



INSURANCE

Risk and capital management for insurers

Survey of capital assessment practice in the insurance sector

FINANCIAL SERVICES

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Foreword

Risk and capital management for insurers

Risk and capital management are core processes at the heart of every successful business and as such should be integrated into corporate strategy and organizational culture. Regulators and stakeholders will expect nothing less.

The very nature of insurance – underwriting risk – has led to the creation of risk management. Yet ironically most insurers have tended to view risk management more as a regulatory compliance activity rather than an integral part of the business.

There are signs of more active risk and capital management within the industry and insurers are getting better at managing risks independently, although measuring interdependencies across risk categories remains a particular challenge.

In this survey, KPMG is seeking to gain a better understanding of the current capital assessment practices, in relation to overall risk management, and future expectations of insurers.

The survey also explores how insurance providers are shaping up ahead of Solvency II, a project initiated by the European Commission in 2000. This initiative aims to review insurance prudential rules at a European level, to establish an EU-wide solvency system that reflects the true risks of an insurance company.

This is part of KPMG's ongoing commitment to help insurance organizations worldwide achieve a more integrated approach to risk and capital management.

Peter de Groot

Partner, Global Head of Risk and Capital Management (Insurance)
KPMG in the Netherlands

Executive summary

Insurers will need to show a greater understanding of the risks that they face... those that fail to implement rigorous risk and capital management on time face having higher requirements imposed

Efficient capital management is one of the biggest challenges facing the insurance industry. In an increasingly volatile environment, insurers will need to show a greater understanding of the risks that they face and the capital needs of the business, and not just because it makes good commercial sense. With tougher new regulations on the way, those that fail to implement rigorous risk and capital management on time face having higher requirements imposed.

By managing risk effectively, organizations will be in a position to make more informed strategic decisions and also gain greater access to world capital markets, helping them achieve competitive advantage.

Solvency II, the new regulation from the European Commission – likely to be modeled on the Basel process – will tighten up an industry that is felt by supervisors to be inefficiently managed and often under-capitalized, particularly when compared to the banking sector.

Playing catch-up

The industry as a whole has not fully embraced the need to calculate economic capital

The results of the survey reflect the views of analysts: that the insurance industry lags behind the banking sector in managing investor capital efficiently. Encouragingly, this is changing, with reinsurers and bancassurers leading the way.

The industry as a whole has not fully embraced the need to calculate economic capital. Although it is used as part of the planning process, for product pricing and to provide useful management information, it is some way from becoming a routine tool for influencing management compensation.

It is evident that insurers do not fully understand how risks interact across various risk types and between different business areas. Insurers should consider this a significant area for future focus. There is also an urgent need for improved data gathering and analysis, particularly for operational risk, given the

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The key questions for boards and senior management:

- Can we take advantage of new risk measurement techniques?
- Is our strategic plan flexible enough to support product development and pricing decisions in the new environment?
- Do we have a clearly defined and documented risk appetite?
- How will performance management and measurement be affected?
- How will we determine our internal capital levels?
- How will we evaluate each risk category – credit, market, liquidity, operational and insurance risks? And how can we calculate correlations between these risks?
- Have we identified what data we need and where to get it?
- Do we have the resources and the capabilities to manage risk and capital assessment?
- What level of capital would we expect to need under the Solvency II regime? Will we require additional funding?
- What will be the expected impact of Solvency II on our business?

heavy reliance on IT systems and key individuals. Nevertheless, some organizations have made positive steps by combining historic information with some measured assumptions.

There is also an urgent need for improved data gathering and analysis, particularly for operational risk, given the heavy reliance on IT systems and key individuals

Attitudes towards models varies widely, with over half of all the respondents admitting that they do not use an internal capital model. Indeed the traditional method of pulling together results from a number of models is still widely employed. However, there are signs of a more sophisticated, flexible approach emerging, with the introduction of integrated stochastic models, although this latter technique has not been developed fully.

Many participants have asked us to repeat this survey at regular intervals, to help enable them to continuously measure themselves against rapidly changing benchmarks.

Our approach

The survey was carried out between May and September 2004, principally through one-to-one interviews, with the exception of Germany, where a postal questionnaire was used. The individual respondents ranged from insurance practitioners to risk professionals including managing directors, heads of actuary, chief risk officers, finance directors, heads of capital planning and compliance directors.

A total of 102 companies across life, non-life, bancassurance and reinsurance, responded from 19 countries (see figure 1).

