

Risk Governance and Risk Appetite

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Risk governance is an extremely important topic. As we go to press, there is considerable attention being paid to the risk governance issue that may or may not exist in the JPM/CIO loss. While it would be unfair to say that risk governance did not exist in some fashion when the first edition of this book was published in 2000, the landscape has changed dramatically. Regulators and rating agencies have embraced the importance of risk governance and it has become a hot topic in the board room. While effective risk governance is essential, the ultimate risk-management goal of an effective financial institution is a risk-conscious culture. It is important that every employee, no matter what their job function, understand that they are part of the front line protecting the institution from unintended risk.

Whether a financial firm chooses to formally budget risk or not, effective risk governance is essential. Here are some of the key components of effective risk governance:

- ❑ a clear, well articulated risk-appetite and risk-attitude statement;
- ❑ an independent, strong and respected chief risk officer who has unfettered access to the board risk committee;
- ❑ an effective governance structure, including a board risk committee;
- ❑ clear and well-documented policies;

- ❑ clear limits, risk budgets and so forth;
- ❑ effective risk reports that focus on trends, exceptions and issues;
- ❑ a balanced and integrated framework that includes both rear-view-mirror measures such as value-at-risk (VaR) and forward-looking measures such as stress tests, as well as a clear understanding of the strengths and weaknesses of each;
- ❑ a clear linkage between strategy and risk appetite;
- ❑ management risk committees appropriate to the nature and scope of the business; and
- ❑ a compensation framework that is risk-adjusted.

This chapter examines these components one by one in order to firmly establish the importance of good risk governance and how it functions.

A RISK-APPETITE AND RISK-ATTITUDE STATEMENT

A risk-appetite statement is a simple way for a board to communicate its risk appetite and tolerances to management, and for a firm to communicate its risk appetite and attitude to its employees and stakeholders. A risk-appetite statement should communicate clearly a firm's appetite for risk overall and for specific types of risk. "Risk appetite" is different from "risk capacity". Whereas "risk capacity" is the maximum amount of risk a firm is technically allowed to take given its regulatory and capital constraints, "risk appetite" is the management and board's tolerance for risk and usually is lower than the firm's "risk capacity". An organisation needs to be clear and totally aligned as to risk appetite.

In addition to identifying both quantitative and qualitative parameters for an organisation's risk tolerance, an effective risk-appetite statement should also clarify an organisation's risk attitude. An example, some firms might be more comfortable with market risk than credit risk, while others might have the opposite preference. Some firms might have an aversion to hard-to-value Level 3 assets, a desire to allocate at least 25% of their risk appetite to new businesses (or to acquisitions or international expansion) or a preference for businesses that do not require wholesale funding. An effective risk-appetite statement will communicate these preferences to guide all levels of the organisation. An example of an expression of attitude towards limits might include that limits are:

- ❑ a guideline that initiates a dialogue at an escalated level when exceeded; or
- ❑ a hard limit that should never be breached.

A risk-appetite statement is typically only a few pages long, and often is only one page. It can be situated within a longer document that includes a full risk profile of the company at the start and a set of risk metrics and controls on those metrics at the end. The risk-appetite statement needs to be relatively timeless and, while it can and should be reviewed annually or when circumstances change, the basic principles are unlikely to change frequently. The risk metrics, in contrast, can be reviewed and altered based on changing market conditions more frequently.

Should a risk-appetite statement be public? While most statements have historically been thought of as proprietary and to be shared with employees, regulators and ratings agencies only, increasingly we are seeing firms make their statements (excluding risk-profile or risk-control metrics) available publicly.

The risk-appetite statement itself, while substantive, is not the major benefit of the considerable effort that goes into producing it. The informed discussions about risk that the process of creating a risk-appetite statement requires are themselves a significant benefit, if done well. Generating a risk-appetite statement forces high-quality discussions among management and between management and the board of directors. In some cases that we have seen, those discussions might never have previously occurred on some topics. As a result, there are often misconceptions about the company's risk posture and/or attitude. While it is not necessary for all directors to know the details of all risk positions, directors need to have a basic grasp of the risks facing their company and of the steps taken to mitigate or control those risks. Furthermore, they need to be fully acquainted with management's thinking and be able to debate and oversee that thinking.

