TOWERS PERRIN
TILLINGHAST

ERM – An Integral Part of Doing Business

2006 ERM Update on the Global Insurance Industry

Discussion of Key Findings

September 2006

Report Contents

Tillinghast conducted its fourth biennial ERM survey in 2006

- In 1999, 2002 and 2004 the Tillinghast business of Towers Perrin conducted global surveys of insurance company chief financial officers, chief actuaries and chief risk officers to learn more about their approaches to enterprise risk management (ERM)
  - Organizations found this research valuable to benchmark their risk management activities against their competitors and against industry best practices
- During June and July of 2006, Tillinghast conducted its fourth biennial ERM survey
  - Over 200 executives responded, with representation from North America, Europe, Asia-Pacific and Latin America
- The goal of this research was to address the following areas of risk and capital management:
  - Risk management objectives
  - Roles and responsibilities
  - Risk measurement
  - Economic capital (EC)
  - Risk reporting practices
  - Decision making
  - Solvency II (for European insurers)

Participants covered a wide spectrum of insurers and geographies

- Respondents included a wide range of insurance organizations
  - 41% of respondents are from public stock companies, while 30% are from private stock companies
  - 43% of respondents are from life/annuity/pensions insurers, 19% are P/C insurers, 19% are multi-line insurers and 12% are reinsurers
- Our survey covered a wide geographic range, with almost equal representation from North America and Europe
  - 42% of respondents are located in North America, 38% are from Europe, 16% from Asia-Pacific and 4% from Latin America
  - 44% of the respondents are from organizations headquartered in Europe, while over one-third are from organizations headquartered in North America (39%)
- Participants included many of the world's largest insurers, with 63% of respondents having annual revenues in excess of $1 billion and nearly 20% in excess of $10 billion
  - The average total direct revenues from the last accounting year for respondent companies were approximately U.S. $6 billion
  - The average total assets from the last accounting year for respondent companies were approximately U.S. $90 billion

Glossary of Geographical Terms:
North America — includes the U.S., Canada and Bermuda
Europe — includes the U.K. and continental Europe
Asia-Pacific — includes Asia and Australia
Latin America — includes Mexico and South America

Key Findings

Our 2006 survey on risk and capital management practices in the global insurance community resulted in five key findings

1. **Across the globe, ERM has become an integral part of doing business.** In our 2004 survey we found that risk management had come of age; now risk management is entrenched in how insurers globally do business
2. **Insurers are taking a sophisticated view of risk, examining its impact on capital, value and earnings.** Balance sheet focus is greatest on statutory capital and economic/embedded value; risk assessments of earnings cover a variety of measures, including statutory, GAAP/IAS and economic/embedded value profit
3. **Economic capital has become essential for almost two-thirds of the global insurance industry.** 65% of insurers globally now calculate a form of EC as a part of their business practice and another 19% are considering calculating EC
4. **In Europe, Solvency II may not materially change capital requirements, but will change the way business is conducted.** Participants expect to upgrade many aspects of their risk management capabilities as well as review their products and risk exposures
5. **And there's still more work to be done with our risk and capital management efforts.** Most participants indicated dissatisfaction with their current risk measurement and quantification processes and, in particular, with their ability to quantify operational risks. Almost all insurers who calculate EC plan improvements in their calculations or framework

KEY FINDINGS

Across the globe, ERM has become an integral part of doing business

- Whereas we found that risk management had come of age in our 2004 survey, ERM has become an integral part of the way insurers globally perform their everyday business activity in 2006
  - 78% of the participants in our 2006 survey indicated that "good business practice" is now a principal driver for their risk management efforts
  - Rating agency considerations have emerged as a significant additional driver of insurers' risk management efforts, particularly in North America
  - Less focus is being placed on risk identification and prioritization, and more on actually managing the organization's risk profile
  - 87% of the respondents indicate that their organization has or is considering a cross-functional risk management committee, up from 80% in 2004

KEY FINDINGS

Insurers are taking a sophisticated view of risk, examining its impact on capital, value and earnings

