entities and business lines (see Exhibit 22).

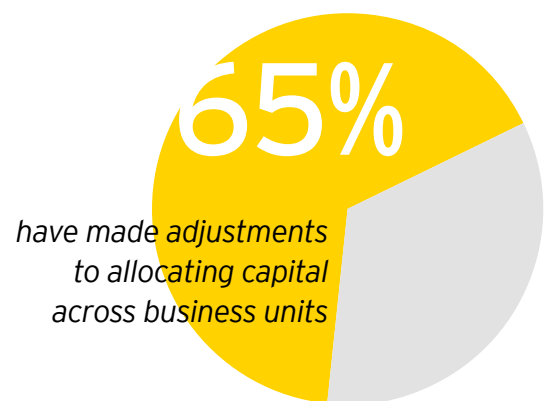


Exhibit 21: Adjustments to capital across units

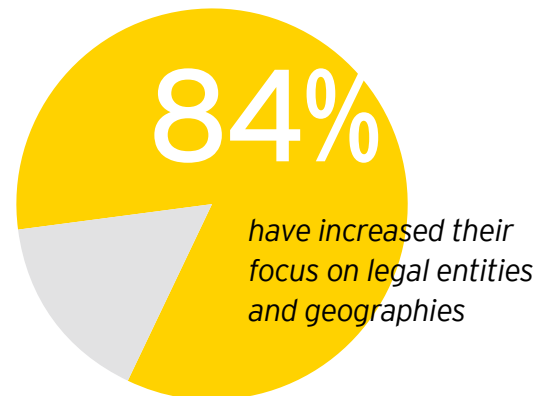


Exhibit 22: Legal entities

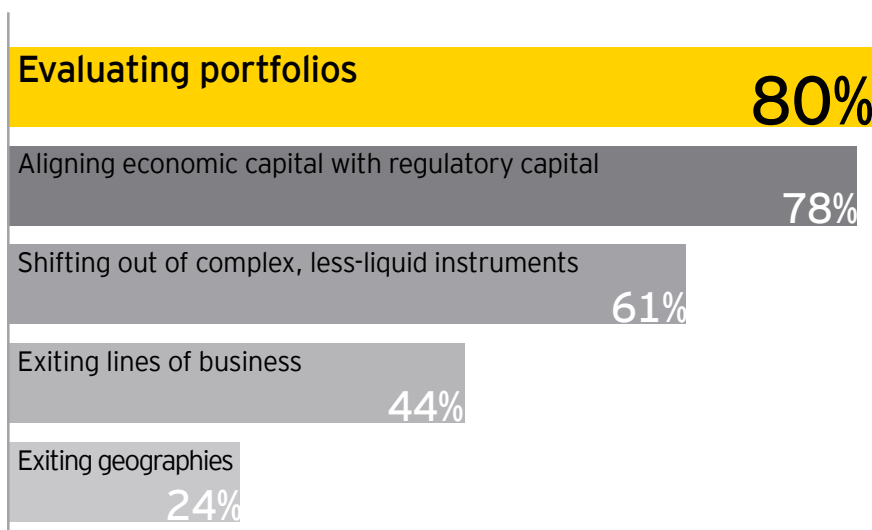


Several executives described in-depth review processes to redefine the capital structure across all of the businesses to appropriately analyze the costs of capital, resolve how those costs are calculated and allocated to each business unit, and ultimately determine how the capital structure interacts with the market value of the firm. As one interviewee described the process, “We are looking more granularly at both economic capital and profit of the business units and asking questions like, ‘Is that an acceptable return? If not, why not? Is this a business we should be in?’”

Even firms that are not changing their capital allocation process stress they are enhancing governance policies and procedures around capital management. Specifically, they are augmenting reporting requirements, particularly to the board and senior management; strengthening their stress-testing methodologies using scenario planning to evaluate impacts on capital positions; and formalizing and documenting capital contingency plans.

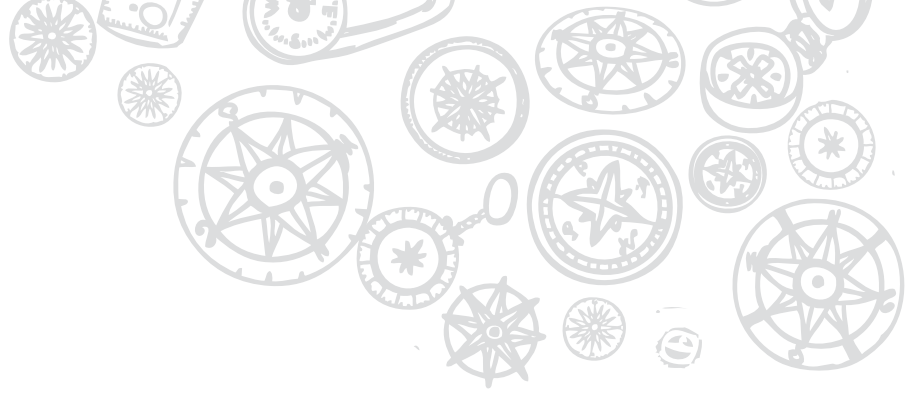
Executives discussed the widening gap between internal economic capital methodologies to allocate capital and the new regulatory requirements. The majority (78%) report they are striving to align economic capital with regulatory capital models to adequately capture regulatory requirements (see Exhibit 23). Many institutions are seriously re-evaluating their portfolios – exiting more capital-intensive, less-profitable lines of business; assessing their regional profiles to determine which geographies to enter or exit; and shifting out of more complex, less-liquid instruments into simpler, more-liquid products with less risk.

*“There’s been a refinement of the capital management framework, incorporating all the best practices in risk management since the crisis happened.”*



*Changes to capital management*

Exhibit 23: Capital management changes



# Risk appetite

## Firms are in a variety of stages of defining, implementing and enforcing the risk appetite framework

Risk appetite – the amount and type of risk that a company is able and willing to accept in pursuit of its business objectives – is very much a work in progress for most of the 62 firms that participated in this year’s study. Interest and motivation is high to tackle the topic. Ninety-six percent of firms reported that they have increased their focus on risk appetite, up from 81% in the 2009 IIF report (see Exhibit 24), but there is no clear consensus around the definition, approach and strategic implications of the process. While 76% indicated they are changing their approaches to risk appetite (see Exhibit 25), the degree of change varied significantly across responses, essentially coalescing around five levels of progress:

- ▶ **Level one: Planning.** About 25% of the firms interviewed said they are in the initial stages of planning their approach, and most everyone in this group claimed that developing and

progressing the risk appetite is a top priority for 2011.

- ▶ **Level two: Setting limits for risk types.** A number of respondents reported a focus on establishing limit parameters around types of risk – mostly market risk – with a few mentioning progress on credit and operational risk.
- ▶ **Level three: Establishing the enterprise-wide risk appetite.** Several reported that the senior management team has finished the process of defining the risk appetite framework at the organization level and has documented and broadly distributed the statement of the firm’s overarching views on what constitutes acceptable risk.
- ▶ **Level four: Determining risk appetite for business units.** A handful of firms indicated that they have evaluated and established the individual risk parameters for the major business units and incorporated them into the organizational framework. For some this process started as a top-down effort beginning with the board and senior management teams’ broad perspective on risk, which was then cascaded downward to the business units. For others it began with a risk

appetite review and determination of the risk profile for each line of business, which informed and were incorporated into the organization-wide risk appetite.

- ▶ **Level five: Systematically communicating, implementing and enforcing risk appetite.** The definition and articulation of risk appetite drives both strategic and day-to-day business decisions, defines roles and responsibilities around risk and has a positive impact on organizational culture and behavior. When a firm’s risk appetite is properly defined and clearly communicated, it becomes a powerful management tool to clarify all dimensions of enterprise-wide risk and enhances overall business and financial performance. However, creating a risk framework that is meaningful to management and that translates to actionable day-to-day management at the business unit and desk level is a tough job. None of the firms interviewed have reached this stage of the journey, or as one executive described it, “The nirvana of risk appetite is when it is thoroughly inculcated into day-to-day planning and thinking.”

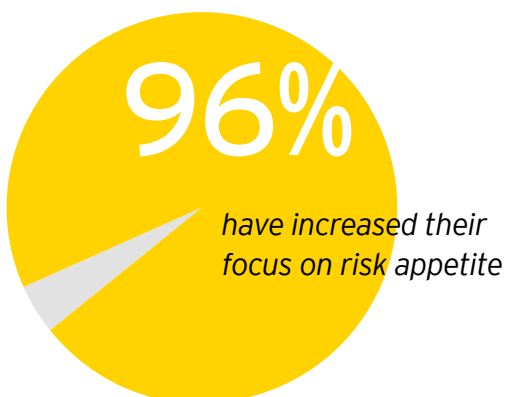


Exhibit 24: Focus on risk appetite

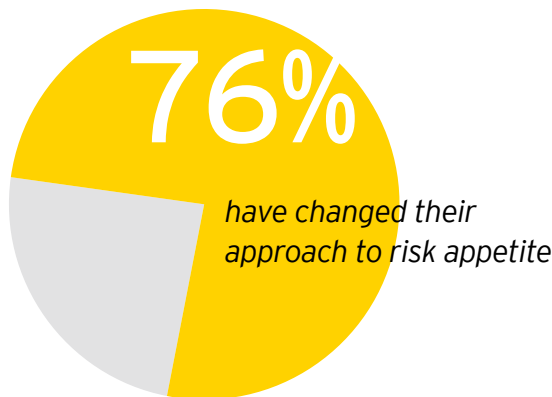
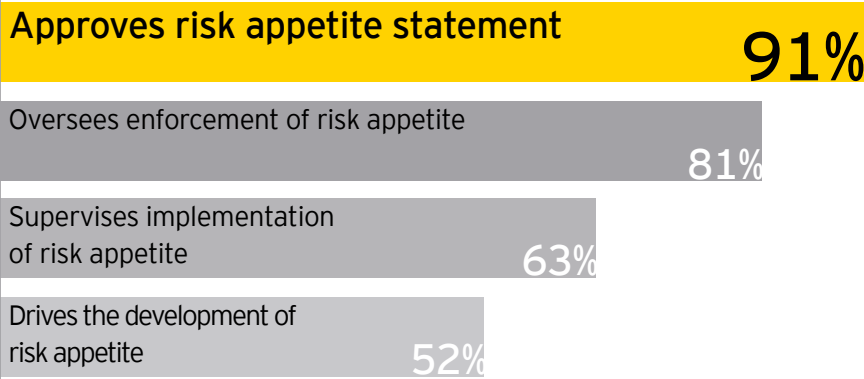


Exhibit 25: Approach to risk appetite



Board involvement in risk appetite

Exhibit 26: Board involvement in risk appetite

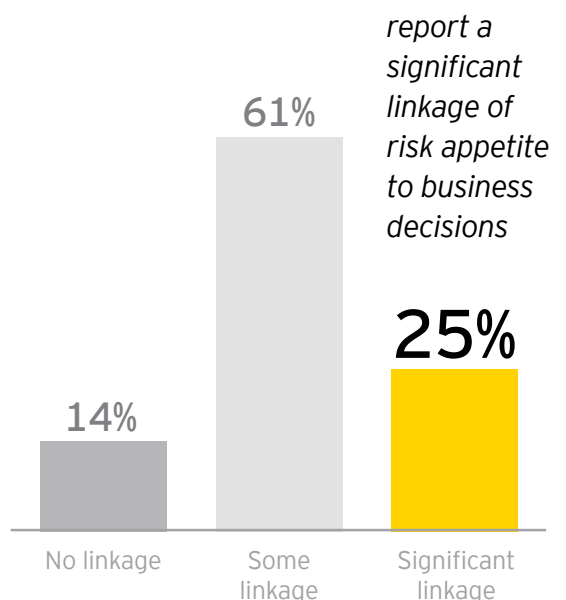
Several common critical practices emerged from those firms furthest along the path of risk appetite development. First and foremost, all agree that the commitment and process must be driven by the team at the top, including the full board as well as the risk committee, the CEO, the CRO and the risk team, and the business unit leaders. Perhaps the biggest shift discussed was the increased involvement of the board beyond its traditional approval and supervisory roles to become a significant player in the risk appetite process. Fifty-two percent of interviewees reported that their board drives the development of the risk appetite (see Exhibit 26).

Quite a few mentioned the increased role of the CRO, who they believe must be a key driver of both the framework development and the ongoing management of risk appetite throughout the organization. As one interviewee explained, "The CRO is now the authoritative formulator of risk appetite, while before he [or she] could only offer opinions." The good news is that even those firms in the planning stages of developing the risk appetite are mapping their course at the top management levels, with the CROs playing a central role in the discussions.

The second critical practice is integrating risk appetite into the normal business planning process. Executives warned that firms need to make certain that risk appetite is not an independent senior team exercise unconnected to the strategic and business decisions of the firm. As one executive explained, "At our bank there is good top-of-the-house articulation. It's pushing it into the DNA of the business and into our strategic planning process that's hard."