THE RISK-APPETITE PROCESS

Whether the process is board-driven, management-driven or a joint effort, we have yet to see a case where there are not some areas of disagreement about risk appetite that are identified through the

process that were formerly unknown. In one case we were involved with, a pension fund, we polled management about its basic level of risk-aversion and found a bimodal distribution. The portfolio managers were highly risk-tolerant while all other members of management wanted a low and stable return with low risk. Perhaps more important than the difference of opinion was the fact that each group had been under the impression that the other group agreed with it. The risk-appetite process catalysed for the first time a discussion about the amount of risk the fund was comfortable with and the returns it expected to generate.

In other cases, including those of a bank and a broker-dealer, management was highly averse to volatility in earnings while the boards were very prepared to accept volatile earnings in pursuit of good return opportunities. The key issue was that, in both cases, management and the board were under the misconception that they already had consensus. The board did need an explanation of the possible risks of the strategy but, given that explanation, was perfectly prepared to tolerate volatility on behalf of the shareholders. The resolutions were interesting: in one case the board persuaded management to take more risk, and to explain it thoroughly to the board. In the other, management convinced the board that it should take less risk than the board had wanted.

Creating a meaningful risk-appetite statement requires significant time and, ideally, is an iterative process. It is often not easy to start conversations about what can be a technical topic. Intermediaries can sometimes help to initiate that process, but ultimately the process needs to become self-sustaining. Most importantly, a consultant cannot write the risk-appetite statement – a consultant can merely facilitate. The statement needs to be written by the company and its board and owned by them.

STRATEGY AND SCENARIOS

We find that an interactive process with audience response tools is a very effective way of identifying areas of agreement and disagreement, either within each cohort group (board and management) or between the board and management. Asking questions about risk and polling the responses anonymously can trigger a dialogue. Breaking down the responses between the board and management

can also be insightful and can trigger a discussion. The anonymous nature of the response system, although not always necessary, can be very important in making the process effective.

The risk-appetite statement should be at the forefront of our mind when we are making both tactical and strategic decisions. There is a tendency, driven by risk metrics, to think of risk as a static calculation based on the current financial situation of the company. In fact, as boards and senior management know well, situations change, often rapidly. In particular, as a company grows, risks evolve. That is obviously true for a company that is acquiring others, but it is also true for organic growth, particularly when a company is growing into new business lines. The risks caused by growth are just as important and need just as much discussion, policy setting and oversight as the risks of the existing business. A risk-appetite statement that includes an outline of how much risk a company is prepared to tolerate may well need a section on growth and the company's controls on growth. Such a section often includes a recognition of what the company is expert at doing: its core competencies. The issue of growth into new business or opportunities can stretch that expertise in new directions. Establishing a tolerance for how to grow, how fast and how to acquire or grow the necessary expertise are often basic elements of risk appetite. Additionally, there needs to be a clear understanding among the board and management about where risks will be increased or decreased. In which businesses are risks expected to change and what are the revenue expectations?

Risk appetite needs to pay special attention to potential scenarios that have a low probability but could be "life-threatening". The balance between mitigating the risks of these high-impact/low-probability scenarios and the cost of the likely unnecessary insurance is complex. To this end, economists often distinguish between risk (those potential events whose probability can be measured) and uncertainty (which has an immeasurable chance of happening). A similar split is important to boards between anticipated and unanticipated adverse events. If an unlikely adverse event occurs that had been anticipated and studied, the impact can be serious but is usually not fatal. Unanticipated events can have more unpredictable consequences.

This fact does more than create an admonition for the board

and the credit risk officer (CRO) to think broadly about risk. It creates two goals. One, for management, is the need to approach risk management as a continuing research exercise. Once risks have been quantified, they can be controlled and managed. The other more difficult and creative task is to continually identify plausible stress scenarios to study and guard against. Management and the board should ensure that plausible losses under severe scenarios (both rear-view-mirror and forward-looking “nightmares”) are within their risk appetite. Risk appetite needs to be considered both in normal times and in a stressed environment.