The range of questions covered, included:

- Types of risks covered by a risk policy or within a risk management framework
- Risk-based capital valuation and interaction between types of risk
- Adoption of an internal versus an external capital model
- How the capital allocation process is used
- Drivers of economic versus regulatory capital
- Preparedness for Solvency II

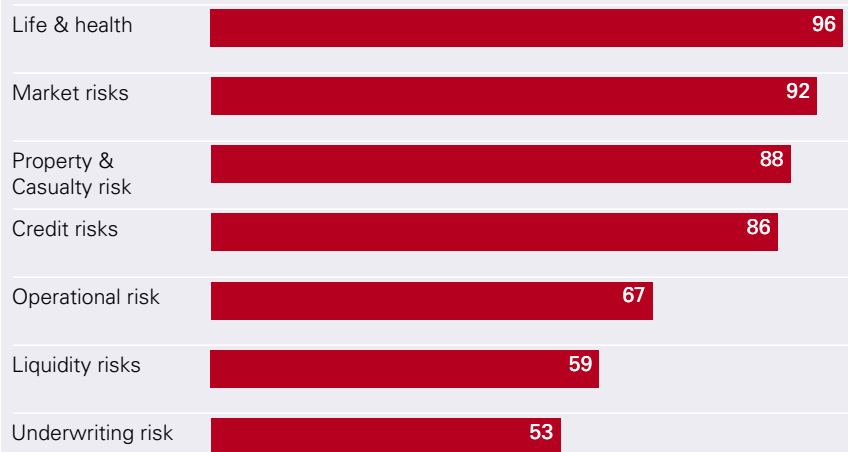
Figure 1 Participating countries

Austria	France	Spain
Belgium	Germany	Sweden
Bermuda	Ireland	Switzerland
Canada	Italy	The Netherlands
Central and Eastern European Countries	Portugal	United Kingdom
Denmark	Singapore	
	South Africa	

Recognizing and measuring risk

Most of the companies surveyed do have a risk management framework and are to some extent measuring and modeling the associated capital requirements (see figure 2). But there are considerable variations between countries. For instance only a third of UK companies had developed a framework to cover liquidity, reflecting an accessibility to a liquid market for marketable securities generally held by UK insurance companies. There are strong signs that regulatory authorities – notably in the UK and the Netherlands – are becoming less tolerant of lax risk management and will be demanding more rigorous frameworks.

Figure 2 For which risk types has your institution developed a risk management framework? (% responding yes)



Note: Answers will not equal 100% as multi-choice possible
Source: KPMG International, 2004

There are strong signs that regulatory authorities... are becoming less tolerant of lax risk management and will be demanding more rigorous frameworks

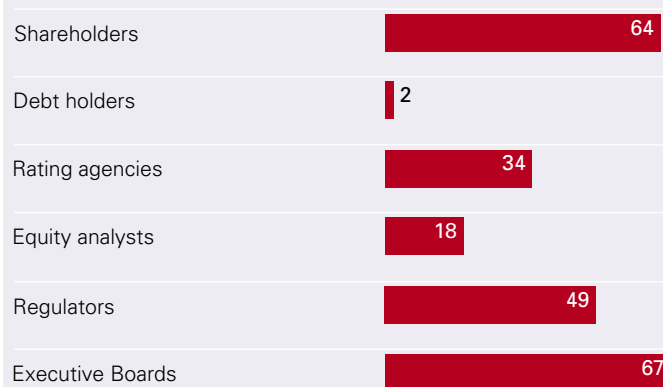
Certain types of market risk receive a greater emphasis in some countries than others, a finding influenced by varying national market conditions. European insurers tend to over-invest in equities. Three years ago, an average of 30–40 percent of their assets were invested in stocks and shares, with some British insurers holding as much as 80 percent. Such a system would not be allowed in Germany, where regulators impose a ceiling on equity investment at 35 percent.

Pressure to manage economic capital comes from a variety of sources

Pressure to manage economic capital comes from a variety of sources (see figure 3). UK companies are particularly concerned with meeting regulatory requirements – which is possibly a response to the emergence of tougher rules. In Germany and Italy, shareholder power appears to be a greater influence, while Bermudian and German insurers feel that economic capital is a matter of some concern to the executive board. Although the views of equity analysts are generally taken very seriously, these stakeholders are not seen as a key driver for change.