Despite a clear drive to develop risk appetite processes, at this stage, only 25% of firms interviewed reported that risk appetite significantly impacts their business decision process (see Exhibit 27). The firms that have incorporated risk appetite into strategic decisions say it has helped the board and senior team understand the linkages between strategy and risk and capital and funding. Decisions around rescaling, exiting or entering specific businesses, adjusting compensation to reflect risk in certain businesses, and right-sizing risk profiles across the organization have been much better informed by the inclusion of risk appetite. As one respondent summed up, "The risk appetite process has helped us make better, more informed decisions on a host of fundamental issues that impact the enterprise."

Tracking status, reporting on progress, and regularly reviewing and adjusting the risk appetite framework were all discussed as important components of a successful program. However, even for the most progressive firms, these areas are all works in progress. More than 50% of those interviewed



report a significant linkage of risk appetite to business decisions

Exhibit 27: Risk appetite's link to business decisions

**"Risk appetite is very much a cultural challenge. Defining a statement is the easy part – living it is more challenging."**

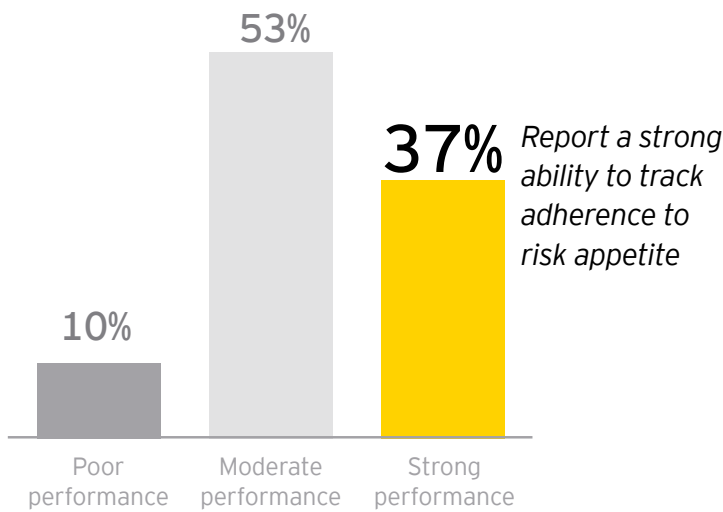


Exhibit 28: Track adherence to risk appetite

rate their ability to track adherence to risk appetite as moderate (see Exhibit 28). The reasons cited range from the lack of clarity around which metrics align with risk appetite, to ill-defined methodologies for capturing and reporting information, to poor data quality and inadequate systems.

The frequency of conducting risk appetite reviews to test compliance and reconfirm or adjust the framework varies from “no routine process” (22%) to more formal reviews conducted quarterly and even monthly by the most advanced firms (see Exhibit 29). The most commonly mentioned procedure was a quarterly report to the board on the status of adherence combined with an annual in-depth review of the risk appetite framework.

For many, risk appetite remains a complex and difficult to understand concept and process to implement. Several challenges surfaced in our discussions:

- ▶ **There is no one-size-fits-all approach.** For most of the industry this is a fairly new process and many lamented that there is no road-tested off-the-shelf framework that can be implemented. The amount and types of risk an organization is willing to accept varies depending on its management philosophy, growth goals, business focus and geographic reach. Even within the company itself, there is no one-size-fits-all measure of risk. Each business unit and risk type will dictate a different level and approach to risk. Many say that they are basically starting from square one to figure out the best path for their organization and many believe it will be a lengthy, iterative process.
- ▶ **Determining the right metrics is difficult.** Ninety-one percent of firms interviewed listed metrics as the top challenge to developing a risk appetite framework (see Exhibit 30). Respondents to the online survey listed a host of quantitative metrics that are considered and incorporated

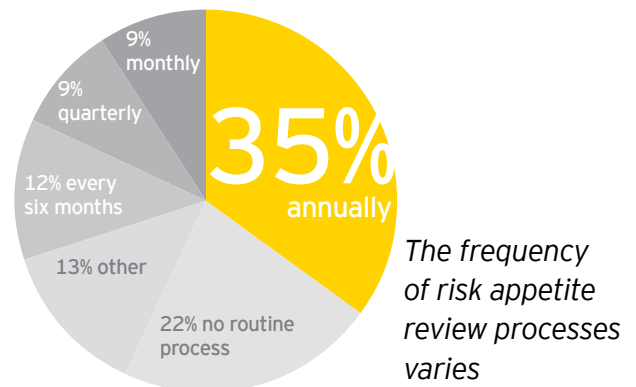


Exhibit 29: Risk appetite review process

into the risk appetite, such as: capital and liquidity positions, credit quality, portfolio concentrations and floor ratings, earnings volatility and market factor sensitivities. However, in our telephone discussions, executives underscored that defining the risk appetite is a significant effort that requires careful review and consideration of a host of external and internal issues, a significant number of both quantitative and qualitative metrics including organizational philosophy, culture, values and reputation, and a great deal of senior management discussion and judgment.

- ▶ **Drilling it down into the organization.** Taking risk appetite from a broad-brush concept into something more tactical and tangible is a distinct challenge for most of the firms interviewed. Often the risk strategy at the top of the house does not translate into the day-to-day management of the business, or as one executive admitted, “The bank had a risk appetite statement in 2008. To be honest, it was not a document that most people even knew existed – it was buried within the risk policy manual.”

The process of successfully embedding the risk appetite requires most of the activities addressed throughout this report: shifting the cultural mindset around risk; redefining governance roles and responsibilities; adjusting performance requirements, measurements and compensation; and upgrading methodologies, processes and systems to test, track, report and assess progress. The process will undoubtedly be a multiple-year effort to develop and implement, and an ongoing program to maintain and sustain it over time.

The IIF is preparing an additional report on risk appetite, substantially augmenting the discussion published in late 2009, with the intent of helping orient firms’ thinking on developing more-effective risk appetite procedures. The report is intended to be published in June 2011.

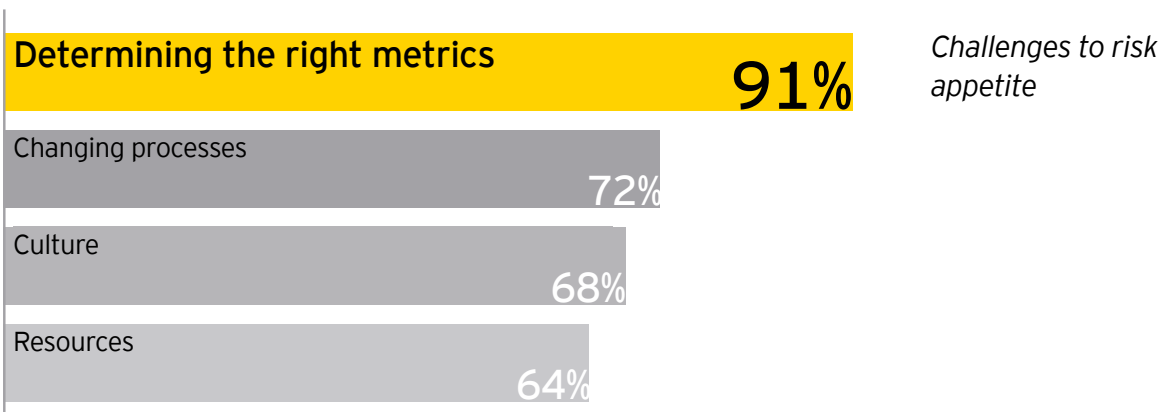


Exhibit 30: Challenges to risk appetite



## Cascading the risk appetite

For one firm, the journey to embed risk appetite into the operational infrastructure of the organization started at the top. Following discussions with the board, the CEO issued a formal policy that risk appetite has to be defined before the business plans are written. The goal was to connect the risk appetite process to the business, rather than simply making it a “big group-level exercise.”

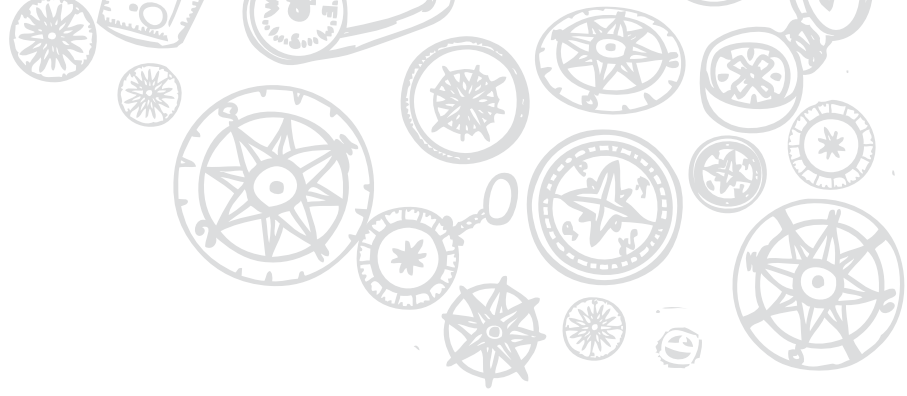
The firm started in 2008 at the holding level, establishing metrics around a range of things such as capital, liquidity, return on equity, operations, pension risk as a proportion of total risk, and diversification by geography and line of business. According to the CRO, the tolerances have to be relatively large at the group level with a fair degree of flexibility. From the holding level, the risk appetite-setting process cascades downward to the major legal entities and then within the entities down to individual countries, and finally to individual lines of businesses. The firm does medium-term outlooks for geographies and businesses and each is required to develop an upfront statement of risk appetite.

The firm believes that the risk organization, which is driving this process, is making steady progress communicating to and engaging with the businesses to integrate risk appetite into the planning cycle, and says the effort has helped focus the businesses on the impact of risk. As with any change in a large, complex organization, getting people to do something they didn't have to do before is always a challenge. As the CRO sums up, “The risk appetite initiative is already an accepted process, because we have told everybody it's an accepted part of the process, but next year it will be more accepted, and hopefully the year after that it will just be business as usual.”

## Integrating risk planning at the business level

One firm has recently created a much more formal requirement and process for the business units to conduct an assessment of their individual risk appetites as part of their annual planning exercise. The senior management team together with the board has established five key financial metrics or indicators as a baseline and asks the individual business units to include an additional three metrics pertinent to their business. They then must assess their sensitivity to each of those metrics responding to a series of questions such as: What scenarios are you willing to see – 1 in 7? What if that moved to 1 in 25? What's your top-down expectation? What does your book actually produce? Then using the firm's economic model, these assumptions and various scenarios are stress tested to see how they hold up.

Based on the assessment of risk appetite, unit leaders are asked to develop a risk plan for the business. The CRO meets with the risk and finance directors and their teams to review the plans as part of what the firm calls a risk executive dialogue. The bank has formally embedded reverse stress testing into the risk appetite framework, which helps identify how they would be impacted by the stress, assess their capacity to cope with further stress, and determine at what point the business model is no longer viable. According to the CRO, “Reverse stress testing is one of the big things that regulators have hit on which is really very useful.”



# Stress testing

## Firms report progress in improving assessment of stress risks

The past few years have clearly demonstrated an industry-wide need for more robust assessment of risks. Virtually all of the executives interviewed agreed that firms need more sophisticated predictive tools that enable management to challenge critical business and risk assumptions, analyze their potential impact on results, and assess the implications of market events on and across the organization. The lessons from the crisis are being addressed, and survey participants reported an increased investment and steady progress in the upgrading and reinforcing of forecasting models, systems and procedures. Ninety-two percent of respondents reported an increased focus on internally designed and initiated enterprise stress testing – a substantial gain from the 2009 IIF study where 56% reported a heightened focus (see Exhibit 31). As one executive summed up the collective thinking, “Everybody sees the value, we talk about it daily and it’s embedded in everything we do.”

While a small percentage of respondents (7%) from firms least impacted by the crisis reported no changes to their internal stress testing, 93% indicated that they have developed and implemented new internal stress testing methodologies (up from 74% in 2009); establishing uniform modeling standards, adjusting models to rely less on historical data and assumptions, increasing the use, number and severity of scenarios, and extending time horizons (see Exhibit 32).



Exhibit 31: Increased focus on stress testing

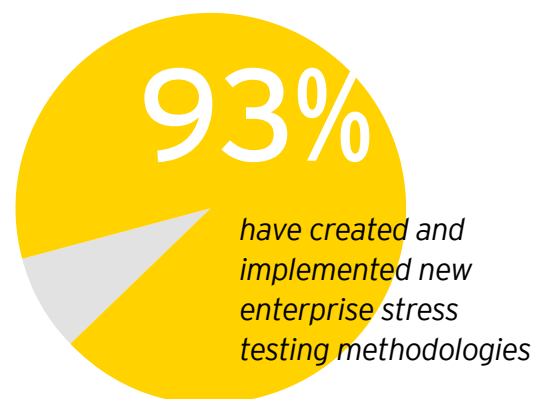


Exhibit 32: New methodologies

*“We’re beginning to use stress testing more as a strategic tool than for compliance reasons.”*



Perhaps the most significant shift discussed is the growing interest in utilizing stress testing as a strategic management tool rather than for purely compliance or risk management purposes. One executive, for example, said his firm is continuing to run scenarios for its own management perspective beyond the “increasingly granular” regulatory requirements. A number of interviewees stressed the importance of connecting stress testing to business and risk management decision-making. One firm conducts a thorough bottom-up stress of all business plans across units before they are signed off. And there is evidence of a growing connection between risk appetite and stress testing: 88% of respondents stated that stress testing is linked to the risk appetite development and management process (see Exhibit 33).