- Balance sheet focus is greatest on statutory capital and economic/embedded value while assessing the risk of earnings covers a variety of measures, including statutory, GAAP/IAS and economic/embedded value profit.
  - Participants in our 2006 survey are clearly taking multiple views on risk, selecting an average of 2.5 "principal financial measures" on which the impact of risk is assessed*
  - Of the balance sheet measures adopted, statutory capital/surplus is most common in North America but somewhat less so in Europe and Asia-Pacific
  - In Europe and Asia-Pacific, economic/embedded value is the primary balance sheet measure, with statutory capital/surplus running in second place
  - Measures used in examining earnings risk are more evenly distributed, with GAAP/IAS earnings most common in North America and Asia-Pacific, but economic earnings measures more common in Europe
  - The focus of risk measurement has stabilized over the past two years; the distribution of financial measures selected in the 2006 survey shows little difference from those selected in 2004

* When asked to select up to three measures.

KEY FINDINGS

Economic capital has become essential for almost two-thirds of the global insurance industry

- Regional and sector differences exist, but the overall use of EC has increased significantly; almost two-thirds (65%) of 2006 participants indicated they calculated EC, compared to just over half (53%) in our 2004 survey
  - Another 19% of the 2006 participants are considering calculating EC
  - The primary driver for calculating EC is capital allocation, although it is also used to measure risk-adjusted performance and for making strategic or tactical decisions
  - Approaches for calculating EC also differ by region and sector, although more than half (57%) of respondents use a stochastic approach
  - Insurers have generally increased the types of risk modeled in their EC calculations since the 2004 survey, and significantly for operational risks

KEY FINDINGS

In Europe, Solvency II may not materially change capital requirements, but will change the way business is conducted

- Over two-thirds (70%) of European participants are either unsure of the impact of Solvency II on capital requirements (34%) or expect little change (36%)
  - The 30% expecting some change were evenly split between an increase or a decrease in capital requirements
- Participants expect to have to upgrade many aspects of their risk management capabilities as well as to review their products and risk exposures
  - In continental Europe the expected capability upgrades are evenly spread over most aspects of risk management; UK participants have fewer and more focused expectations, with most work focused on embedding risk management in the organization and actuarial/accounting tools
  - Use of “internal models” for risk and capital management is widely anticipated, particularly for insurance risk and market risk
    - — Embedding the models within the business and tool development are seen as key challenges
  - Expectations for review of risk exposures are also evenly spread, from changes in capital structures to changes in asset/liability strategy and product design; UK participants generally anticipated less need for review than those in continental Europe

KEY FINDINGS

And we're still not done

- The global insurance industry still has some way to go before it is satisfied with its risk and capital management efforts. Despite the increase in risk management activity over the past few years, most insurers globally indicate there is still room for improvement
  - 77% of respondents are concentrating their risk management efforts on improving risk measurement and quantification processes
  - More than three-quarters of respondents (76%) are not satisfied with their ability to quantify operational risks
  - 71% are dissatisfied with their ability to reflect risk considerations in performance measures
  - 89% of the survey participants that calculate EC are planning to make further improvements or enhancements to their EC calculations or framework

Selected Data

RISK MANAGEMENT OBJECTIVES

Risk management efforts continue to focus on improving risk measurement and quantification processes

- More than three-quarters of respondents (77%) are concentrating their risk management efforts on improving risk measurement and quantification processes
  - Significant focus for the U.K. (97%) and Japan (95%)
- Just under two-thirds of the participants are also focused on acting to manage the risk profile of their organization (64%) and improving risk reporting processes (63%)
- Compared to 2004, there is less focus on risk identification and more on acting to manage risk

Base: Total Respondents Q.1 Where are your risk management efforts now being focused? (Select all that apply.)

RISK MANAGEMENT OBJECTIVES

ERM is a principal driver of current risk management efforts for insurers globally