Regulators can only set the guidelines, but it is ultimately up to management to determine a company's risk appetite, identify and measure the risk exposures and assess subsequent capital requirements.

Figure 3 What are the main drivers for your institution to calculate and manage economic capital? (% responding yes)



Note: Answers will not equal 100% as multi-choice possible
Source: KPMG International, 2004

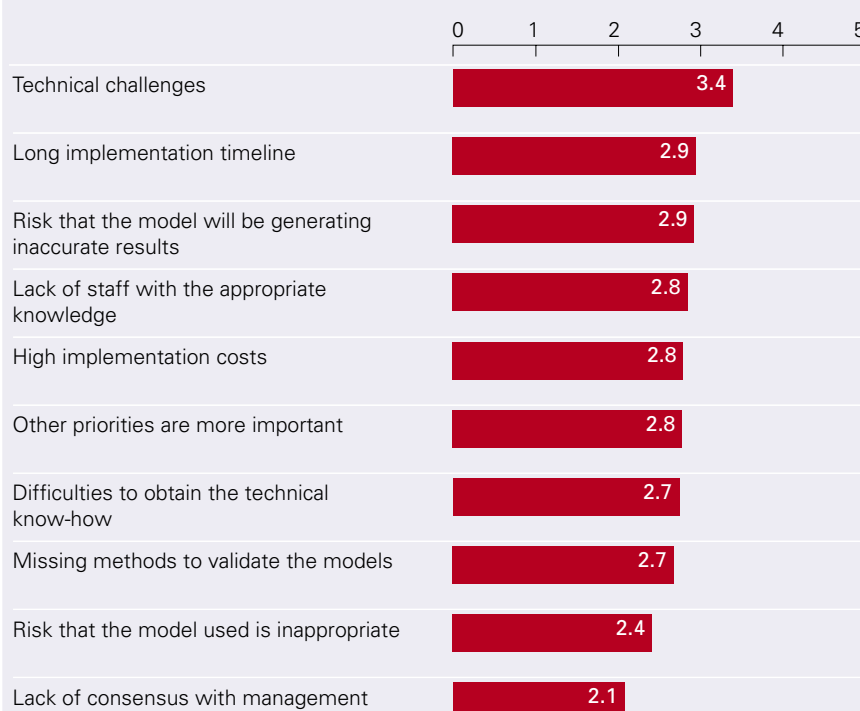
Risk management across the organization

The board should link capital planning to corporate strategy and also take full responsibility for determining the company's risk profile

In larger organizations, with multiple divisions, management must ensure that each part of the business has the appropriate capital levels to support its activities. The board should link capital planning to corporate strategy and also take full responsibility for determining the company's risk profile, which needs to be supported by a corresponding capital level.

Survey results suggest that the biggest obstacle to installing risk-adjusted capital allocation processes is not management inertia, but more practical, technical challenges such as IT. It is notable that, in this sample at least, senior management was considered to be very committed to making the transition a success (see figure 4).

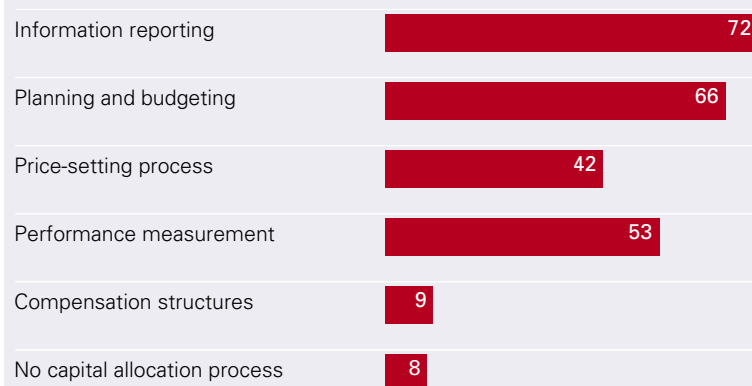
Figure 4 On a scale of 1 – 5 how significant are the following obstacles to the implementation of an internal risk-adjusted capital allocation process in your company? 1 = Not significant, 5 = Very significant



Source: KPMG International 2004

Very few companies taking part in the survey use the capital allocation process to determine management compensation at profit center level. This suggests that insurers are wary of basing rewards on data that is not yet sufficiently robust. However, many do feel confident in using the process to enhance management information, budgeting and performance measurement (see figure 5).