Firms made clear that stress testing has broadened beyond the risk team’s domain to include the board, senior management, and the heads of business who are increasingly involved in the design and development of methodologies and the analysis of results. Reporting on stress testing results to the board and management team is becoming more frequent and relevant, with 84% indicating they have created new management reports for senior decision makers (see Exhibit 34). Several reported that stress testing

results are increasingly being used routinely by risk management and the businesses on a day-to-day basis to evaluate decisions, and that boards and senior management are embedding stress testing output into their strategic decision-making processes.

In a separate study conducted by Ernst & Young in 2009, only 13% of senior risk executives characterized their firms as having formal enterprise-wide stress testing processes in place. Two years of effort have resulted in considerable progress on this front, and this year 88% of respondents reported that they are working hard to integrate internal stress testing at the group level of their organization (see Exhibit 35). However, there was quite a bit of discussion about the challenges of transitioning from the traditional siloed approach of stress testing within multiple types of business units and portfolios to a consolidated process that looks at the bigger picture. It is particularly challenging for large, diverse organizations with multiple types of businesses and operations in a host of countries, all with varying degrees of behaviors and reactions to economic and market factors. “The correlation parameters and potential scenarios to take into account are intense,” explained one respondent, “We need to become much more sophisticated at doing this.”

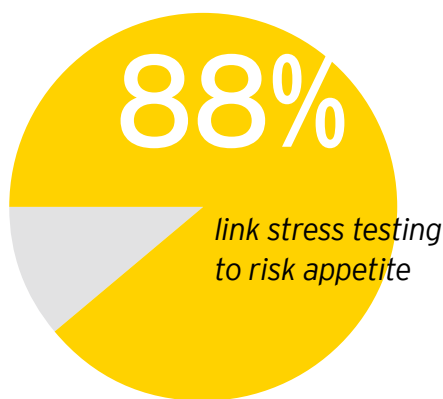


Exhibit 33: Stress testing risk appetite



Exhibit 34: Stress management reports



**Integrated stress testing at the group level 88%**

**Integrated stress testing across credit, market, liquidity and operational risk 70%**

*Stress testing is being integrated across the organization*

Exhibit 35: Stress testing across the organization

Scenario planning is becoming an increasingly important tool to help firms consider and assess the full range of market factors and macro-economic events that could potentially influence revenue streams and stability. Executives agreed that effective escalation and use of the output from a scenario planning process is a critical component of business planning. Ninety-one percent of respondents indicated that they have changed their approach to scenario planning (see Exhibit 36). Most said they have increased the number of scenarios in an attempt to capture all the main risks facing the organization. Those who say they have not made changes to scenario planning are smaller firms or firms based outside of North America or Europe.

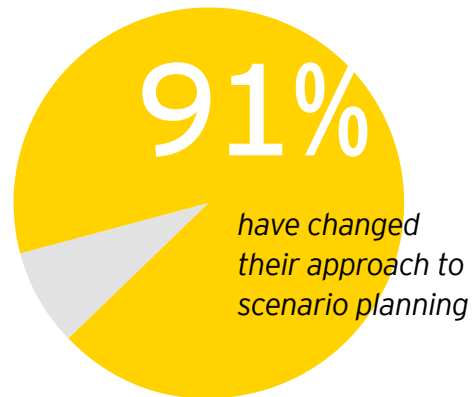


Exhibit 36: Changed approach to scenario planning

Many indicated they have increased the severity of scenarios to take into account both the extreme losses in the crisis and the speed and extent of the contagion across geographies and businesses. The variety of scenarios has expanded to reflect the multitude of potential impacts across risk types and businesses. Executives emphasized the importance of collaborating with the businesses to appropriately identify the key stresses to be captured in each unit, in order to avoid, as one interviewee told us, "Having an isolated group sitting in the bank coming up with scenarios that don't make any sense." Several warned that scenarios must not be "so far out in left field" that they become implausible and unbelievable. Striking the right balance between too extreme and not traumatic enough is challenging.

More than half (52%) of interviewees utilize reverse stress testing to test the combination of factors that could cause the failure of the firm. In a reverse stress test, institutions essentially imagine they have failed and work backward to determine which risks and vulnerabilities caused their hypothetical collapse. A number of executives believe that given the appropriate judgments, this is a valuable exercise to identify risk concentrations, interactions among risks and exposures that could challenge the viability of the organization – either through a large loss or significant damage to the firm's reputation.

Executives cautioned that stress testing approaches can get out of hand, becoming overly complex and too difficult for senior management to analyze and use effectively or for business lines to accept as real-life problems. Many emphasized that analysis must always be paired with seasoned business judgment and common sense.

*"There is not a perfect stress test. It evolves through trial and error."*



## Embedding an enterprise scenario process

One firm has introduced a variety of firmwide scenarios and aggregates the risks under each scenario across all risk categories including market, credit, investment, operational and litigation risk. Additionally, they have developed a process called the business risk component, which focuses on the capacity side of the analysis to simulate the volatility that the firm could be exposed to in terms of its core business plan

in a stress environment. The goal is to try to neutralize or adjust the anticipated pre-risk revenues to reflect a more troublesome or difficult environment. According to the CRO, the process is firmly embedded in the organization, “We are not simply running these tests in response to regulator demands. It is an integrated part of our monthly risk reporting pack to the board and the senior team.”

Without question, the top challenges to effective stress testing are systems and data (see Exhibit 37). More than 80% of respondents cited problems with inefficient, fragmented systems that can’t “talk to each other” to extract and aggregate the accurate, quality data needed to conduct stress testing across the enterprise. Many are struggling with the demands on the resources needed to execute what is often a manual process of conducting tests and gathering results across the portfolios and businesses. One executive told us it takes 150 people across the businesses to analyze the scenarios mandated by both the regulators and the board risk committee. These problems,

however, are already being addressed, and firms are making good progress in improving their risk aggregation and general risk IT capabilities, although there is much that remains to be done.

Most of the interviewees discussed various levels of investment in systems and operational upgrades to improve forecasting. However, almost universally, stress testing was referred to as a work in progress. Executives agreed that improving integrated stress testing to meet the IIF principles and recommendations, the observations of the Senior Supervisors Group and the Basel Committee requirements will be a multiyear process.

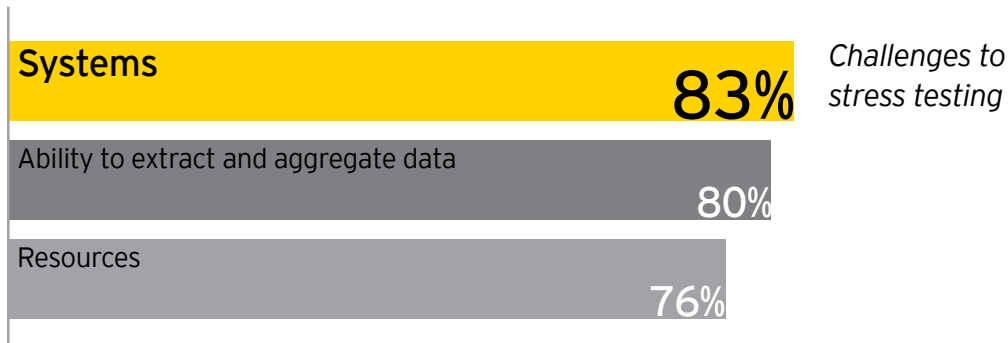


Exhibit 37: Challenges to stress testing

# Internal transparency, data and systems

## Improving the quality, accuracy and timeliness of information and processes to support risk management is a work in progress

Navigating through the ever-evolving economic market and regulatory environment requires visibility and access to the right information across the organization. To determine strategic direction and make effective business and risk governance decisions, management needs timely, accurate data and holistic reports, aggregated across businesses and geographies. Improving internal transparency of information is a significant initiative for most study participants, and firms reported various stages of progress. A few firms described long-term cultures of transparency that encourage communication and information flow between departments and across management teams. Some (15%) are in the beginning stages of planning, and some (26%) reported significant progress. For the majority of firms (59%), systematically improving transparency across the enterprise is a multiyear investment of management time, people and money (see Exhibit 38).

The firms interviewed are predominantly focused on driving improvements in four critical areas:

1. **Upgrading economic models and metrics to measure risk.** Sixty-four percent of respondents reported that they have made changes to their economic capital models (see Exhibit 39), an increase from 42% in the 2009 IIF report, and 86% have added new metrics (see Exhibit 40) to increase transparency and more realistically assess and measure the size and riskiness of exposures. As reported in 2009, firms severely impacted by the crisis are much more focused on making adjustments to their economic capital models.

Many respondents agreed that the models in place before the crisis often underestimated the size and risk of some exposures, particularly across business units. Correlations were far too optimistic and many models ignored risk types that proved to be at the center of some of the pressures during the crisis. Changes reported to economic models included: consolidation of exposures across the group; altering correlations to reflect higher unexpected losses; aligning the credit risk component of the capital model with the Basel II IRB model; diversifying beyond traditional risk types to include emerging areas such as operational, liquidity and reputational risk; and enhancing VaR models to reflect changes in volatility.

Executives indicated progress on transparency in several areas as noted in Exhibit 41. Stress testing and counterparty risk were the top two areas of improvement, followed by VaR, liquidity, valuation

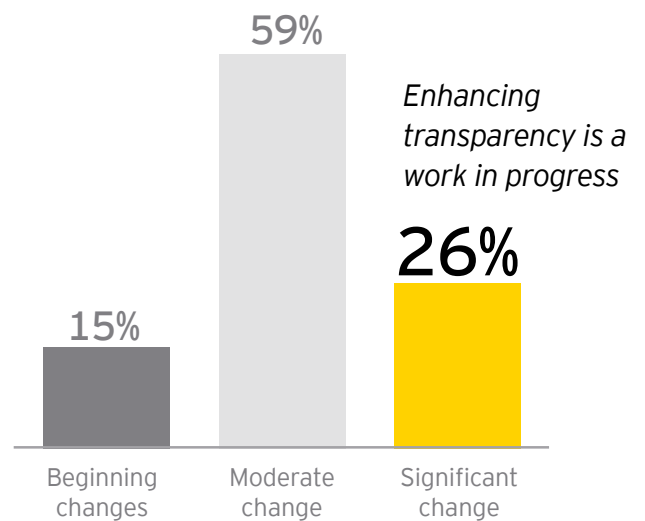


Exhibit 38: Transparency

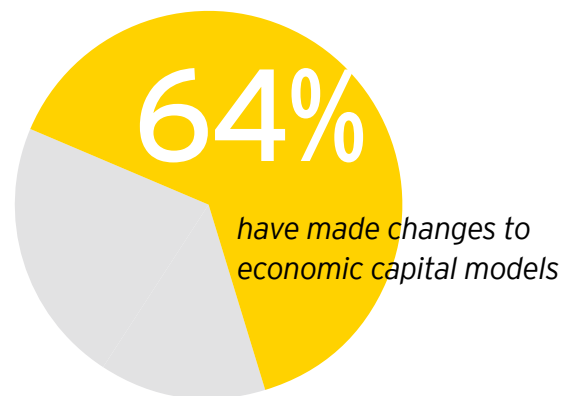


Exhibit 39: Made changes to models

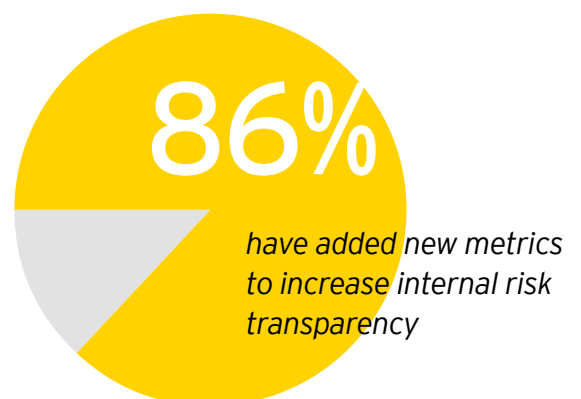


Exhibit 40: Added new metrics



of uncertainty, and notional or gross positions. Several firms discussed an increased focus on legal entities, citing rationalization initiatives to simplify the number of entities in place and enhanced granularity on legal entity reporting. Most activities are targeted on major entities with a “tiered approach” for smaller entities. As one respondent explained, “We are not trying to tackle all legal entities at once, but thought is being given to how we will do this more broadly down the road.”

2. **Improving data aggregation, accuracy and quality.** Data and systems vied for the top spot on the challenges to transparency rankings, and many initiatives are underway to address these issues. Many firms are faced with substantial hurdles surrounding data management and the data infrastructure of the organization. Extraction and aggregation of key data from multiple siloed systems and applications is difficult – particularly for firms that have grown through mergers and acquisitions. Often, systems do not or cannot interface with each other and data collection requires a considerable amount of manual intervention and time.