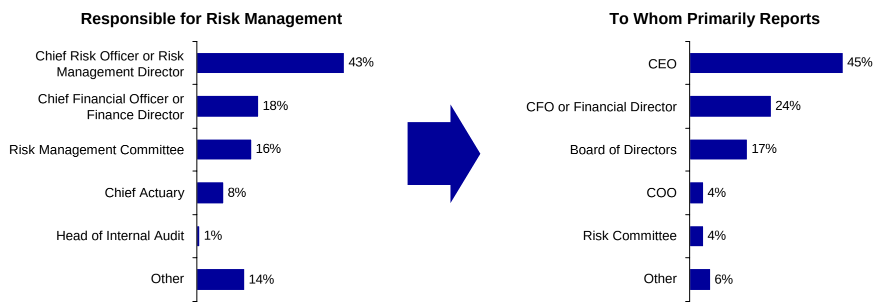
- For 78% of the participants, ERM as a good business practice is a principal driver for their risk management efforts
  - This point of view is generally held by participants from North America (91%), Europe (79%) and Latin America (78%)
- Rating agency considerations (55%) and shareholder considerations (54%) are also frequently cited as principal drivers of current risk management efforts
  - Rating agency considerations are a larger focus in Japan (95%) and North America (72%)
- Changes in insurance solvency regulations are key drivers for Europe (71%) and Asia-Pacific (59%)

Base: Total Respondents Q.2 What are the principal drivers for your current risk management efforts? (Select all that apply.)

RISK MANAGEMENT ORGANIZATION

The Chief Risk Officer or Risk Management Director is still the primary person responsible for risk management efforts within insurance organizations

- 43% of respondents indicate that the Chief Risk Officer/Risk Management Director is responsible for risk management, matching the result in our 2004 survey
  - In Japan and Europe, more than half the respondents indicated the CRO/RM Director has primary responsibility for risk management efforts as compared to a third in North America
  - Globally, public entities (52%) and multi-line companies (51%) made greater use of a CRO or RM Director
- In line with our 2004 survey, the person responsible for risk management most often reports to the CEO (45%)

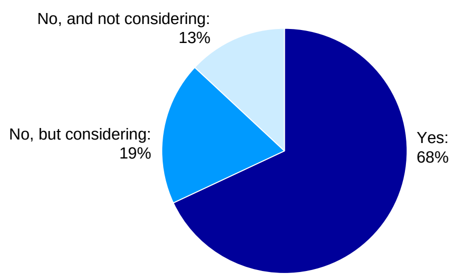


Base: Total Respondents Q.3 Who is responsible for risk management in your organization? (Select one response.)
Q.4 To whom does the person responsible for risk management primarily report? (Select one response.)

RISK MANAGEMENT ORGANIZATION

The presence of a cross-functional risk management committee has increased among participants

- 87% of the respondents indicate that their organization has, or is considering, a cross-functional risk management committee
  - Up from 80% of respondents in 2004
- 68% of respondents already have a cross-functional risk management committee
  - Public entities (78%) were more likely to have a cross-functional risk management committee than private companies (60%) or mutuals (56%)
  - A high proportion of participants in Asia-Pacific (91%) indicated they had a cross-functional risk management committee

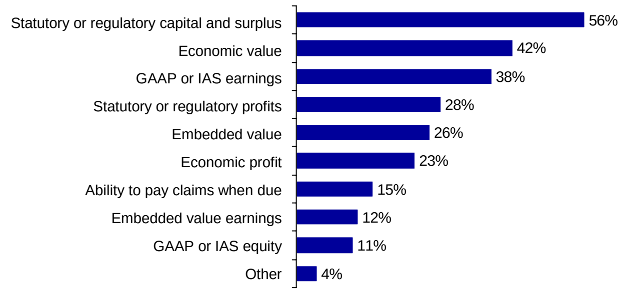


Base: Total Respondents Q.5 Does your organization have a cross-functional risk management committee? (Select one response.)

RISK MEASUREMENT

When measuring the impact of risk, statutory or regulatory capital and surplus is the financial measure most frequently cited

- The most frequently cited financial measures on which the impact of risk is assessed are statutory or regulatory capital and surplus (56%) and economic/embedded value (68% combined)
  - Use of regulatory capital and surplus is most frequently cited by participants in North America (70%) and the U.K. (67%)
  - Life insurers and multi-line companies in North America (75% in each case) were more likely than their European counterparts (58% and 31% respectively) to focus on statutory or regulatory capital and surplus; results were approximately the same for P/C companies in North America (62%) versus Europe (60%)

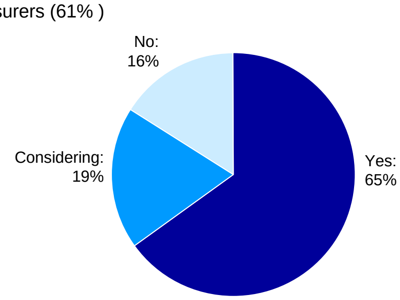


Base: Total Respondents Q.6 When measuring risk, what are the principal financial measures on which the impact of the risk is assessed? (Select up to three responses.)