THE ROLE OF THE BOARD

For the board, the task is to maintain the perspective of the informed outsider who may be able to see the forest more clearly than the trees. Ask the questions that arise from the articles you read in the morning newspaper. Just because the issues may seem obvious, it does not mean that management has approached them in the right way. By asking the “obvious” question, you may be able to guard better against the immeasurable uncertainty. In this way, it is usually easier to get engagement from the board on macroeconomic scenarios and key assumptions than on statistical variables such as 99% or 97.5% confidence levels.

One example of the perspective that a director can bring relates to diversification. It is common for organisations to recognise and rely on the benefits of diversification. In times of crisis, however, correlation often goes up sharply and the benefits disappear. One approach to this issue is to measure risk both with and without correlation benefits. Identify businesses and strategies where the difference is largest, and calculate how long correlations would need to stay high before your view of the strategy would change.

QUALITATIVE OUTCOMES

A robust risk-appetite statement will address not only quantifiable risks but also those risks that require a more qualitative assessment.

Some qualitative outcomes we have seen in risk-appetite statements include:

- managing the business to a target credit rating or better;
- ensuring capital adequacy;
- maintaining low exposure to “stress events”;
- sustaining a current shareholder dividend;
- meeting regulatory requirements and expectations;
- ensuring sound management of liquidity and funding risk;
- ensuring that significant projects and new products/entry into new markets fit the risk appetite-statement;
- creating statements concerning non-quantifiable risks (such as reputational risk);
- creating statements of general market sentiment, of the overall macroenvironment, and of broad areas for business growth;
- maintaining minimum dividend payout levels under severe but plausible stress levels;
- maintaining sustainable economic profit commensurate with the risks taken;
- maintaining a well-diversified funding structure;
- keeping off the balance sheet those vehicles nonmaterial in size relative to the size of the balance sheet;
- harnessing benefits from business diversification to generate nonvolatile and sustainable earnings;
- using robust and appropriate scenario stress testing to assess the potential impact on the group’s capital adequacy and strategic plans;
- avoiding significant losses from small and more peripheral businesses that are not central to the key strategies (non-core risks);
- restricting business to activities that are understood and that can be adequately priced (for example, without “look-through” analysis);
- targeting Tier 1 and core Tier 1 ratio levels;
- economic capital per risk type;
- return on equity;
- earnings per share growth;
- earnings volatility;
- stress tests;
- RWA limits;
- liquidity ratios;
- limitations of client exposure;
- industry concentration;

- country envelopes;
- rate of return required from our businesses;
- VaR for trading portfolios;
- loan loss ceilings for loan portfolios;
- assets-to-capital multiple;
- operating leverage;
- maximum total exposure to indicate market valuation fluctuations in the trading book as measured by a maximum VaR over a certain time horizon;
- maximum economic value risk from market-value movements stemming from interest-rate and FX mismatches in the banking book as measured by delta 1% and aggregated nominal FX mismatch;
- minimum quality standard for large single-name exposures as measured by average internal risk grade of the top 20 counterparty groups, banks and corporates separated;
- credit portfolio quality statements; quantitative statements on credit risk, including loan losses and concentrations; market risk, including use of capital and maximum losses;
- clear guidelines regarding maturities and size of trades;
- hurdle rates for performance measures (ROE, RORAC); and
- quantitative measures applied to non-quantifiable risks (such as data from customer polls, investor polls, employee sentiments, media coverage, interactions with regulators).
- stop-loss

THE RISK-APPETITE PROCESS

Some examples of the questions we find helpful in facilitating the creation of a risk-appetite statement are shown in the panel below.

RISK-APPETITE STATEMENT QUESTIONS

1. Predictions

Which of the following scenarios for the next decade do you think is most likely to occur?

1. 3% real GDP growth and 3% inflation
2. Japan style recession
3. Stagflation
4. Severe depression
5. A second global financial crisis

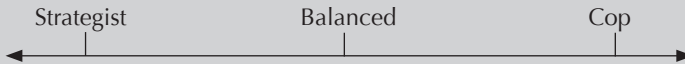
2. Returns

Choose between two investment strategies:

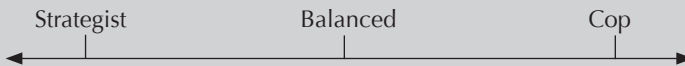
1. A certain return of 6%
2. An uncertain return of 2% or 20%

3. CRO

(a) A CRO can be either a risk cop or risk strategist, or both. Please indicate where you believe your current CRO is.