A few specific areas of focus discussed include:

- ▶ **Data management architecture** – Some firms are reviewing and revising the overall lifecycle of risk information to improve the underlying data quality, including its governance, data acquisition, analytics and reporting infrastructure, or as one executive explained, “Deciding on the backbone of the data management process.” One firm, which was severely impacted by the crisis, undertook an in-depth strategic review of its organizational data architecture to, according to the firm’s CRO, “lay out a clear target model which both risk and firm management buys in to.” The issues reviewed included: the principles governing the flow of data; roles and responsibilities of risk information; transparency and quality of reporting; and timetables to turn positions.
- ▶ **Data warehouse** – Several firms are working on establishing a central warehouse or repository where data can be cleaned, appropriately manipulated

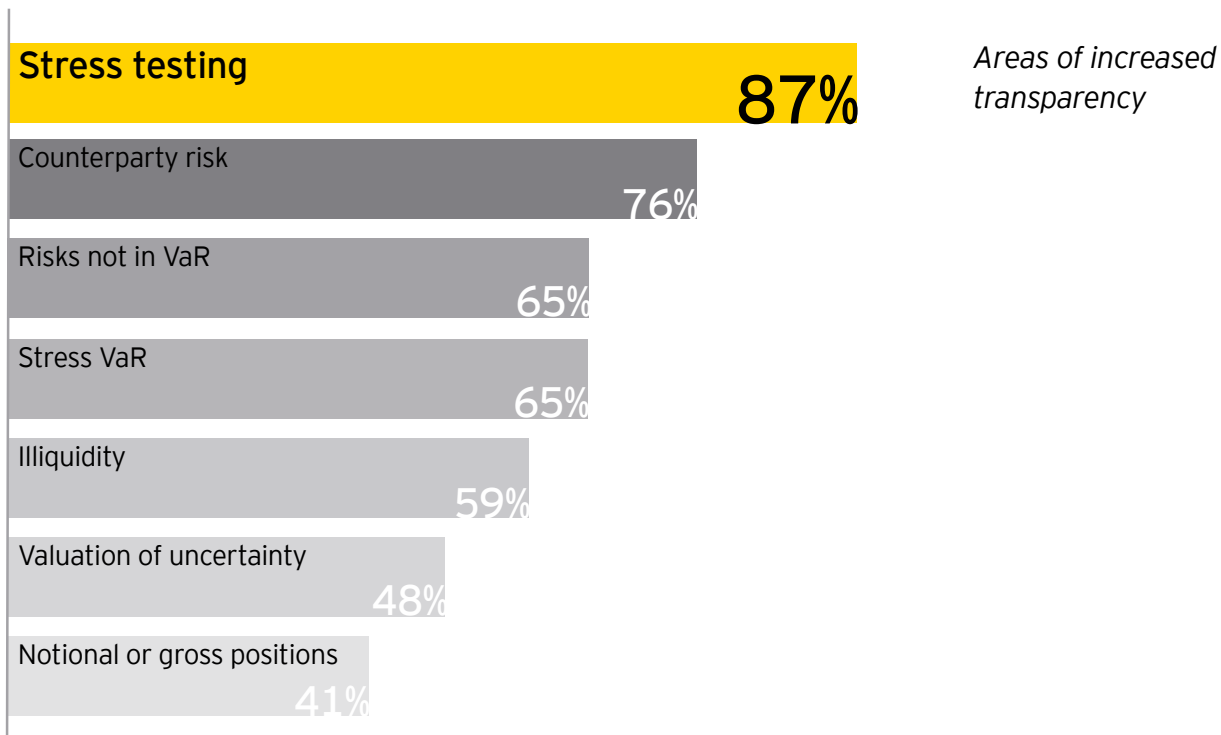


Exhibit 41: Areas of increased transparency



and consistently input into the general ledger systems and the financials. As one executive described their situation, “Like most banks, we have multiple systems across multiple countries with different data formats and multiple information warehouses. Once we get that data into the right place and in the right format, then the second part of making it do something useful tends to be the easier component.”

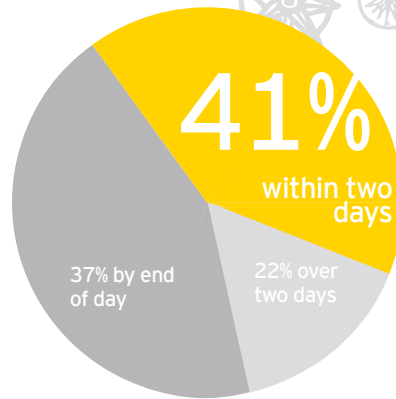
- ▶ Finance and risk alignment – A number of firms are focused on linking risk and financial data to create a single source of data – described by one executive as “a single golden source of information” – to provide management with consistent and integrated information to better facilitate discussions and decisions on risk.
- ▶ Common nomenclature – Many firms have completed or have projects underway to establish a common nomenclature and hierarchy for different product types, which they described as one of their major consolidation challenges. Others have formalized data dictionaries to standardize definitions of terms across the organization.

3. **Streamlining reporting.** Interviewees agreed that effective risk reporting in terms of both content and timeliness is a critical step toward more effective strategic planning and risk governance. Boards, senior management and regulators are demanding more reliable, thorough and timely information on the potential universe of risks facing the organization. A number of respondents are reviewing their reporting packages and hierarchy in an effort to streamline, appropriately focus and tailor the information to the data requirements and specific needs of the various recipients.

One firm has created a risk dashboard of “not more than 40 pages” for boards and senior management, which is supplemented with in-depth reports on emerging issues as they occur. In an effort to make reports more meaningful and valuable to the senior team, one firm has increased the level of analysis and explanations of the drivers and interrelationships of risks and exposures across the businesses.

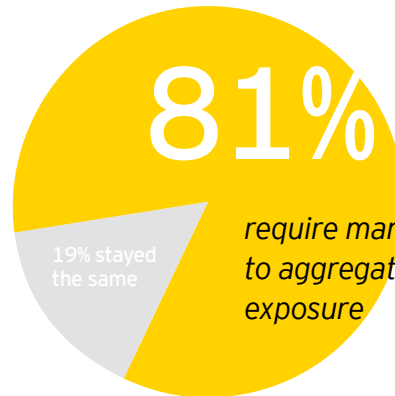
Many firms, at considerable cost and effort, have been working toward end-of-day mark-to-market for some time, but the ability to aggregate counterparty exposure across different business lines remains an important area for investment. Thirty-seven percent of respondents indicated that they can aggregate counterparty exposure across business lines by the end of the day for some, but not all, areas of business. Forty-one percent report it takes two days, again with caveats, and the remainder, 22%, report much longer processes – for some, weeks and in one case, over a month (see Exhibit 42).

Currently, a substantial portion of firms surveyed require manual intervention to aggregate counterparty exposure (see Exhibit 43). The goal for all is to move toward an automated process that reduces reliance on people to pull together and aggregate data across the businesses. As one executive summed up, “We have been a little too reliant on the manual, ‘people-in-running shoes’ kind of control environment.”



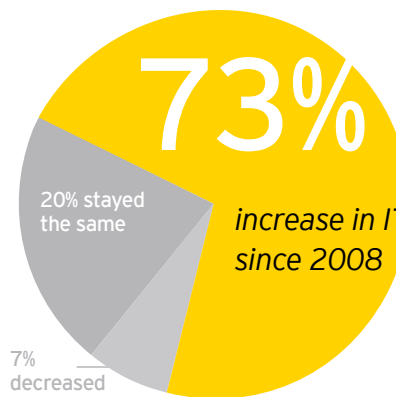
*Time to aggregate counterparty exposure across business lines*

Exhibit 42: Counterparty exposure



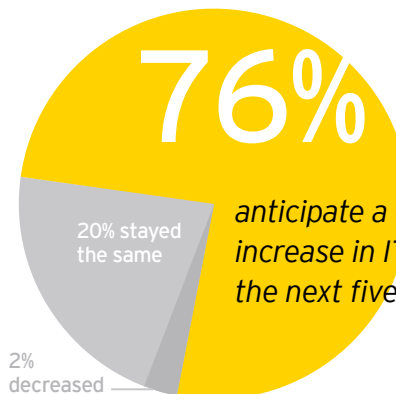
*require manual intervention to aggregate counterparty exposure*

Exhibit 43: Require manual intervention



*increase in IT spend since 2008*

Exhibit 44: IT spend increase



*anticipate a continued increase in IT spend over the next five years*

Exhibit 45: IT anticipated spend



4. Investing in systems. Firms reported that they are investing substantially to upgrade the technology infrastructure to support more effective risk governance. Seventy-three percent of respondents reported an increase in IT spend to support the risk architecture (see Exhibit 44), with more than 40% estimating this increase to be over 30%. And 76% expect these costs to continue to escalate over the next five years, driven predominantly by Basel compliance and the continued uncertainty around the regulatory environment (see Exhibit 45). The firms that indicated no increase in spend since 2008, or anticipated future spend, are predominantly European banks that began investing substantially in IT to support Basel programs beginning in the early 2000s.

Executives described three- to five-year projects to integrate and consolidate disparate legacy systems, automate manual processes and upgrade data quality, accuracy and timeliness. As Exhibit 46 illustrates, most firms reported that work across a range of initiatives is in progress. Not unexpectedly, the improvement of data quality is a priority, with

81% indicating they have initiatives underway in this area. Liquidity data management is also an important focus for many firms, with 74% reporting work in progress. Other systems initiatives include convergence and reconciliation of risk and finance data; collateral management support; aggregation of firmwide data; and integration of enterprise stress testing. The IIF is currently conducting an industry study of risk, IT and operations practices and will release a report to members in June 2011 detailing key principles and recommendations for sound practices.

Several respondents discussed the growing shortage of professionals to manage and execute the many data upgrades and IT initiatives planned or underway across the enterprise. There is tremendous competition both within the organization itself and externally in the market for talent, and many believe that this is a considerable limitation to the speed of project completions. As one executive summed up, "Experience and good project management skills are always challenges in the banking sector. Even with an unlimited budget, progress is constrained by a lack of the right people."

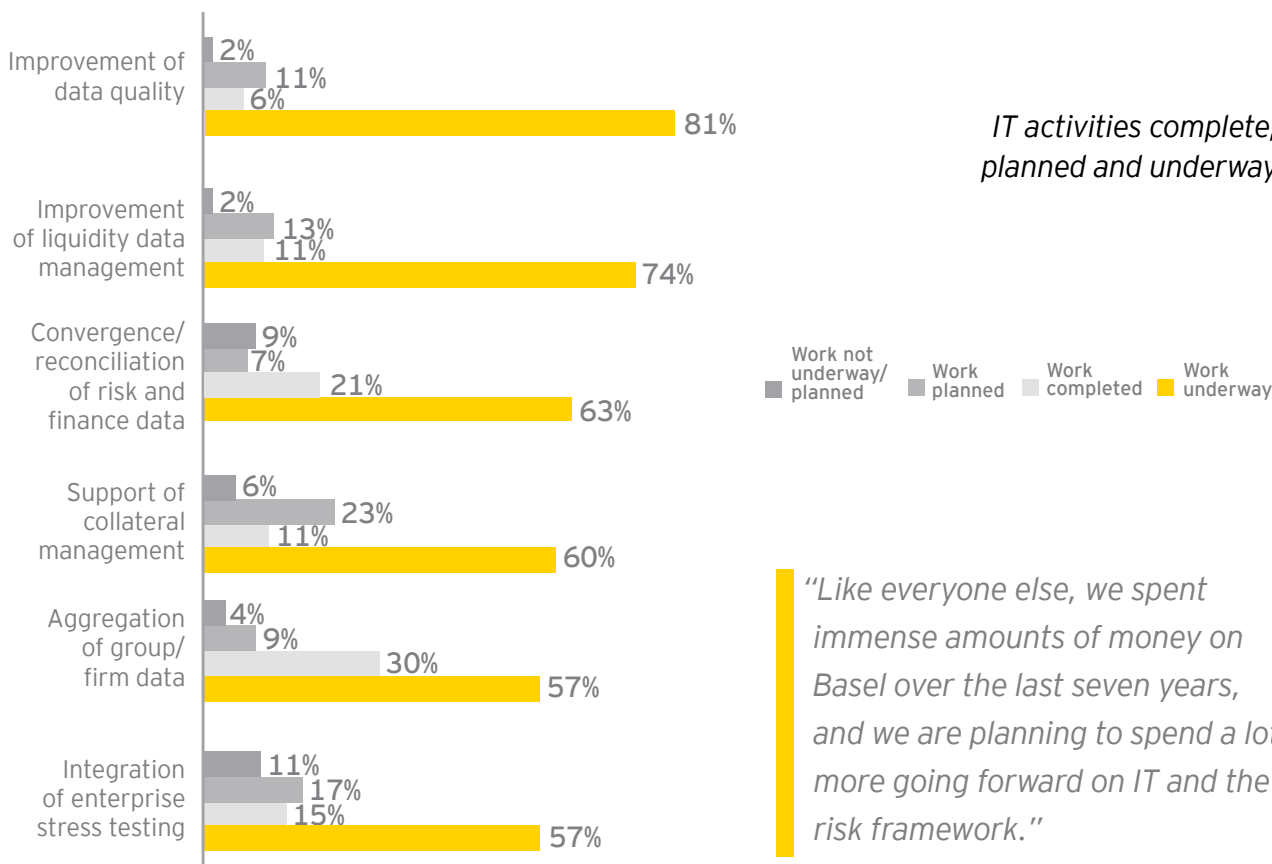


Exhibit 46: IT activities underway

# Conclusion

## Progress is underway, but more work needs to be done

The industry reported significant progress in addressing the inherent weaknesses in risk management exposed by the financial crisis. Many firms made clear that effectively managing risk is now a core business imperative, and significant efforts are underway, driven from the highest levels in many firms, to address deficiencies. The survey indicates that substantial reform initiatives are being implemented in many institutions, particularly in those most affected by the crisis, to improve governance, accountability, metrics, processes and systems to strengthen risk management throughout the enterprise. The industry recognizes that improving risk management and governance is fundamental to creating more robust institutions and a more resilient financial system, along with improved regulation, stronger supervision, and well-designed international resolution procedures.