Figure 5 For what purpose is the capital allocation process used? (% responding yes)



Note: Answers will not equal 100% as multi-choice possible
Source: KPMG International, 2004

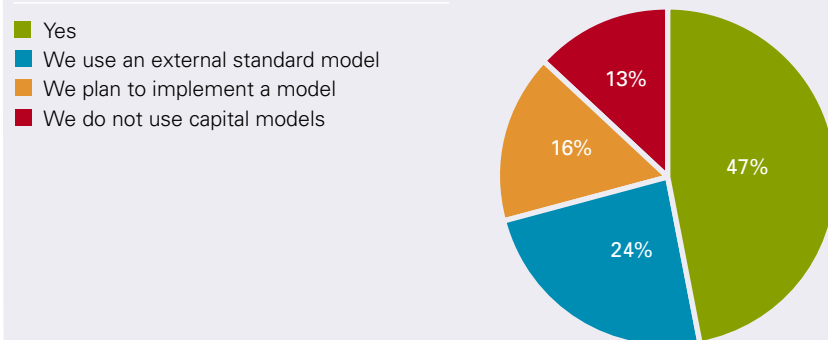
Which model to use?

Effective models are at the heart of any risk management policy, but can take three to four years to build, and insurers should be aware of the range of risks that are included. Only 47 percent of the companies in the survey use an internal capital model, with Germany, Bermuda and South Africa being more advanced. 50 percent of the Dutch companies responding do not use any internal capital models at all (see figure 6). Such results are inevitably influenced by local regulatory requirements; in Germany, models are compulsory under the supervisory authority (BAFIN).

Those companies that are committed to modeling tend to use a combination of simple and sophisticated models, although some 30 percent do not even use the most basic stress testing and scenario analysis (see figure 7). Our findings suggest Bermudian companies use the widest range of models, reflecting the complex nature of risks that many of them underwrite.

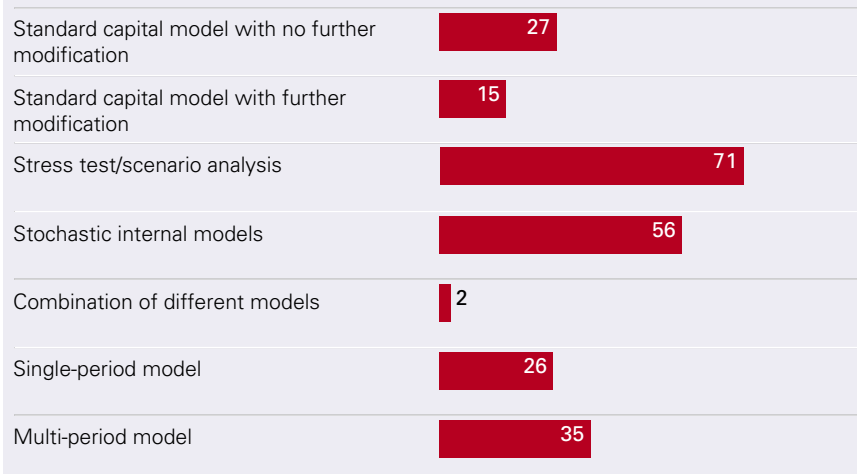
Only 47 percent of the companies in the survey use an internal capital model, with Germany, Bermuda and South Africa being more advanced

Figure 6 Do you have an internal capital model in place? (% responding yes)



Source: KPMG International, 2004

Figure 7 Which risk model(s) does your company use? (% responding yes)



Note: Answers will not equal 100% as multi-choice. Some not asked to all respondents
 Source: KPMG International, 2004

Insurers are... beginning to acknowledge that risks are not independent from each other

Of all the approaches used, stochastic internal models are considered to be the most flexible, offering the opportunity to include specific risk factors facing individual firms.

With around half of those surveyed using integrated models, insurers are at least beginning to acknowledge that risks are not independent from each other. Only a quarter of life companies use an integrated model for measuring economic risk-based capital, contrasted with over half of property and casualty (P&C) insurers and 70 percent of reinsurers (see figure 8).