(b) Please indicate where you would like your CRO to be.



4. What is your tolerance for credit losses due to mistakes you've made (underwriting, collections, etc)?

- (a) No tolerance
- (b) Very low
- (c) Low
- (d) Medium
- (e) High

5. What is your tolerance for credit losses due to the economic cycle?

- (a) No tolerance
- (b) Very low
- (c) Low
- (d) Medium
- (e) High

6. What is your tolerance for customer dissatisfaction?

- (a) No tolerance
- (b) Very low
- (c) Low
- (d) Medium
- (e) High

7. What is your tolerance for losing money?

- (a) No tolerance



- (b) Very low
- (c) Low
- (d) Medium
- (e) High

8. *We view our peers as . . .*

9. *Compared with our peer group, we are willing to be:*

- (a) More aggressive than
- (b) Less aggressive
- (c) Similar to
- (d) N/A

10. *We would prefer that our risk budget be fully utilised at all times.*

- (a) Yes
- (b) No

11. *Consistent with our desire to manage valuation risk, we prefer to have a maximum exposure for hard-to-value instruments.*

- (a) Yes
- (b) No

12. *Should limits be placed on new products?*

- (a) Yes
- (b) No

13. *Not complying with guidelines/policies and other relevant requirements should:*

- (a) Be a fireable offence
- (b) Be OK as long as you make money
- (c) Result in a warning and a bonus reduction
- (d) Result in a warning and a bonus reduction the second it happens
- (e) Be no big deal
- (f) N/A

1. Chief risk officer

A CRO should be independent, strong, and respected. An effec-

tive CRO needs to be more than a “risk cop” and can play an important role in strategy. A CRO needs to have sufficient stature within the organisation to be able to go toe to toe with other C-suite executives. Regular executive sessions with the board risk committee are a valuable and best practice. Ideally, the CRO should report to the CEO with a dotted line to the chair of the risk committee, but regular executive sessions can compensate for alternative reporting relationships.

The CRO should have regular in-camera meetings with the risk committee (and not just with the chair of the risk committee) without the CEO being present. These meetings need to be regular and frequent rather than extraordinary, although they can be short. The benefits of such private meetings include establishing a relationship with the risk committee and enabling a confidential exchange of views long before any crisis needs to be dealt with.

2. Board risk committee

While some firms combine the audit and risk committees of the board, the workload of each is so significant in a financial institution that best practice is to have separate committees. The charter of the risk committee should clearly state whether reputational and legal risk are or are not included in its purview, as some organisations prefer these to remain as full board responsibilities.

In addition to reviewing market, credit, counterparty and operational risk issues, the risk committee will typically oversee funding and liquidity risk management, as well as policies such as new-product approvals. The board’s role is to oversee, not manage, so an effective risk committee will ask lots of questions but rely on management.

The issues surrounding the model used for VaR by JP Morgan’s CIO office is an example of the complexity of the board’s role overseeing risk in a complex financial institution. While only limited information exists as we write this chapter, the fact that JPM changed its VaR model for the CIO office at the beginning of 2012 and changed it back after the first quarter doubling of the VaR figure raises many governance questions. Even if the board and risk

committee were (as we hope and assume) properly included in authorising the changes, the difficulty of overseeing the subtleties of VaR cannot be overstated (see Chapter 2 by Stephen Rahl for a further discussion of the weaknesses of VaR). Model governance is an important responsibility of a risk committee but one where outside advisers are often required to provide technical input. Nonetheless, it is the board's responsibility to ask questions.

It is not unusual for the meeting of the risk committee within complex financial institutions to last for three or four hours and be held at every board meeting.

3. Policies

Policies should be clear and well documented. Policies that should be considered include the following.

- A. Market risk limits and reporting.
- B. Credit risk standards and limits including concentration limits.
- C. Counterparty risk measurement standards, limits and concentrations.
While collateral can help mitigate counterparty exposure it does not eliminate it:
 - (a) collateral usually does not cover bid–offer spread, which can be considerable in illiquid transactions in a stressed market; and
 - (b) collateralisation at mark-to-market does not cover the market moves during the time it takes to unwind positions.
- D. Valuation policies.
- E. New-product approval policies.
- F. Suitability and know-your-customer policies.
- G. Limit breaches.
- H. Escalation.