Responses showed that boards of directors are now playing a prominent role in setting organizational risk policies and parameters and are spending more focused time on risk issues. The power and influence of the Chief Risk Officers and their teams has been elevated, and CROs are now actively participating in diverse areas of the business including strategy and planning, risk appetite definition and management, product development and compensation.

Firms made clear that they have learned the liquidity lesson from the crisis, and many are strengthening the management and control of liquidity risk. Many firms have reassessed their capital structure across all of the businesses to more appropriately analyze the costs of capital, and determine how those costs are calculated and allocated to each business to more accurately reflect risk. Firms also reported considerable progress in the development and strategic use of stress testing. New, more sophisticated models have been put in place to provide a holistic view of potential risks and their impact on the entire organization.

Despite impressive progress on many fronts, the reform programs are far from complete. The changes

required to institute a strong risk culture – where risk is everyone's business from the board to the front line – are fundamental and far reaching for many organizations. Shifting the cultural mindset is a long-term change initiative requiring ongoing commitment of senior management time and resources to institutionalize, and executives admit they still have substantial work to do in this area.

Compensation remains a controversial topic; however, firms made clear they are tackling the issue and, in line with regulatory guidance, have made revisions to their governance, metrics and systems to better align pay to risk-adjusted performance. But progress still needs to be made on several fronts.

Risk appetite has emerged as a critical management tool, and executives are working to define and institute organizational risk parameters. A well-defined and clearly communicated risk appetite provides the connection between the overall business strategy and the risk governance of the organization, and is the cornerstone of an effective risk framework. However, translating the risk strategy into the day-to-day management of the business is a difficult job. For many, risk appetite remains a complex concept and process to understand and implement.

And finally, many institutions reported initiatives to improve the transparency, quality, accuracy and timeliness of information to support risk management. However, most are faced with a number of hurdles surrounding the extraction and aggregation of key data from multiple siloed systems and applications. Many firms described multiyear investments of management time, people and finances to improve the processes and IT systems to support more effective risk management.

The bottom line is that industry commitment to improvement remains high, and firms report significant progress. Many firms are underway with initiatives to strengthen and improve strategies, processes and systems to more effectively manage risk. Firms' managements are confident that the lessons of the crisis will drive positive and lasting change to both their organizations and to the industry overall, but it will take time to deliver change across all fronts.



# Appendix

## Principles of conduct and recommendations

Issued by the *Final Report of the Committee on Market Best Practices, July 2008*. Revised and updated in *Reform in the Financial Services Industry: Strengthening Practices for a More Stable System (The Report of the IIF Steering Committee on Implementation [SCI])*, December 2009.

### Risk management

#### A. Issues of risk management governance

##### Principles of conduct

Principle I.i: A robust and pervasive risk culture throughout the firm is essential. This risk culture should be embedded in the way the firm operates and cover all areas and activities, with particular care not to limit risk management to specific business areas or to restrict its mandate only to internal control.

Principle I.ii: Senior management, in particular the CEO, is responsible for risk management, under the direct oversight of the Board. Both should ensure that the firm has the proper focus on risk, which includes a clear definition of the firm's risk appetite and the constant monitoring of the risk profile in relation to such appetite.

Principle I.iii: To ensure a strategic focus on risk management at a high level, each firm should assign senior management responsibility for risk management across the entire organization. The CRO (or equivalent) should have independence and sufficient seniority to affect decision making in the firm and have access to the Board when needed.

##### Recommendations

###### Organizational focus on risk

Recommendation I.1: Firms should establish clear policies that define risk management as the responsibility of each institution's senior management, in particular the CEO, subject to the oversight of the Board. Senior management should be involved in the risk-control process, and both the Board and senior management should regard risk management and control as essential aspects of the business.

Recommendation I.2: Boards have an essential oversight role in risk management. In attending to this duty, each Board should:

Include members who have an adequate understanding of risk management. Each Board should be given the means to understand the risk profile of the firm and the firm's performance against it;

Consider, depending on the characteristics of the firm, whether there should be separate audit and risk committees and whether at least some members of the risk committee (or equivalent) should be individuals with technical financial sophistication in risk disciplines;

Set basic goals for the firm's risk appetite and strategy, such as ratings or earnings-volatility targets, with senior management and as guideposts for senior management in implementing risk management policies throughout the firm; and

Review with senior management how the firm's strategy is evolving over time and when and to what extent the firm is deviating from that strategy (e.g., when a strategy resulted in heavy dependence on conduits or on structured products).

Recommendation I.3: Risk management should be a priority for the whole firm and not be focused only on particular business areas or made a purely quantitative oversight process or an audit/control function. Mutually reinforcing roles within each organization are essential to creating a strong, pervasive risk culture.

Recommendation I.4: Risk management should be a key responsibility of the entire business-line management, not just of those businesses that invest the capital of the firm on a proprietary basis.

Recommendation I.5: All employees in each organization should have a clear understanding of their responsibilities in regard to the management of risks assumed by the firm and should be held accountable for their performance with respect to these responsibilities.

Recommendation I.6: Firms should implement controls to ensure that the governance structure that has been adopted is actually implemented in managing day-to-day business. The regular and predictable functioning of risk management and governance structures is a fundamental element of effective risk management.

Recommendation I.7: Firms should establish clear policies so that control and audit functions are independent of organizations whose activities they review. Their responsibility is to provide assurance that line businesses and the risk management organization are complying with internal and regulatory policies, controls, and procedures concerning risk management.

Recommendation I.8: The finance and treasury functions should operate in a coordinated and cohesive manner with the risk management function to ensure important checks and balances.

###### Organizational risk appetite

Recommendation I.9: The Board should review and periodically affirm, based on updates to risk metrics and similar guidance and information, the firm's risk appetite as proposed by senior management at least once a year. In so doing, the Board should assure itself that management has comprehensively considered the firm's risks and has applied appropriate processes and resources to manage those risks.

Recommendation I.10: When defining its risk appetite, the firm should be able to demonstrate consideration of all relevant risks, including non-contractual, contingent, and off-balance-sheet risks; reputational risks; counterparty risks; and other risks arising from the firm's relationship to off-balance sheet vehicles (see conduits and liquidity section).

Recommendation I.11: A firm's risk appetite will contain both qualitative and quantitative elements. Its quantitative elements should be precisely identified, including methodologies, assumptions, and other critically important information required to understand risk appetite. Clearly defined qualitative elements should help the Board and senior management assess the firm's current risk level relative to risk appetite as adopted. Further, by expressing various elements of the risk appetite quantitatively, the Board can assess whether the firm has performed in line with its stated risk appetite.

Recommendation I.12: Risk appetite should be the basis on which risk limits are established. Limits need to cascade down from the firm-wide level to business lines and divisions, to regions, and to trading desks. Risk-appetite usage should be measured on a global, consolidated basis and constantly monitored against the limits.

Recommendation I.13: The firm's risk appetite should be connected to its overall business strategy (including assessment of business opportunities), liquidity and funding plan, and capital plan. It should dynamically consider the firm's current capital position, earnings plan, liquidity risks, and ability to handle the range of results that may occur in an uncertain economic environment. It is fundamental, therefore, that the risk appetite be grounded in the firm's financials and liquidity profile. The appropriateness of the risk appetite should be monitored and evaluated by the firm on an ongoing basis.

Recommendation I.14: Firms should involve the risk management function from the beginning of the business planning process to test how growth or revenue targets fit with the firm's risk appetite and to assess potential downsides. There should be clear communication throughout the firm of the firm's risk appetite and risk position.

#### Role of chief risk officer and risk organizations

Recommendation I.15: Each firm should assign to the senior management-level the responsibility for risk management across the entire organization. In most cases, this would be to the CRO, although institutions may structure themselves differently to accomplish the same end.

Recommendation I.16: The CRO should have a sufficient degree of autonomy, be independent of line business management, and have sufficient seniority and internal voice in the firm to have a meaningful impact on decisions.

Recommendation I.17: While firms retain freedom to determine their internal structures, firms should strongly consider having the CRO report directly to the CEO and assign the CRO a seat on the management committee. The CRO should be engaged directly on a regular basis with a risk committee of the Board. Regular reporting to the full Board to review risk issues and exposures is generally advisable, as well as more frequently to the risk committee.

Recommendation I.18: CROs should have a mandate to bring to the attention of both line and senior management or the Board, as appropriate, any situation that is of concern from a risk management perspective or that could materially violate any risk-appetite guidelines.

Recommendation I.19: Firms should define the role of the CRO in such a way that, without compromising his or her independence, he or she is in frequent interaction with the business lines so that

the CRO and all risk managers have sufficient access to business information.

Recommendation I.20: Firms should consider assigning the following key responsibilities to the CRO:

Guiding senior management in their risk management responsibilities;

Bringing a particularly risk-focused viewpoint to strategic planning and other activities of senior management;

Overseeing the risk management organization;

Assessing and communicating the institution's current risk level and outlook;

Strengthening systems, policies, processes, and measurement tools as needed to provide robust underpinnings for risk management;

Ensuring that the firm's risk levels and business processes are consistent with the firm's risk appetite, internal risk policies, and regulatory requirements for risk management; and

Identifying developing risks, concentrations, and other situations that need to be studied through stress testing or other techniques.

Recommendation I.21: The CRO should report to senior management and, as appropriate, to the Board or its risk committee, on material concentrations as they develop, discuss material market imbalances, and assess their potential impact on the firm's risk appetite and strategy. The CRO should ensure a thoughtful, integrated view of the overall risks faced by the firm (including related off-balance-sheet vehicles). At a more technical level, the risk management function should oversee internal risk-rating systems, segmentation systems, and models, and to ensure that they are adequately controlled and validated. Assumptions behind models, grading systems, and other components of quantification should be recognized, and appropriate updates should be made when assumptions no longer hold.

Recommendation I.22: The CRO and risk management function should be a key part of analyzing the development and introduction of new products, including the extension of products into new markets. New products with risk exposure, including those for which the bank accepts contingent liquidity or credit exposure, should be explicitly approved by the risk organization.

#### Resources for risk management

Recommendation I.23: Firms should ensure that the risk management function has a sufficient amount and quality of resources to fulfill its roles. Senior management should be directly responsible for this, under the oversight of the Board.

Recommendation I.24: During the planning and budgeting process, firms should ensure that adequate resources include personnel, data systems, and support and access to internal and external information necessary to assess risk. It is important that the allocation of resources be made under careful cost/benefit considerations as well as proportionality in relation to the firm's size and mix of business.

Recommendation I.25: Risk management personnel should possess sufficient experience, qualifications, and status to exercise

control responsibilities. Credibility requires market and product knowledge as well as mastery of risk disciplines. In addition, firms should consider establishing some (bi-directional) career crossover between risk and line roles. Doing so will contribute directly to improving mutual understanding and strengthen the risk management function.

## B. Risk management methodologies and procedures

### Principles of conduct

Principle I.iv: A comprehensive, firm wide approach to risk management should be implemented by all firms. Such an approach should allow the firm to identify and manage all risks across business lines and portfolios. Robust communication mechanisms should be established so that the Board, senior management, business lines, and control functions can effectively exchange information about risk.

Principle I.v: The risk management framework of firms should clearly avoid over-reliance on single risk methodologies and specific models. Modeling and other risk management techniques should always be a part of the comprehensive risk management system and should be applied using expert judgment.

Principle I.vi: Firms should have policies and procedures to identify and manage risk concentrations. In particular, firms should establish procedures and techniques that adequately aggregate risk exposures across the firm regardless of their contingent or non-contingent, on- and off-balance sheet, or contractual nature.

### Recommendations

#### Risk-identification issues

Recommendation I.26: Risk managers should manage and measure risks on the basis of the firm's approved risk parameters, in addition to any regulatory requirements. External ratings of transactions should not be a substitute for a firm's own due diligence processes especially because such ratings may not address the firm's specific issues or not be calibrated to the firm's standards and risk management goals.

Recommendation I.27: Firms should explicitly integrate an assessment of relevant elements of the macro-economic environment (e.g., from available research and forecasting) into risk decisions, for example, to identify likely impacts on positions, portfolios, or risk management strategy.

Recommendation I.28: Firms should improve, where needed, their approaches to portfolio-level risk management. The identification of the key risk factors and associated risk measures for a specific portfolio allows for the potential impact of change in market fundamentals to be assessed, thereby facilitating effective risk management.