ECONOMIC CAPITAL

Globally, more insurance organizations are calculating economic capital

- Almost two-thirds of respondents (65%) indicated that their organizations calculated economic capital in 2006
  - Up from 2004, when only 53% of respondents indicated they calculated economic capital
  - Respondents in the U.K. (90%), Bermuda (89%) and Asia-Pacific (72%) were more likely to calculate economic capital than U.S.-based respondents (49%)
  - Globally, reinsurers (80%), multi-line companies (72%) and P/C insurers (69%) are more likely to calculate economic capital than life insurance companies (55%)
  - Less than half of the life insurers in North America (47%) calculate EC, as compared to European life insurers (61%)



Base: Total Respondents Q.8 Does your organization calculate economic capital (EC) (e.g., measure the amount of capital needed based on the risk of the business)? (Select one response.)

ECONOMIC CAPITAL

The allocation of capital is a principal driver for calculating EC

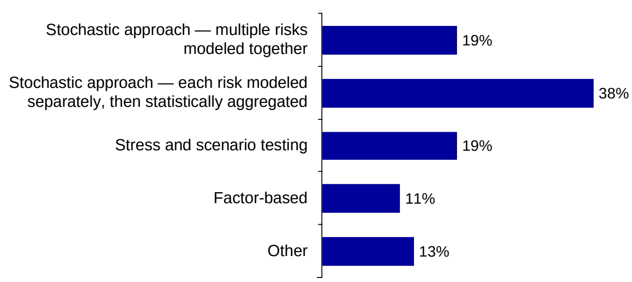
- When asked what the principal drivers are for calculating EC, most frequently cited are allocating capital (56%), measuring risk-adjusted performance (42%) and making strategic or tactical decisions (40%)
  - In particular, respondents from Bermuda (88%) and continental Europe (65%) were more focused on the allocation of capital as a driver for calculating EC
  - Companies in continental Europe were as likely to calculate EC to measure risk-adjusted performance (71%)
  - Japanese insurers (64%) make the most use of EC in strategic or tactical decisions
  - While rating agency considerations are mentioned by only 20% of participants overall, this increases to 36% of North American participants

Base: Those that calculate economic capital n = 133 Q.9 What are your principal drivers for calculating EC? (Select up to three responses.)

ECONOMIC CAPITAL

Stochastic approaches and stress and scenario testing were the most frequent methodologies used in calculating EC

- More than one-third (38%) of respondents use a stochastic approach that models each risk separately as the methodology for their EC calculations
  - Participants in Asia Pacific (44%) and continental Europe (45%) were more likely to use this approach
  - 56% of companies with more than $10B of annual revenue use this approach, as compared to only 18% of companies with less than $1B of annual revenue
- Stress and scenario testing (19%) and stochastically modeling multiple risks together (19%) were the next most frequently used methodologies for calculating EC
  - 49% of companies with less than $1B of annual revenue use stress and scenario testing, whereas none of the largest companies (annual revenue > $10B) reported using this method
- "Other" methodologies cited included a combination of factor-based and stochastic approaches as well as stress and scenario testing combined with a stochastic approach



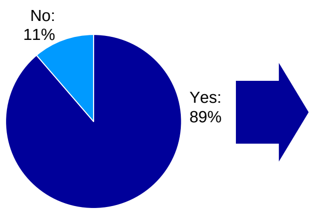
Base: Those that calculate economic capital n = 133 Q.10 What methodology do you use for your EC calculations? (Select one response.)