4. Clear limits, risk budgets, etc

A. Limits should be clearly defined and the trading mechanisms to measure and monitor US limits clearly articulated.

B. The philosophy behind limits should be articulated in the risk-appetite statement and the policies related to breaches, and escalation be determined.

C. There needs to be relatively few limits at a board level, perhaps fewer than 20, rather than the several hundred limits that we often see. It is often effective to state limits as “green”, “yellow” or “red” and thus translate the numbers to a consistent concept more easily grasped by directors. “Green” implies normal operating conditions; “yellow” implies some increased risk without escalation to the risk committee; “red” implies escalation to the chair of the risk committee or to the full committee.

D. Limits need to be set at levels that will be tripped. It is often attractive to set limits that are never triggered. That is a mistake, as it undermines the risk-reporting nature of the limits. “Yellow” limits, for example, could be tripped 5–15% of the time and even “red” limits should expect to be tripped as much as once or twice each year.

E. Limits should be reviewed periodically and at least annually and reset if they are not being tripped frequently enough or too frequently.

5. Effective risk reports that focus on trends, exceptions and issues

Even a quant who loves numbers and understands risk can find it hard to parachute in after a month and react to a bunch of figures. Risk reports that graph trends over time and that extract a summary of metrics that have changed significantly since the last meeting or are approaching/over limit are more valuable than a data dump.

It can be tempting, particularly for large organisations, to treat risk management as an exercise in simply producing as much risk data as possible. However, voluminous risk data should not

be taken as a substitute for the right risk information. Risk data needs to be organised and visualised in such a way that it is useful instead of overwhelming and confusing. Key measures must be brought to the front, and less significant measures relegated to the background.

6. A balanced and integrated framework that includes both rear-view-mirror measures such as VaR and forward-looking measures, such as stress tests

As highlighted in greater detail in Chapter 2 by Stephen Rahl, history does not always repeat itself, so, when events that occur that have not happened before (VIX at 80 or HPA at –20, for instance), VaR and other backward-looking metrics need to be balanced with more forward-looking stress test results. In addition, businesses and strategies where the ratio of stress losses to VaR is high need special attention.

The financial crisis of 2007–2008 demonstrated that reliance on any single risk metric is inadequate. VaR and similar measures can be useful tools, but they can also be extremely misleading if taken in isolation. All risk metrics have weaknesses, and thus too much reliance on any one can be dangerous. An effective risk-management process must look at a number of risk metrics, including stress tests, in order to produce a more balanced, realistic picture of the risks the institution is taking.

7. A clear linkage between strategy and risk appetite

Best practice includes documenting a clear linkage between strategy and an institution's risk appetite. Too often, institutions go through the motions of producing a risk-appetite statement only then to ignore it. This is related to the unfortunate institutional tendency to treat risk management as separate from strategy, when they should be treated as two sides of the same coin. Risk management is inseparable from portfolio management and vice versa.

Indeed, whether managers formally recognise it or not, all strategies have implied risk tolerances and risk budgeting built in. The goal is to formalise the process, making clear and explicit the risks the institution is taking, so as to avoid surprises as well

as improve overall management of the business. Thus, all strategies must be risk-tested both before implementation and on an ongoing basis.

8. Management risk committees appropriate to the nature and scope of the business

A valuation committee, a new-products committee and a model-review committee are best practice in addition to the core credit risk, ALCO and trading risk committees. Committees should meet frequently to discuss issues as they arise, and be empowered to address them when they do.

9. A compensation framework that is risk-adjusted

While there is widespread agreement that compensation needs to be risk-adjusted and that compensation plans need to consider the incentives they might create to take undesirable levels/types of risk, the definition of “risk” is still evolving. Some still define risk as VaR or other rear-view-mirror metrics while others blend rear-view-mirror metrics and forward-looking stress test results. Financial institutions now recognise that illiquidity, difficulty/differences in valuation, funding, complexity that was assumed away via proxies, and embedded leverage cause many of the surprises in the financial system. As these risks are typically not captured in VaR or similar metrics, this recognition has increasingly led to “add-ons” to risk metrics to adjust for these risks. One approach is to delay the payout and permit vesting only over several years dependent on the company’s subsequent performance. While the add-ons are at this stage cruder than the more refined measures of VaR and stress tests, they represent an important step forward in the effort to take a more holistic view of the denominator in risk adjusted compensation.