Recommendation I.29: Firms should implement procedures so that portfolio information is designed and organized in a way to facilitate aggregation of a soundly based, firm-wide view of all risks, including concentrations.

Recommendation I.30: Metrics should be calibrated closely to risk-appetite horizons. It may not be sufficient to rely on short-

term VaR and long-term economic capital but metrics at other intervals may be necessary depending on the firm's businesses.

Recommendation I.31: Widely recognized weaknesses in VaR such as dependence on historical data and inadequate volatility estimates should be explicitly addressed by firms when revising and adapting their VaR methodologies. Back testing and stress testing provide powerful tools to identify VaR shortcomings and offset deficiencies.

Recommendation I.32: The risk management function should explicitly incorporate in its procedures the limitations of risk metrics and models (e.g., VaR) that are used in the firm. Such limitations should be addressed by qualitative means, including expert judgment. Risk management procedures should explicitly prevent dependence upon single methodologies.

#### Risk-integration issues

Recommendation I.33: Firms should implement a comprehensive approach to risk, establishing procedures and techniques that adequately integrate different risk strands (in particular, credit, market, operational, liquidity, and reputational risk). Effective communication channels as well as common metrics and IT systems should be put in place in order to achieve a sufficient degree of integration of the different risk areas.

Recommendation I.34: Firms should develop, as needed, an integrated treatment of risk in the new-product process. Such an approach should include periodic review of new products. Firms should consider that migration of underlying assets or other relatively subtle changes in a product over time can affect the risk implications of a product or business.

Recommendation I.35: Close cooperation between the finance (product control and treasury) and risk management functions is essential for capital management, funding, liquidity, and profit-and-loss analysis.

#### Issues regarding securitization and complex products

Recommendation I.36: Regardless of whether the business focuses on any specific portion of a securitization or other product chain, risk management should assess risks on an integrated basis, recognizing interdependencies along the product chain, including those aspects in which the firm is not directly involved (e.g., the firm may not be involved in the origination of debt underlying the products it handles).

Recommendation I.37: Firms should pay particular attention to risk-integration issues especially in dealing with structured products and other product chains. The adequate measurement of correlations and interdependencies is key to appropriately managing risk in these types of products.

Recommendation I.38: Firms should continue developing risk models that specifically address the risks emanating from securitization and other forms of contingent risk. In particular, models should be able to "look through" the direct risk and capture the market sensitivities of the exposures. In this regard, it is fundamental that securitization models specifically address the risk arising from multi-name products.

Recommendation I.39: Both the risk management and finance functions should clearly understand the sources and risk/reward implications of P&L effects.

Recommendation I.40: Risk assessment for new products should consider performance under stress, including both firm-specific and market stress, and new product approvals should include the conditions under which authorization is granted. Examples of conditions include limits, performance requirements, and assumptions that must remain valid. Consideration of reputational risk is also a fundamental component of risk assessment of new products.

#### Concentration risk

Recommendation I.41: Risk concentrations should be adequately identified and managed by all firms. An integrated approach to risk across the firm is fundamental so that all sources of risk (including on- and off-balance-sheet risks, contractual and non-contractual risks, and contingent and non-contingent risks, and including underwriting and pipeline risks) will be effectively captured. Models and procedures should be implemented in such a way that they will be able to capture concentration risks to individual obligors, risk factors, industries, geographic regions, and counterparties (including financial guarantors). Firms should also consider risk concentrations in global markets and how those may affect individual firms (e.g., by increasing asset volatility or reducing available liquidity).

Recommendation I.42: Firms should explicitly take into consideration, when defining their risk appetites and associated limits, the prevention of undue risk concentrations. Limits can play a fundamental role in preventing a firm from building risk concentrations.

Recommendation I.43: Risk metrics should include, when appropriate, a notional and asset class view, recognizing that absolute size of position is important and a consolidated view of positions is essential if held by different trading desks or business units.

Recommendation I.44: Firms should develop and continue to refine stress-testing methodologies that adequately deal with risk concentrations.

### C. Stress-testing issues

#### Principles of conduct

Principle I.vii: Stress testing needs to be approached comprehensively, covering a wide range of risks and correlations among risks. It should be integrated with the overall risk management infrastructure. Policies and methodologies need to be consistently applied throughout the firm and designed in such a way that they effectively evaluate multiple risk factors.

Principle I.viii: Stress testing needs to have a meaningful impact on business decisions. Senior management and Boards have an important role evaluating stress testing results and their impact on the risk profile of the firm.

### Recommendations

Recommendation I.45: Firms should develop internal management procedures that make stress testing part of the management culture, so that its results have a meaningful impact on management decisions. Such procedures should discourage mechanistic approaches and promote a dialogue among the business, senior management, and risk function as to the types of stress tests to be performed, the scenarios most relevant, and the impact assessment of such tests (including the consideration of stress-testing results at the moment of determining the risk appetite of the firm).

Recommendation I.46: Firms should ensure that their stress-testing methodologies are consistently and comprehensively applied throughout the organization, evaluating multiple risk factors as well as multiple business lines and taking group wide views as well as business- and entity-specific views. Stress-testing methodologies should be integrated with other risk management tools as well as other internal processes. Equally importantly, methodologies should take into account proprietary models used by different front-office units.

Recommendation I.47: Stress-testing methodologies should be used actively to complement and explicitly address the limitations of other risk management tools, including VaR. In particular, given the dependence of VaR on historical data, stress testing should be used to test the risk implications of scenarios on which limited historical data are available.

Recommendation I.48: Stress testing should include challenging scenarios. Scenarios should be defined and developed as conditions evolve. Participation of senior management as well as business line staff is fundamental for the adequate definition of such scenarios. Methodologies should balance historical and forward-looking scenarios and avoid static scenarios or ones that no longer reflect market developments.

Recommendation I.49: Stress-testing policies should be designed so that the likelihood of severe events is not consistently underestimated and the firm's ability to manage crises in an effective and timely manner is not overestimated.

Recommendation I.50: Stress testing should play an integral role in assessing the firms' risk profile in relation to its risk appetite and be done across all business activities, risk types, and exposures.

Recommendation I.51: Stress-testing methodologies should be designed to deal adequately with risk concentrations. For this purpose, methodologies should be firm-wide and comprehensive, covering on-balance-sheet and off-balance-sheet assets, contingent and non-contingent risks, and all risks independent of their contractual nature.

Recommendation I.52: Stress testing and related analysis should take into account the risk of model error and in general, the uncertainties associated with models, valuations, and concentration risks that may arise through the cycle. Stress testing should be used to explore the assumptions and identify the limitations of models used for pricing and risk modeling.

Recommendation I.53: Firms should establish adequate procedures so that stress testing captures risks originating from securitization exposures. In particular, firms should ensure that, when dealing with securitized products, a full set of data related to the underlying assets is obtained so that such data can be incorporated in stress-testing models.

Recommendation I.54: Stress testing should include pipeline and warehousing risks (for example with respect to securitizations and leveraged loans) to which the firm accumulates positions for subsequent distribution, and should include events that might delay, change the terms of, or prevent such distribution.

Recommendation I.55: Firms should continue refining stress-testing techniques that take into account the effect of stresses on exposures to leveraged counterparties, including hedge funds, financial guarantors, derivatives counterparties (whether or not they provide hedges), including potential cross-correlation of the creditworthiness of such counterparties with the risks of assets being hedged.

Recommendation I.56: Firms should put particular emphasis on improving their stress testing policies and techniques concerning liquidity risk factors, covering both firm-specific and market-related scenarios.

Recommendation I.57: Firms should reinforce procedures promoting active discussion between senior management and risk management as to the tests to be performed, the scenarios to be tested, and their implications for the firm. Strong feedback loops are essential in any robust stress-testing methodology. Equally important, methodologies should take into account the relationships between stresses and valuation effects.

Recommendation I.58: Both private and public sectors should avoid excessive and misguided perceptions of stress testing as a “silver-bullet” solution. While the benefits and capabilities of stress testing need to be maximized, over-reliance on one single risk tool should be avoided

## Compensation policies

### Principles of conduct

Principle II.i: Compensation incentives should be based on performance and should be aligned with shareholder interests and long-term, firm-wide profitability, taking into account overall risk and the cost of capital.

Principle II.ii: Compensation incentives should not induce risk-taking in excess of the firm’s risk appetite.

Principle II.iii: Payout of compensation incentives should be based on risk-adjusted and cost of capital-adjusted profit and phased, where possible, to coincide with the risk time horizon of such profit.

Principle II.iv: Incentive compensation should have a component reflecting the impact of business units’ returns on the overall value of related business groups and the organization as a whole.

Principle II.v: Incentive compensation should have a component reflecting the firm’s overall results and achievement of risk management and other general goals.

Principle II.vi: Severance pay should take into account realized performance for shareholders over time.

Principle II.vii: The approach, principles, and objectives of compensation incentives should be transparent to stakeholders.

## Liquidity risk, conduit, and securitization issues

### A. Funding liquidity issues

#### Principles of conduct

Principle III.i: Firms should have sound and effective liquidity risk management practices incorporating insofar as applicable to their business models the Recommendations of Principles of Liquidity Risk Management as updated and restated in this Report.

Principle III.ii: Firms should have internal liquidity risk pricing policies sufficient to create incentives for business lines to act in full cognizance of the liquidity risks their businesses incur, permitting firms to manage their liquidity resources prudently.

#### Recommendations

##### 1. Implementation of IIF’s principles of liquidity risk management

Recommendation III.1: Firms should ensure implementation of sound industry practice for liquidity risk management through a continuous review and critical assessment process as appropriate for their businesses, using the Revised and Restated Recommendations set out in Appendix B and in the body of this Report as benchmarks.

Recommendation III.2: Firms should mandate that assets held to back their liquidity positions need to be dimensioned in relation to the anticipated liquidity and currency denomination of such assets and with respect to the reasonably anticipated depth and sustainability of the money markets and capital markets. Portfolios held for such purposes should be well diversified by type of instrument and counterparty. The assessment of assets held primarily for liquidity purposes should not be established solely on the basis of credit ratings. Reporting should keep senior management and relevant control functions apprised of risks associated with assets held for liquidity purposes.

Recommendation III.3: Firms should ensure that reporting to the appropriate committees (e.g., asset and liability committee, credit committee) disaggregates between direct and indirect risks relating to securitizations, so that information on gross as well as net positions is available, in order to ensure full transparency within the firm. At the same time, reporting should aggregate liquidity risks on a firm-wide basis, including both on- and off-balance-sheet transactions.

##### 2. Internal transfer pricing

Recommendation III.4: Firms should ensure that they have in place effective internal transfer pricing policies to reflect implied or incurred actual or potential costs related to reasonably anticipated liquidity demands from both on- and off-balance sheet business. Transfer pricing should take closely into account the liquidity of relevant underlying assets; the structure of underlying liabilities, and any legal or reasonably anticipated reputational contingent liquidity risk exposures. Transfer pricing should be designed to ensure that lines of business within the firm that create liquidity exposures are proportionately charged for the cost to the firm of maintaining corresponding prudent liquidity positions.

##### 3. Liquidity risk stress testing

Recommendation III.5: Firms should ensure access to diversified funding sources (e.g., funding providers, products, regions, currencies) to avoid the risk of overdependence on any form of funding. This includes access to securities and secured financing

markets, in their day-to-day liquidity risk management, and for stress-testing and contingency planning purposes. Firms should periodically reevaluate the appropriateness of the metrics employed and use a variety of firm-specific and market-related events in carrying out this analysis. Market-sensitivity analyses encompassing such items as the effects of contingent drains on liquidity and the adequate pricing of such facilities are important.

Recommendation III.6: Firms should examine through stress testing and analysis the conditions under which the size of their balance sheets might expand during times of stress, and consider appropriate and proportionate contingency plans for such eventualities.

Recommendation III.7: Firms' stress-testing analyses should include "tied-position" situations in instruments that are material for them.

## B. Market liquidity

### Principles of conduct

Principle III.iii: Firms that rely on secured funding or asset sales to a significant extent to manage their liquidity should have robust processes in place to evaluate asset liquidity under a variety of business-as-usual and stressed conditions.

Principle III.iv: Firms should conduct rigorous contingency planning for market risk developments, working cooperatively with the official sector to the extent practicable.

## D. Structured finance vehicles

### Principles of conduct

Principle III.v: Effective risk management should ensure that exposures to conduits and other vehicles, as well as auction-rate securities, are captured in liquidity planning and management and that there is sufficient transparency, capital support, and disclosure by sponsoring firms.

Principle III.vi: Sound liquidity risk management requires inclusion of formal contingent obligations to off-balance-sheet vehicles and appraisal of potential effects of support of vehicles or auction-rate securities for relationship or reputation reasons.

## Recommendations

### 6. Recommendations and considerations for the official sector on securitization and vehicles

Recommendation III.8: Firms' systems of internal control should include all securitization processes, all formal commitments to off-balance sheet vehicles, and all securitization transactions with which the firm is associated. All relevant transactions should be included in the analysis when the firm has formal, ongoing obligations to vehicles or exposures as investor, or simply a role in the transaction that could, under perhaps unforeseen circumstances, result in actual exposure for reputation risk or other reasons.