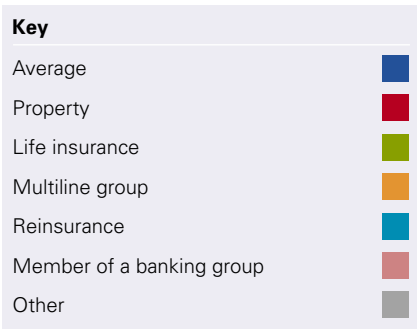
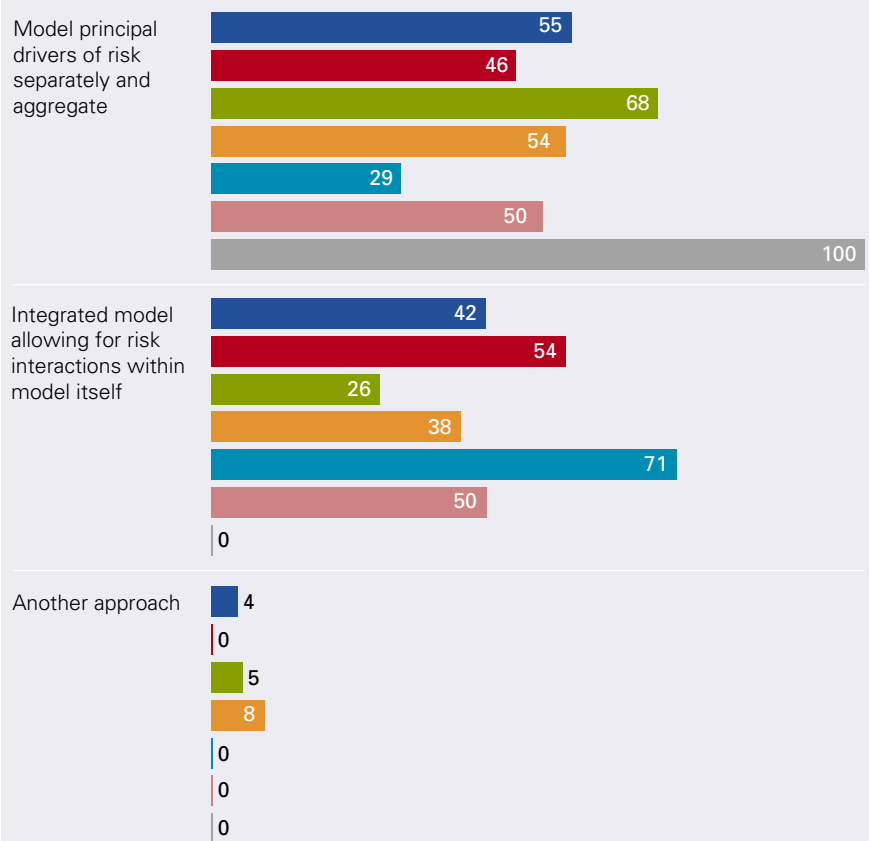


Figure 8 To what degree is your economic risk-based capital model integrated? (% responding yes)



Source: KPMG International, 2004

Those who fail will face the potential of more than one type of risk hitting them simultaneously

However, it is clear that many companies are still struggling to understand the links between different types of risk (see figure 9). Very few claim to know exactly how this interaction works, and must find ways to systematically gather more data to help build a clearer picture. Those who fail will face the potential of more than one type of risk hitting them simultaneously. An example of this was the NASDAQ technology crash at the turn of the new millennium, which saw not only steep falls in share prices, but also a large number of personal liability claims from beleaguered managers of those failing companies facing investor lawsuits.

Figure 9 How do you deal with the interaction between types of risk? (% responding yes)

We don't know the exact meaning and/or purpose of this interaction	9
We understand the interaction but don't know its level in our organization	19
We have an idea of the order of magnitude of this interaction, but don't know the exact level	41
We have researched what the interaction is	14
We know exactly what the interaction is and use the information to monitor our organization	13
We understand the interaction but it doesn't have any implications for our organization	4

Note: Question not asked to UK respondents
Source: KPMG International, 2004

Operational risk

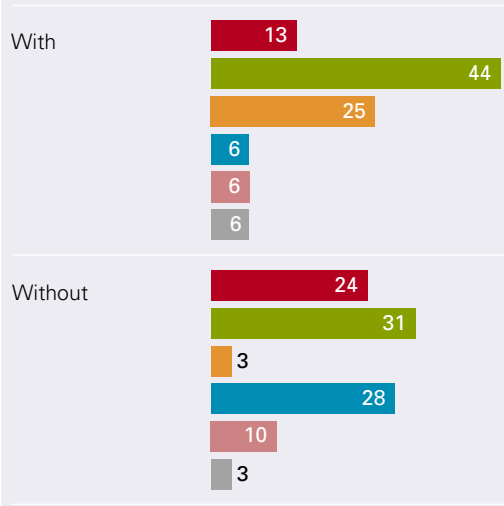
Most insurers find it difficult to quantify the precise risks inherent in business processes, operating systems and particularly in the performance of individuals. While two-thirds of the survey have developed a risk management framework for operational risk, the findings suggest that in the Netherlands and Italy only a third or fewer of the companies responding were prepared for operational risk. This contrasts with the findings for UK, Germany and Bermuda where there appear to be more formal measures in place to counter such dangers.