10. Risk budgeting

Risk budgeting is an important component of a robust, enterprise-wide approach to managing risk, but it is neither the starting nor ending point of the risk journey. While this book will focus on risk budgeting, one of the purposes of this chapter is to put risk budgeting in a holistic context (for more on which, see

Chapter 3).

Risk budgeting represents the connection between the tactical risk processes below it and the strategic risk processes above it.

Budgeting has traditionally focused on setting plans for revenues and expenses and then measuring progress against the plans. There are many facets of business beyond revenues and expenses that can and should be rationed and against which targets can be set and progress tracked.

CONCLUSION

The financial crisis created a major dilemma in risk measurement. It had been 80 years since the Great Depression and the world had assumed that the regulation that had been introduced into the financial world would avoid a similar catastrophic meltdown. Therefore, prior to the crisis, the extreme behaviour of the Great Depression was broadly ignored. The financial world had not learned from history and was destined to repeat it. However, the 2007–2008 crisis is now very prominent in our history and, since risk is measured based on a historic period, a decision must be made as how significantly this crisis should be represented in this history. We now believe that events such as this will happen only every couple of decades or even less frequently, in contrast to the prior belief that they will never happen again. We would not want to embed them into our history for the next several years, during which the likelihood of their repeating is small, only for them to fade from our history over time, as the likelihood of repeating actually increases.

Furthermore, the world has learned that the simplicity of VaR as the single measure of risk was easy but not realistic. This single measure has been supplemented by stress testing and other thinking, which are discussed in greater detail in other chapters.

Risk Governance has become a major focus for all financial institutions and the articulation of risk appetite has emerged as a best practice.

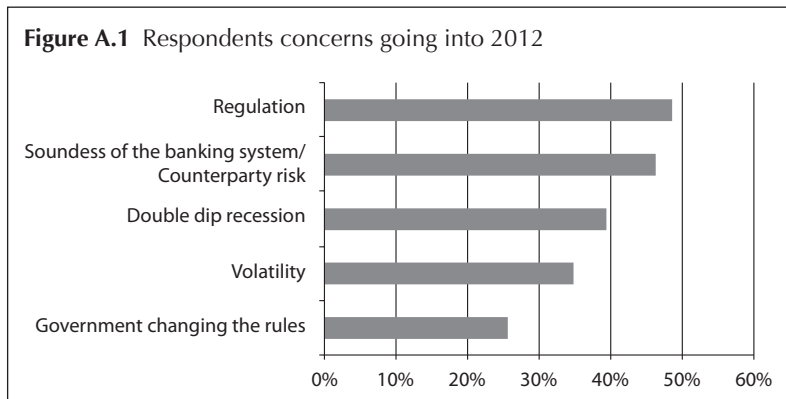
APPENDIX: RISK GOVERNANCE SURVEY

In the wake of the financial crisis, risk governance emerged as a key topic. What role should a board play in risk oversight? Should

it have a risk committee? Whom should the CRO report to? How should compensation be properly risk-adjusted? These and other questions are increasingly being debated in boardrooms around the world, as well as by politicians and regulators.

It is always important to understand the approach financial institutions take to risk governance and the plans they have for the future. The survey that follows is the third annual survey produced by CMRA and is thought to be the most comprehensive risk governance benchmarking exercise at the time of writing. It reflects input from over 100 individuals from financial institutions, including commercial and investment banks, insurance companies, asset managers, plan sponsors, sovereign wealth funds, endowments and hedge funds with respect to their risk practices, including the degree to which their boards are involved in risk governance, whether they have CROs in place, to whom CROs report, what their key functions are, fears and concerns, how and how often they interact with the board, risk-adjusted compensation, and other important information regarding their risk-management functions.