Recommendation III.9: For management oversight and risk management purposes and to ensure a global view of

exposures, firms should have integrated approval procedures for securitization commitments and transactions. Fragmented approvals that are difficult to aggregate should be avoided, as they may lead to difficulties of aggregation or failure to recognize concentrations.

Recommendation III.10: A firm's risk management and governance procedures should entail frequent review, no less than annually, of all material potential exposures to securitization transactions and off-balance-sheet vehicles, broken down by product; underlying assets; the role played by the firm in transactions (e.g., as originator, sponsor, distributor, trustee); and its positions, if any, as investor in such transactions. Care should, however, be taken to reflect accurately the nature of the firm's exposures in analysis and reporting in each instance.

Recommendation III.11: Firms should consider whether risk of reputation damage could lead a firm to opt to take exposures back onto its balance sheet, with liquidity and capital consequences, even in the absence of legal obligation. The Board should assure themselves that senior management is appropriately attentive to regulatory and accounting requirements on significant risk transfer and consolidation. Supervisors and auditors, however, should not take a firm's assessment or stress testing of such risks as per se grounds to require consolidation for capital or accounting purposes.

Recommendation III.12: Firms should ensure that analysis of concentrations and counterparty risks include exposures to guarantors of transactions, such as monoline insurers. Such analysis also should include direct and indirect exposures arising from associated credit-derivative positions.

Recommendation III.13: Firms' risk management analysis of securitization transactions should include analysis of the performance of underlying assets and any actual or potential resulting exposures.

Recommendation III.14: Firms should ensure that warehousing and pipeline risks of assets held for future securitization or securitization tranches not yet sold are included in the global exposure analysis.

Recommendation III.15: For own-asset securitizations or securitizations structured by the firm, there should be functional separation of groups structuring transactions from those investing or trading in them. To avoid potential structuring/trading conflicts between the origination team and the trading desk that purchases any retained positions or to avoid distorting incentives regarding investment strategy, both groups should provide independent advice to a senior credit decision-making body in the firm with authority to make balanced decisions.

Recommendation III.16: Senior management should carefully assess the risks of vehicles associated with the firm, including assessment of the size and stability of the vehicles relative to their own financial, liquidity, and regulatory capital positions. Analysis should include structural, solvency, liquidity, and other risk issues, including the effects of covenants and triggers, and include such issues in their liquidity stress testing. Senior management should take care that the Board is apprised of the risks of vehicles and cognizant of their implications for the firm's overall risk appetite.

Recommendation III.17: Firms should have a periodic look-through analysis to provide senior management with a

comprehensive overview of securitized assets and securitized asset classes. Both the relevant business units and the risk management function should have the duty to collect and transmit within the firm early-warning signals as to deterioration of underlying assets or other emerging risks that affect its securitization transactions. The firm's structure should ensure prompt risk management attention to such warnings. IT investment should be adequate to support this function.

Recommendation III.18: Firms should be able to include all associated securitization vehicles and their underlying assets in their assessments of group-wide risk concentrations, consistent with Recommendation I.41. Such concentrations should be included in regular reporting to the relevant oversight committees, such as the asset and liability committee or credit committees.

Recommendation III.19: The industry should support development of uniform terminology on securitization transactions and risks. Over time, standardization of deal terms, such as covenants and default triggers, would assist the development of market and management of risk.

## Valuation issues

### Principles of conduct

Principle IV.i: Firms should maintain robust valuation processes in accordance with applicable accounting and regulatory guidance, incorporating critical expert judgment and discipline.

Principle IV.ii: Firms should maintain a comprehensive governance framework around valuation processes, including rigorous verification and control procedures. Internal governance should ensure independence of the functions for control and validation of valuations.

Principle IV.iii: Firms should participate in efforts with the official sector and standard setters to develop meaningful, comparable disclosures on valuations, valuation processes and methodologies, and uncertainties associated with valuations and on approaches to incorporating those uncertainties into the valuation process.

Principle IV.iv: Firms should participate in efforts to enhance the comprehensiveness of coverage and quality of transaction reporting and pricing services in the market. Firms should strengthen governance of price information supplied to the market, particularly data that are not firm quotes. There should be rigorous governance and documentation of procedures covering pricing information supplied to the market to ensure that it is timely, accurate, and balanced.

## A. Management and governance of the valuation process

### Recommendations

Recommendation IV.1: Traders, desk heads, and heads of business all should be accountable for and sign off on proposed valuations to ensure that the business takes primary responsibility for appropriate valuation, subject to proper review and governance as outlined in Recommendations IV.2-IV.8.

Recommendation IV.2: Firms should ensure consistent application of independent and rigorous valuation practices.

Recommendation IV.3: Firms should apply appropriate expert judgment and discipline in valuing complex or illiquid instruments, making use of all available modeling techniques and external and internal inputs such as consensus pricing services while recognizing and managing their limitations.

Recommendation IV.4: For assets that are measured at fair value on a basis related to intended use rather than their actual current status (e.g., whole loans in a warehouse or pipeline that are likely to be distributed or securitized and are measured as a pool), there should be additional internal monitoring of the valuations at which they could be disposed of in their current form if securitization is not carried out.

Recommendation IV.5: A firm's governance framework around valuation processes should integrate input from risk management, finance, and accounting policy to ensure proper product and risk control. The process should include senior management involvement.

Recommendation IV.6: Internal governance should ensure independence of those responsible for control and validation of valuations. This should be structured to ensure that valuation control groups are not too remote from market functions to understand developments or too close to the sales and trading functions as to compromise their independent posture.

Recommendation IV.7: Relevant control functions within a firm should regularly review independent price verification procedures and sources and challenge their usage as appropriate. There should be clear procedures for resolution of disagreements about valuation issues and for escalation of material valuation issues to the audit or risk committee of the Board when appropriate.

Recommendation IV.8: There should be regular involvement of the CRO and/or CFO (or equivalent positions) in considering valuation issues, including valuations of assets held by offbalance-sheet vehicles. Finance committees and the CFO should be aware of and consider valuation issues on a regular basis.

Recommendation IV.9: Firms should ensure that new-product and associated model and pricing approval processes are in place to ensure that new products, asset classes, and risk types are valued appropriately, given volumes and other operational risk factors.

Recommendation IV.10: Firms should have business-as-usual model-review and price verification organizational structures, processes, and policies in place.

Recommendation IV.11: Firms should ensure that they have a consistent valuation approach for similar assets and liabilities. Firms should ensure that there is a process in place to identify and escalate inconsistencies to senior management.

Recommendation IV.12: Valuations should be subject to sensitivity analysis to evaluate and inform the organization about the range of uncertainty and potential variability around point estimates.

Recommendation IV.13: Firms should have a robust framework in place to oversee and ensure the integrity and consistency of accounting policy as applied within the firm.

Recommendation IV.14: Firms should ensure that there is a process to highlight accounting policy decisions for management consideration; this process should include developing an understanding within the firm of the impacts of accounting requirements and accounting policy on the valuation process.

Recommendation IV.15: Firms should recognize that transaction prices may become dated and dealer quotes may not reflect prices at which transactions could occur, especially during periods of low liquidity. Firms should devote the analytical resources necessary to checking valuations made on such bases and make adjustments when deemed appropriate.

Recommendation IV.16: Small to medium-sized firms, given their limited resources, should develop at least internal benchmarking and not rely purely on dealer quotes for valuations.

Recommendation IV.17: Firms should have valuation procedures, with appropriate governance processes, in place for times of market stress, including how to recognize and react when changes in market liquidity or volatility require changes in valuation approaches for individual assets.

Recommendation IV.18: Firms should assess the infrastructure and price testing implications of moving from observable market prices to other valuation techniques, including mark-to-model for material asset classes, and incorporate such implications in resource planning.

Recommendation IV.19: Firms should have adequate resources to accommodate the demands of producing valuations during a period of market disruption.

Recommendation IV.20: For purposes of regulatory capital, the process of evaluation of whether an instrument should be placed in the trading or banking book should be subject to objective criteria and control procedures. Firms should provide clear explanations internally and to auditors as to why instruments were initially placed in the trading book or the banking book under prudential and accounting tests.

## B. Improving infrastructure

### Recommendations

Recommendation IV.21: Price discovery for valuation purposes should be improved through broader, more widely available, and easily accessible price utilities (including aggregate transaction-price reporting where available or consensus-pricing services or similar services), incorporating a wider array of instruments and data on underlying assets.

Recommendation IV.22: Firms should have appropriate controls over prices submitted to utilities to ensure not only that high-quality prices, consistent with the rules or requirements of each service, are submitted but also that the firm submits prices for as many material positions as possible when available.

Recommendation IV.23: Utilities should seek inputs from as broad a range of sources as possible, provided that entities supplying inputs meet clearly defined criteria as to their technical capabilities and the quality of prices supplied.

Recommendation IV.24: Where other valuation indications are less than satisfactory, firms may wish to consider using available information about valuations from collateral and repo experience.

Recommendation IV.25: There is a need for index providers and the industry to address the recognized weaknesses of some of the most-used indices, including improving coverage, liquidity, and transparency as to inputs and attention to reliance on them for different purposes (e.g., market making, trading, traders' valuations, hedging, investors' valuations).

## Credit underwriting, ratings, and investor due diligence in securitization markets

### A. Originators/sponsors, underwriters, and distributors

#### Principles of conduct

Principle V.i: Firms involved in the "originate-to-distribute" process should conduct thorough due diligence at all stages to maintain the integrity of the process.

Principle V.ii: For all loans or products in pools, originators should apply appropriate lending standards.

Principle V.iii: Sponsors compiling and maintaining pools to underpin structures should clearly define an appropriate approach to credit approval for exposures included in the structures, and should ensure that this is carried out as thoroughly as would be the case if the exposures were to be held on the sponsor's own balance sheet.

Principle V.iv: Originators and underwriters should disclose, on a timely basis, appropriate and relevant information about structured products and their underlying assets to investors and rating agencies.

Principle V.v: Originators and underwriters need to consider the general appropriateness of a structured product being sold to an institutional investor.

### Recommendations

#### Due diligence

Recommendation V.1: Originators, sponsors, and underwriters should:

Adopt and follow appropriate due diligence standards;

Ensure that appropriate and relevant information is released in a timely manner; and

Ensure that appropriate ongoing monitoring and disclosure of the performance of the underlying collateral is carried out.

Recommendation V.2: Firms should subject assets that they help originate and distribute to the same credit due diligence standards as used for similar assets that are to be carried on the firm's own balance sheet. For third-party assets for which financial institutions act as sponsors, an appropriate due diligence process should be conducted. Alternately, firms should disclose reasons for not observing their usual credit due diligence processes.

Recommendation V.3: Firms should consider the general appropriateness of products for specific types of institutional investors. Sales processes within firms should be reviewed to ensure proper consideration of the risk factors of products and risk profiles of investors at the time of sale.

Recommendation V.4: All originators of assets underlying securitized instruments, whether regulated as banks or not, should adhere to basic credit principles, such as making a reasonable assessment of the borrower's ability to pay; documentation should be commensurate with such basic requirements.

## Origination Standards for Leveraged Loans and Other Corporate Obligations

Recommendation V.5: Basic credit principles need to be followed during negotiations between borrowers and lenders (including underwriters, sponsors, and other agents), and the risk implications of negotiated terms of lending transactions need to be analyzed carefully.

### Potentially Conflicting Large Trading Patterns

Recommendation V.6: Firms should implement mechanisms for escalating potential conflicts or contradiction between their trading and placing strategies to an appropriate senior-management body. Such body should be at a level with sufficient authority to adopt measures deemed necessary to resolve any such conflict, including change of sales or trading strategy, where appropriate. Clear policies also should be in place to determine when to disclose any such conflict to potential investors in a particular product.

## B. Rating agencies

### Principles of conduct

Principle V.vi: Ratings reports (published by rating agencies) should assess and clearly articulate the key risk features and underlying structures of products, including qualitative information such as the lending standards being applied and amount of sampling of borrower documentation, as well as quantitative factors that the ratings agency considers relevant.

Principle V.vii: Industry standards should be developed regarding the internal processes within rating agencies, covering independent validation and regular monitoring of models, assumptions, and stress testing.

Principle V.viii: External review of rating agency processes against agreed standards is essential for the credibility and reliability of ratings.

### Recommendations

Recommendation V.7: Rating agencies should provide greater clarity regarding the target for a structured finance rating; the definition of default and probability of default should be clearly set out. More information should be provided on the assumptions behind the modeling of particular structures and the sensitivity of outcomes to small changes in assumptions, for example, by discussing correlation and stress tests. More focus should be given to likely recovery (taking into account relevant factors such as triggers) for different securities either in the rating or in an additional marker. There also should be clarity with regard to the factors that could lead to a downgrade.

Recommendation V.8: Ratings should take into account qualitative factors such as lending standards of the originator and the amount of sampling of borrower documentation.

Recommendation V.9: The ratings for different tranches also should take into account the effect of default triggers<sup>428</sup> on the behavior of structured products (impact on capacity to pay) and recovery values for investors given default.