ECONOMIC CAPITAL

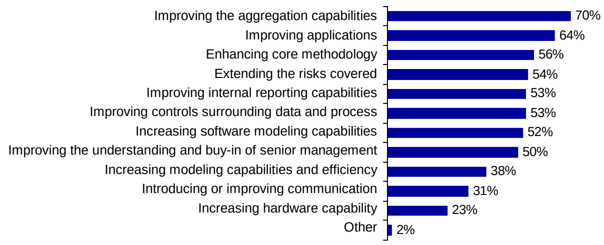
Almost all of the respondents that calculate EC are planning to make further improvements

- 89% of the survey participants that calculate EC are planning to make further improvements or enhancements to their EC calculations or framework
  - This is a particular focus of the participants in Asia Pacific (96%) and Canada (100%)
  - North American life insurers (93%) also want to improve their EC calculations or framework, as do 95% of the multi-line companies in Europe
- Of those planning improvement, the most frequently cited goal is to improve aggregation capabilities (70%), followed by improving applications (64%)

Plans for Further Improvements



Goals of Planned Improvements



Base: Those that calculate economic capital n = 133
Q.15 Are you planning to make further improvements or enhancements to your EC calculations or framework?

Base: Those planning further improvements/enhancements to economic capital calculations/framework n = 118 Q.16 What are the goals of the planned or future improvements to the EC calculations or framework? (select all that apply.)

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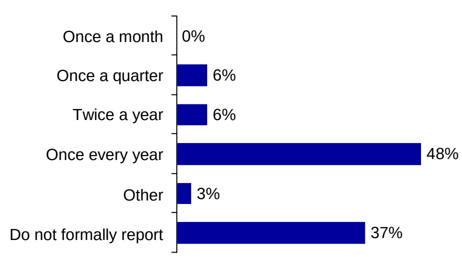
RISK REPORTING

Reporting on risk to rating agencies is of common interest for the global insurance community

- 63% of all respondents indicate they report on risk to the rating agencies at least annually
  - Almost half (48%) of the respondents report on risk to rating agencies once every year, with a small number reporting at alternative frequencies
  - Reporting (at least annually) to rating agencies is a particular focus among North American respondents (76%) and Japanese respondents (79%)
- More than one-third (37%) of the respondents currently do not make a formal report on risk to rating agencies
  - 57% of the private company participants indicated they do not formally report to rating agencies, as compared to 36% for mutuals and 21% for public companies



Base: Total Respondents Q.17 How frequently do you report on risk to the following groups – Rating Agencies? (Select one response.)

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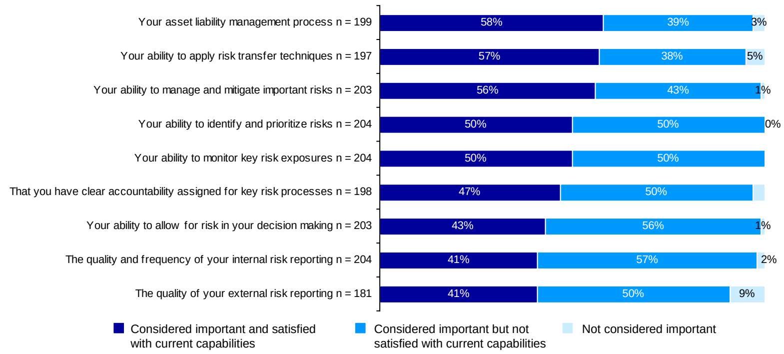
SUMMARY — SATISFACTION

Almost all respondents view the following risk management capabilities as important for insurers, although they are dissatisfied with their current capabilities to execute on the majority of them

- Respondents were most satisfied with their capabilities for their asset/liability management process (58%), their ability to apply risk transfer techniques (57%) and their ability to manage and mitigate important risks (56%)
  - North American insurers were more satisfied with their ALM capabilities (68%) and risk transfer techniques (69%) than the general population
- All of the respondents considered the ability to identify and prioritize risk as well as monitor key risk exposures as important, although only half were satisfied with these capabilities