Within the different sectors surveyed, only life insurers routinely calculate operational risk capital. Finding the appropriate data to measure low-frequency but high-severity risks is a major challenge for P&C insurers and firms should begin by developing a few assumptions and possibly use simulation models (see figure 10). The cost of failure to manage operational risk is high, with the ultimate example being the Nick Leeson affair.

Key

Property	■
Life insurance	■
Multiline group	■
Reinsurance	■
Member of a banking group	■
Other	■

Figure 10 Operational risk policy with/without capital calculations by primary business sector. (% responding yes)



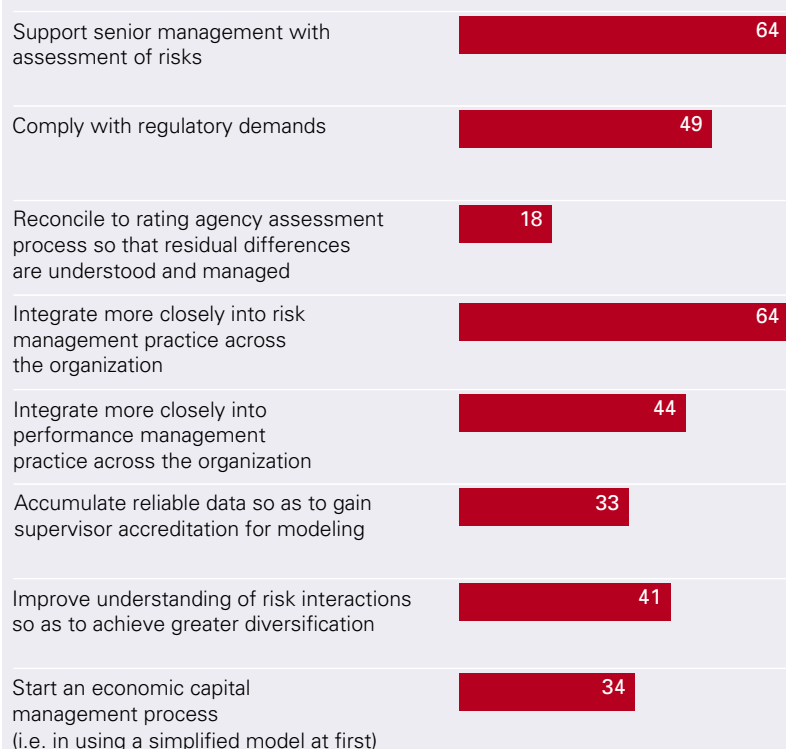
Source: KPMG International, 2004

What is driving changes in risk management?

The survey findings suggest that business imperatives and senior management expectations – rather than regulatory pressures – are driving change in risk management and capital allocation. This indicates that insurers are realizing the broader benefits of effective risk management. There appears to be a genuine appetite to develop economic capital measurement processes, with 64 percent wanting to integrate these more closely into risk management and the same percentage also aiming to support senior management with risk assessments. However, by viewing rating agencies as a low priority, insurers could be missing the chance to communicate more effectively to external stakeholders (see figure 11).

By viewing rating agencies as a low priority, insurers could be missing the chance to communicate more effectively to external stakeholders

Figure 11 What are the priorities for further development of your economic capital management processes? (% responding yes)



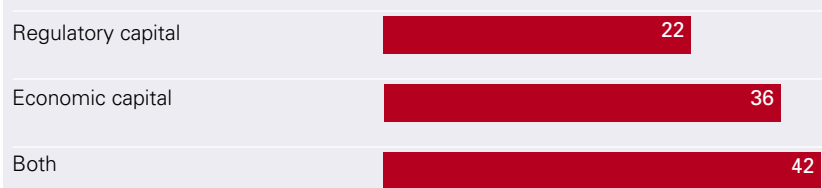
Note: Multi-choice possible Not all questions asked to all respondents
Source: KPMG International, 2004

Despite recent advances, regulations have not kept pace with a fast-moving business environment. This puts greater pressure on insurers to make sure they understand their economic capital needs.