Recommendation V.10: Rating agencies should provide information on risk factors relevant to structured products. In addition, rating agencies should develop a different or additional

ratings scale or indicator for structured products (compared to corporate bonds).

Recommendation V.11: To restore market confidence, standards should be adopted by rating agencies regarding internal processes for independent internal validation and monitoring of the models used to rate structured products.

Recommendation V.12: Independent monitoring units within the agencies should review the reasonableness of the assumptions and stress tests for structured products against ongoing performance data on the loans in the pools as well as any changes in the qualitative factors. IT and data archiving should support frequent monitoring and validation.

Recommendation V.13: An external mechanism including rating-industry experts should be created to develop standards and to review rating agencies' internal processes to assess adherence to such standards. Such review would address the robustness of processes surrounding model building, development of applications, monitoring of models and processes, and governance. It would not, however, seek to validate criteria, methodologies, models, or assumptions as such. Such standards should be developed taking into account the issues highlighted in Appendix C, and any additional issues as stakeholders or rating agencies may suggest from time to time.

## C. Investors

### Principles of conduct

Principle V.ix: Investors should conduct their own due diligence on structured products and analyze each product against their investment mandates, investment time horizons, and risk appetites.

### Recommendations

Recommendation V.14: Investors in structured products should ensure that they have sufficient technical skills and resources to understand the products and conduct in-house risk assessment rather than rely simply on ratings.

Recommendation V.15: Investors should develop robust in-house risk-assessment processes that would require them to conduct a thorough analysis of each structured product before making an investment decision.

Recommendation V.16: Investors should review their governance processes to ensure that there are adequate controls over possible investments in structured products. Controls or mandates should not refer solely to ratings; there should be separate, documented risk decisions and review processes regarding structured products.

Recommendation V.17: Prior to purchase, and on a regular basis thereafter, investors should assess that products are consistent with the risk appetite for the particular portfolio in which they are to be held.

Recommendation V.18: A monitoring process should be established by investors to consider ongoing performance data on the pool of each material structured product. Clearly documented internal processes should ensure regular revaluation of products.

Recommendation V.19: Control of valuations by investors should be independent of portfolio managers or traders.

Recommendation V.20: When considering investments in structured products, institutional investors are encouraged, as part of their due diligence process, to ascertain and take into account whether firms originating or sponsoring such products have a policy of holding a portion of the products, and consider whether such policy ought to influence their investment decisions.

## Transparency and disclosure issues

### Principles of conduct

Principle VI.i: The content and clarity of firms' disclosures as well as comprehensiveness of coverage are of primary importance.

Principle VI.ii: Risk disclosures should provide the clearest possible picture of a firm's overall risk profile and the evolving nature of risks as well as salient features of the risk management processes.

Principle VI.iii: Global standardization and harmonization of market definitions and structures are essential for the future development of the structured-products market.

Principle VI.iv: In fulfilling disclosure mandates, firms should ensure that disclosures include the most relevant and material risks or exposures arising under current market conditions at the time the disclosure is made, including off-balance sheet risks or exposures, especially for securitization business.

Principle VI.v: Firms' public disclosures should include substantive quantitative and qualitative information about valuations, valuation processes and methodologies, assumptions, sensitivities, and uncertainties.

## A. At the structured-products level

### Recommendations

#### 1. On prospectus disclosure

Recommendation VI.1: Offer documents should have an executive summary of key features and a list of certain central risk features in a prominent position. An industry group should produce a reasonably standard layout for an executive summary and risk information.

#### 2. On standardization and increased transparency

Recommendation VI.2: Firms should endeavor to standardize market definitions and structures and to clarify and standardize the roles of agents at a global level.

#### 3. On harmonization

Recommendation VI.3: The industry should develop harmonized guidelines for transparency and disclosure for structured products across major markets.

#### 4. On dissemination of information

Recommendation VI.4: The industry should consider adopting common platforms and technology to improve access to information and widen the dissemination and distribution of information and documents among market participants.

## B. At the financial institution level

### Recommendations

#### 1. On risk

Recommendation VI.5: Firms should ensure that their disclosure provides a sufficient overview of their current risk profiles and risk management processes, and highlights key changes (from previous periods) to their current risk profile, including their securitization activities. This overview should have an appropriate balance between qualitative and quantitative information, with a view to providing both a snapshot of the risk position and a perspective on the risk strategy of the firm, including its approach to liquidity risk management.

#### 2. On valuations

Recommendation VI.6: Firms should put in place substantively useful disclosure of valuation processes and methodologies and of the limitations of models, including adjustments and risk sensitivities.

Recommendation VI.7: Firms should include clear and useful disclosures of valuations based on limited market inputs or based on mark-to-model procedures and about material changes in the bases of valuations if, for example, certain assets become less liquid and can no longer be valued from market inputs.

Recommendation VI.8: Firms should disclose the inherent uncertainties associated with material valuations, the limitations of models, and the sensitivities of assumptions and inputs into the models, model adjustments, and reserves, for all positions deemed material, to enhance the understanding of market participants.

Recommendation VI.9: Firms should disclose the limitations of indices used in valuations.

#### 3. On liquidity

Recommendation VI.10: Firms should provide meaningful disclosures for material actual or contingent funding requirements for off-balance sheet vehicles, including contractual obligations and funding requirements that may reasonably be expected to arise for reputational or other reasons.

## Systemic risks and market monitoring group

### Principles of conduct

Principle E.i: In their risk management, individual firms should take due account of systemic risks in addition to the risks to which they are more directly exposed.

Principle E.ii: While risks should be managed by individual firms, the analysis and assessment of systemic risks would benefit from diverse expertise, experiences, and perspectives that are available in the financial industry as well as those available in the official sector.

### Recommendations

Recommendation E.1: A proposed Market Monitoring Group under the auspices of the IIF, which the Board has endorsed, will be formed to serve as a forum for member firms to monitor global financial markets for early detection of vulnerabilities having systemic implications and for examination of market dynamics that could lead to major financial market strains and to discuss ways to address such risks. The Market Monitoring Group is expected to provide private sector interface with the various public-sector groups that are engaged in similar monitoring activities through regular meetings.

## New recommendations on risk management and compensation

### Risk culture

New Recommendation A: Risk culture can be defined as the norms and traditions of behavior of individuals and of groups within an organization that determine the way in which they identify, understand, discuss, and act on the risks the organization confronts and the risks it takes.

New Recommendation B: Management should take an active interest in the quality of the firm's risk culture. Risk culture should be actively tested and objectively challenged in a spirit of fostering greater resilience and encouraging continuous improvement, reflecting the strategic aims of the organization.

New Recommendation C: Firms should ensure that relevant personnel have their formal responsibilities for risk clearly elaborated in their job descriptions and be evaluated for their fulfillment of these responsibilities as part of firms' periodic performance review.

New Recommendation D: Any material merger or acquisition should be the occasion of a serious analysis of the risk culture in the new organization; the opportunity to take action to correct problems and foster a positive risk culture should not be overlooked.

### Risk models

New Recommendation E: No risk model should be used in isolation. Different models used in risk management draw out different perspectives on "risks." A holistic perspective on an organization's risk profile is best achieved through the use of several models and multiple measures of risk, each drawing out different aspects of the institution's risk profile in a given area.

New Recommendation F: All model assumptions should be explicitly documented, understood in terms of their materiality and implications, and subjected to an appropriate review and approval regime. Documentation and analysis also should include assumptions around the use of proxies (e.g., as data sets) in models. All assumptions should be periodically reassessed; assumptions deemed immaterial in one market environment may evolve into critical assumptions in a different market environment (e.g., where a "crowded" market has evolved).

New Recommendation G: The degree of complexity chosen when developing an internal model should be subject to an open dialogue with senior management, supported, whenever necessary, by regular evaluations conducted by independent subject matter experts (i.e., internal or external resources not involved in the design or build of the model).

New Recommendation H: Liquidity should be considered in all areas where models are used. Liquidity is not only relevant to asset and liability management processes; it can also be an important risk dimension hidden within model assumptions. Institutions should take time to understand to what extent models make inherent presumptions about liquidity, draw out such assumptions to make them explicit, and subject such assumptions to an appropriate review and approval regime.

New Recommendation I: Senior management should understand how key models work, what assumptions have been made and the acceptability of these assumptions, the decisions around the

degree of complexity chosen during model development, the adequacy of operational support behind the models, and the extent and frequency of independent review of the models. They should ensure that appropriate investments have been made in systems and qualified staff.

New Recommendation J: Senior management should ensure that the models are effectively used by management, the risk department, and key staff as "tools" for managing risk, not allowing models to substitute for the "thinking" processes required of managers. Robust and regular dialogue on the risks as seen by managers versus model outputs should be occurring; any evidence of "tick-box" dynamics should be treated as a cultural red flag.

### Risk management across economic cycles

New Recommendation K: Institutions should continually assess their risk appetite and business activities—particularly during boom times—to ensure that they remain in line with strategic objectives and are appropriate for the current business and competitive environment. When considering their potential actions and responses to economic and market developments, both business management and risk management officers should take into account, insofar as possible, likely macrofinancial developments in the overall market environment.

New Recommendation L: Firms should examine potential exposure to cyclicalities in their business models, policies, and measurement tools. This should cover all relevant risk types of the firm and include an assessment of the:

Extent to which risk measures tend to be "point-in-time" vs. "through-the-cycle";

Reliance on the liquidation of positions as a response to increasing risk;

Reliance on cyclically sensitive factors (e.g., interest rates) in the firm's business model;

Degree of maturity transformation in firms' and customers' portfolio; and

Vulnerability to a more extreme downturn than has been observed in recent history.

New Recommendation M: Institutions should align their risk measures with their intended strategic and business objectives, balancing the need for point-in-time risk-sensitive measures for day-to-day risk management with longer-term strategic objectives for stable capital requirements. Firms should ensure that these choices are clearly communicated to all involved and that models and methodologies are consistently applied and appropriate for their use.

Banks should make conscious choices about design of risk measurement tools, deciding whether these should be relatively more sensitive to and reflective of current conditions or be more stable across the economic cycle—and thoroughly understand the consequences and vulnerabilities associated with their choice of methodologies in each case. In particular, firms should ensure that credit risk measures are sufficiently sensitive to enable the rapid detection of deteriorating counterparties for day-to-day risk management purposes while avoiding excessive reliance on PIT measures for forward-looking risk and capital assessments.

New Recommendation N: Firms should have available a set of potential measures for adjusting their actual capital structures in line with cyclical developments in capital requirements. This could include instruments such as contingent capital but should also consider the articulation and implementation of an active and flexible dividend policy and active management of share buy-back programs and similar tools. A choice of tools should enable banks to balance the need to conserve capital with wider business and strategic objectives.

The capital plan should not rely excessively on assets sales or raising capital in the market as a response to adverse conditions. Along with share buy-backs, contingency plans should include downside triggers, for example, when one would set aside short-term growth objectives or sales targets in incentive plans, or when one would tighten lending standards, as well as upside triggers, for example, when one would review practices to determine if lending standards were easing in response to competition or when one should review scenarios in stress-testing.

New Recommendation O: In performing their forward-looking capital planning both for internal purposes and for Pillar 2 discussions with supervisors, firms should take into account a broad view of potential procyclicality on capital requirements and availability over appropriate medium-term horizons. Such focus on procyclical effects should incorporate the interaction of risk and accounting measures, regulatory requirements, and pending changes therein, and figure in the program of stress testing.

New Recommendation P: Financial institutions and their Boards of Directors and managements must exercise judgment over business, risk, and capital planning, and the related stress testing, over a planning cycle that includes future cyclical developments. Governance must consider whether the system functions appropriately through the entire cycle and ultimately should be the responsibility of the Board of Directors. It is essential that both risk and finance functions be included in the governance process to ensure that the interaction of risk and accounting with respect to balance sheet, P&L, and capital effects are properly understood and integrated in decision-making processes.

#### Governance recommendations

New Recommendation Q: The governance changes already under way should be pursued as a matter of good business practice within the broad range of market practices designed to avert crises and restore confidence; critical changes should be prioritized and finalized, without delay, notwithstanding the pace of domestic regulatory guidance.

New Recommendation R: As the bonus round approaches, individual firms and domestic industry bodies should consider ways to better explain the intricacies of the compensation debate to shareholders, and the broader public, recognizing previous shortcomings, and highlighting the reforms already accomplished and under way, with special emphasis on adherence to regulatory standards already in effect.

#### Risk alignment recommendation

New Recommendation S: Firms should ensure that compensation schemes incorporate major risk types and account for cost of capital and the time horizon of risks associated with future revenue streams. Teams incorporating business, risk management, finance, and human resources expertise should be engaged in the design of new compensation structures for use in the 2009 and subsequent compensation cycles.

#### Risk payout structure recommendations

New Recommendation T: Firms should move to adapt risk-alignment concepts such as deferrals and clawbacks to their own business models in light of prevailing regulatory and market environment.

New Recommendation U: We call on the FSB and national regulators to carry out a benchmarking exercise, especially with regards to deferrals and ratios of variable to fixed compensation that would guide the development of industry practices towards harmonized approaches across jurisdictions.

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