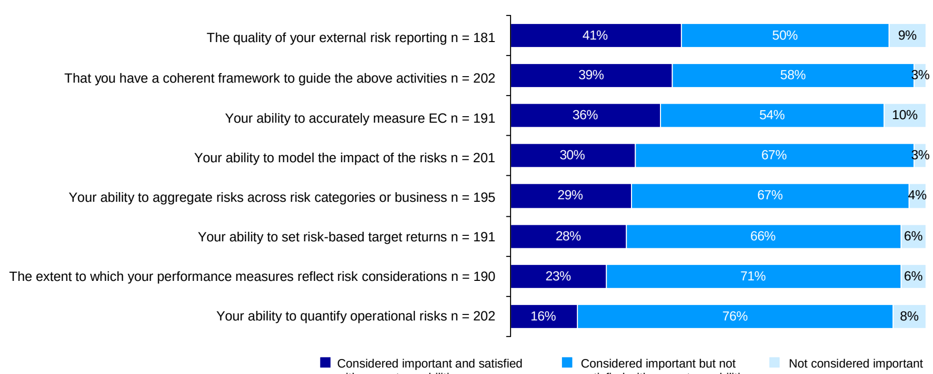


Base: Those giving a valid answer (percentages exclude Not Applicable) Q.23 How important are the following to your organization and what is your level of satisfaction with your current capabilities?

SUMMARY — SATISFACTION

Companies are least satisfied with their ability to quantify operational risks or reflect risk in performance measures

- More than three-quarters of respondents (76%) are not satisfied with their ability to quantify operational risks
  - Reinsurers (88%) were more dissatisfied with their ability to quantify operational risks than direct writers — life (74%), P/C (67%) or multi-line companies (76%)
- 71% are dissatisfied with their ability to reflect risk considerations in performance measures



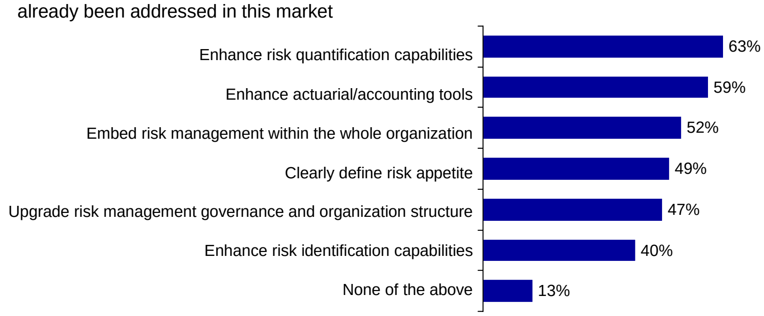
Base: Those giving a valid answer (percentages exclude not applicable) Q.23 How important are the following to your organization and what is your level of satisfaction with your current capabilities?

Solvency II

SOLVENCY II

Enhancing risk quantification capabilities is the most common action European companies will take as a result of Solvency II

- Almost two-thirds of European respondents (63%) indicate that they will have to enhance their risk quantification capabilities as a result of Solvency II
  - 76% of continental European respondents indicated they need to enhance their risk quantification capabilities, compared to only 41% of U.K. respondents
- More than half of European respondents (59%) indicate they will need to enhance actuarial/ accounting tools and also embed risk management within the whole organization (52%)
- U.K. respondents saw relatively little need to enhance risk governance and organization (19%) and risk identification capabilities (15%) to address Solvency II requirements, as they have already been addressed in this market

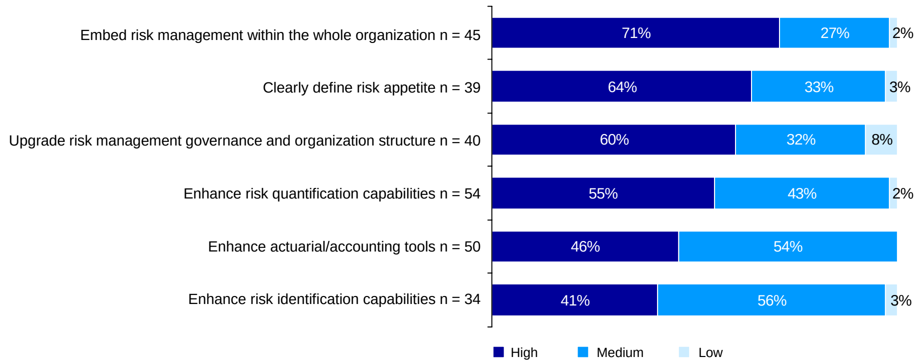


Base: European insurers n = 86 S1a What actions will your organization need to take as a result of Solvency II? (Select all that apply.)