TOP CONCERNS GOING FORWARD

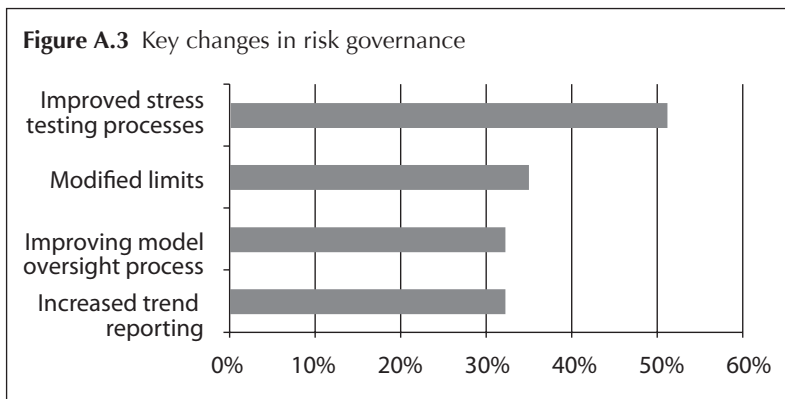
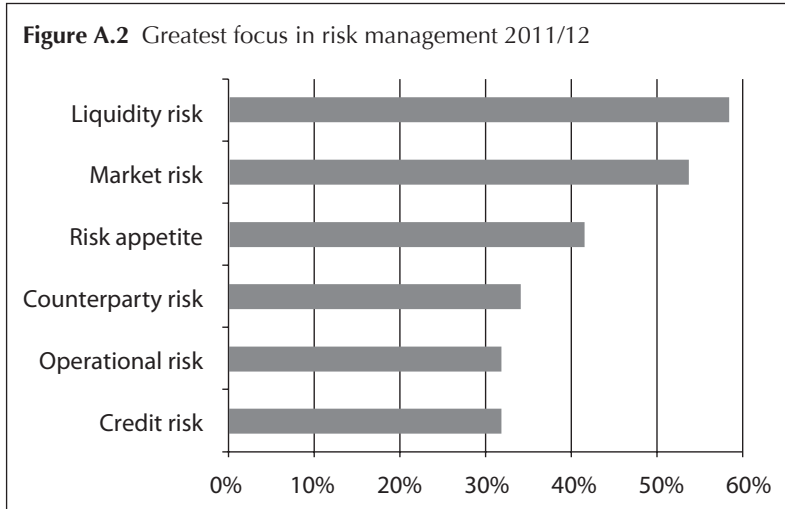


- Credit losses had declined from being third at 21% in 2009, tied for second at 19% in 2010, and less than 16% and not in the top five in 2011/12.

Table A.1 Risk governance peer group comparison

SURVEY QUESTION	INSTITUTIONAL INVESTORS	ASSET MANAGERS	BANKS	INSURANCE COMPANIES
TOP CONCERN	Volatility	Soundness of the banking system/ counterparty risk	Soundness of the banking system/ counterparty risk	Volatility
CRO or functional equivalent	57%	62%	100%	100%
Reporting to CEO	75%	46%	100%	83%
Risk-appetite statement	29%	36%	75%	50%
Boards approve risk policies	86%	86%	100%	67%
Board with a risk committee	17%	47%	75%	33%
Risk covered in audit or other committee	43%	47%	0%	50%
Don't have a risk committee and don't plan to	0%	0%	0%	17%
CROs with both a strategic and control role	57%	77%	57%	100%
Board reviews cover				
Counterparty risk information	29%	48%	14%	67%
Liquidity risk information	57%	48%	43%	67%
Operational risk information	29%	33%	29%	50%
Outside risk adviser	33%	7%	25%	0%

Risk focus



Integration of risk and strategy

- While some progress was being made in tying risk and strategy, there was no consistent practice as to risk metrics that were used in business and strategic plans.
- Metrics that were used in business-level plans included:
 - VaR;
 - economic capital;
 - funding required;

- return on economic capital; and
- volatility of earnings.
- Some respondents budget these metrics as part of the planning process; others just report past usage.
- No firms indicated that they asked business units to identify what aspect of the firm's risk-appetite statement was the most constraining as part of their budgeting and/or strategic planning process.