SOLVENCY II

While enhancing risk quantification capabilities is the most frequently selected requirement, greater priority has been placed on embedding risk management within the organization

- Almost three-quarters of European respondents (71%) place a high priority on embedding risk management within the whole organization
- Slightly under two-thirds (64%) place a high priority on clearly defining risk appetite
- Enhancing risk quantification capabilities ranks fourth for priorities (55%)

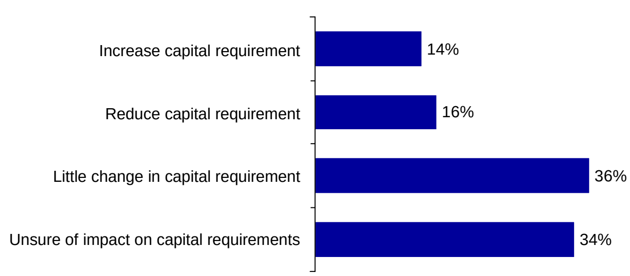


Base: European insurers that will be taking actions as a result of Solvency II (percentages exclude Don't Know)
S1b What level of priority does your organization place on each of the following actions?

SOLVENCY II

European insurers are divided on the likely impact of Solvency II on capital requirements

- 36% of European respondents indicate that Solvency II will have little impact on the level of capital their business is required to hold
- 34% are unsure of the impact Solvency II will have on capital requirements
- 30% indicated there will be a change to the amount of capital requirements but are almost equally divided as to whether they think it will be an increase or a decrease

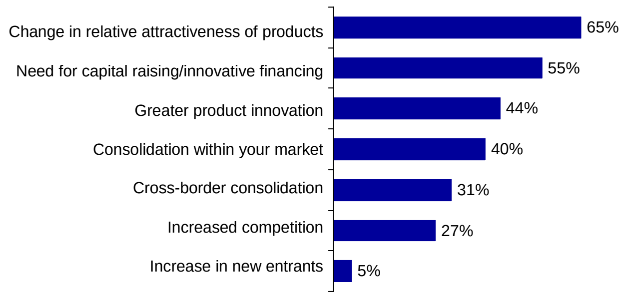


Base: European insurers n = 86 S2 What effect do you expect Solvency II to have on the level of capital your business is required to hold?

SOLVENCY II

The main effects of Solvency II are perceived to be a change in the relative attractiveness of products and the need to raise capital

- The most frequently anticipated effects of Solvency II on the European market are change in relative attractiveness of products (65%) and need for capital raising/innovative financing (55%)
  - The latter finding is somewhat surprising given the lack of a strong expectation of increased capital requirements
- Only 27% of European respondents indicated there would be increased competition in the marketplace and only 5% thought it would bring new entrants into Europe

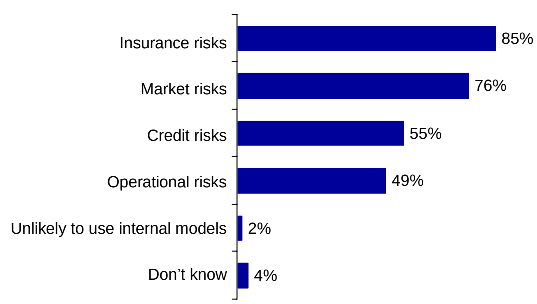


Base: European insurers n = 86 S4 What do you believe will be the main effects of Solvency II on your market? (Select all that apply.)

SOLVENCY II

The majority of European respondents will likely take advantage of the ability to use internal models to measure risk

- A majority of European respondents are likely to take advantage of the ability to use internal models for insurance risks (85%) and market risks (76%)
  - The multi-line insurers in Europe are more likely to use internal models for insurance risks (92%) and market risks (89%)
- Only a few European respondents indicated they are unlikely to use internal models (2%)



Base: European insurers n = 86 S5 For which type of risks are you likely to take advantage of the ability to use internal models? (Select all that apply.)

SOLVENCY II

The most frequently mentioned challenge with introducing internal models is the ability to embed the model within the business

- Embedding the model within your business is the most frequently cited challenge to introducing internal models (55%)
- Almost half cite developing the tools to implement the framework as a challenge (48%)

Base: European insurers n = 86 S6 What do you see as the main challenges in introducing internal models? (Select up to three responses.)