Chief risk officers

Across all sectors, the role of the CRO increasingly included a strategic as well as a control role.

- 91% of CROs had both strategic and a control role, up from 66% in 2010, and up 47% from 2009.
- 68% of CROs surveyed in 2011/12 said they reported directly to the chief executive officer, among which 15% also report to the board. 23% of CROs reported to the chief financial officer, chief analytics officer or chief operating officer and 10% to others.

In 2011/12 only 63% of respondents had executive/in-camera sessions with their board compared with 84% in the 2010 survey and 44% in the 2009 survey. This could have been due to the fact that an increasing familiarity of the risk manager with the board was leading to a decline in the use of executive/in-camera sessions.

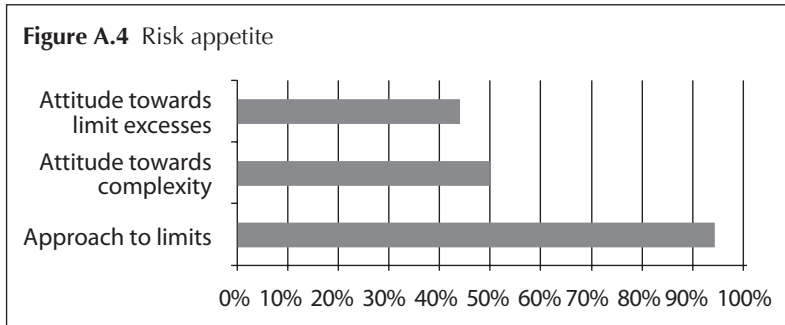
Boards

- 77% of respondents indicated that they had board members with risk management experience and 76% indicated that it was a skill that was on their wish list when selecting new board members.
- 64% of boards had educational sessions in 2011/12, up from 61% in the 2010 survey.
- 19% of respondents had had more board educational sessions since the 2010 survey; 68% had the same number of board sessions.

Risk appetite

- 47% of boards got minutes of senior management risk committee meetings.

- ❑ 61% of respondents included “risk attitude” in their risk-appetite statements.



Credit/counterparty risk

- ❑ 29% of respondents had decreased their reliance on rating agencies since the 2010 survey.
- ❑ Only 43% of respondents included potential future exposure in counterparty risk assessments.

Stress testing

- ❑ While most respondents stress tested their exposures to market moves during the lead up to the debt-ceiling deadline in 2011, only 49% stress tested their exposure to collateral haircuts.

Model review

- ❑ Only 17% had changed their model review practices post-Axa/Rosenberg.

Liquidity

- ❑ Only 30% had actual plans to increase liquidity in stress periods.
- ❑ Only 50% with illiquid assets such as private equity, real estate and resources integrated them into their risk measures.
- ❑ Only 50% of respondents considered illiquidity when allocating risk, but 17% planned to.

Risk-adjusted compensation

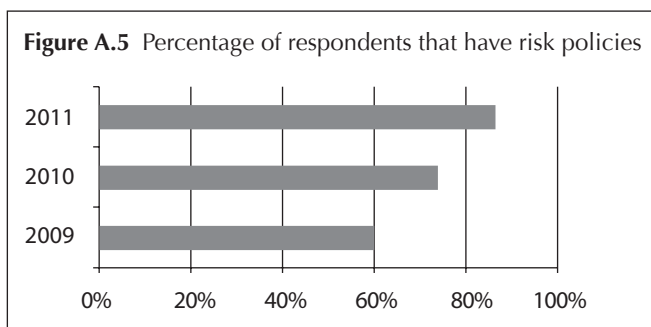
- ❑ Only 47% of respondents incorporated risk attitude and adherence to policies in their compensation process.
- ❑ Only 36% made adjustments for actual risk usage.
- ❑ Only 44% of respondents differentiated between unrealised versus realised profits when considering compensation.

Institutional investors

- ❑ 40% were increasing exposure to alternative assets.
- ❑ None were increasing exposure to liability-driven investing (LDI) and only 50% currently had exposure to LDI.

Risk-management policies

- ❑ 87% of respondents had risk policies that were approved by the board, up from 74% in 2010, and 60% in 2009.



New-product review process

- ❑ Only one-third of boards received reports on new-product risk reviews.