Respondents from Germany, Bermuda and particularly the Netherlands have a tendency to use both economic and regulatory capital. Solvency II should lead to some convergence of economic and regulatory capital allocation, which is a practical way to even out the risks. Overall a higher proportion of UK companies appear to use regulatory capital compared to Germany and the Netherlands (see figure 12).

Surprisingly, economic capital is calculated as being significantly higher than regulatory capital in two-thirds of the companies surveyed – and in only 14 percent of cases is it significantly lower, suggesting a high level of caution (see figure 13).

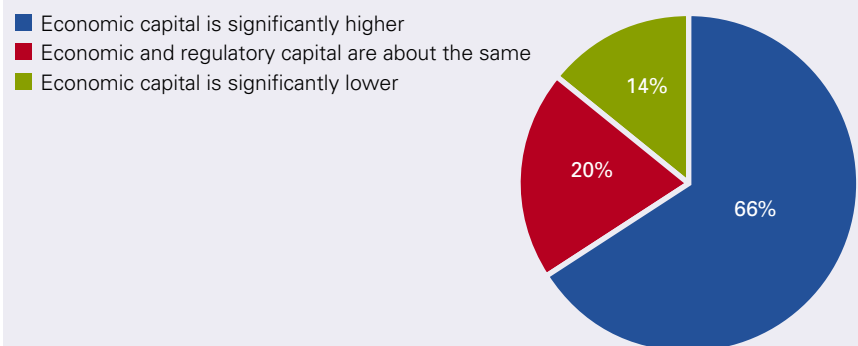
Figure 12 If you use capital allocation for one or more purposes (highlighted in figure 5), what capital did you use? (% responding yes)



Source: KPMG International, 2004

Surprisingly, economic capital is calculated as being significantly higher than regulatory capital in two-thirds of the companies surveyed

Figure 13 How do the levels of economic capital and regulatory capital compare in your organization? (% responding yes)



Source: KPMG International, 2004

Measuring performance for investors

Risk-adjusted return on economic capital is clearly the preferred yardstick of performance for the insurers in the survey

Risk-adjusted return on economic capital is clearly the preferred yardstick of performance for the insurers in the survey, with a third using it currently and a further 55 percent planning to adopt it imminently. Companies are less interested in return on regulatory capital, although techniques such as embedded value are widely retained as a parallel performance measure (see figure 14).

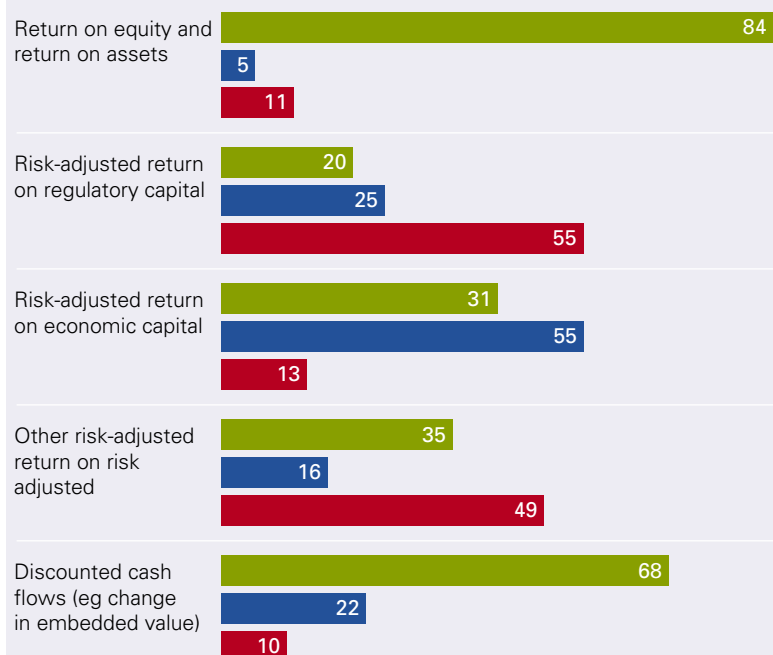
Across different sectors, a vast majority (80 percent) of reinsurance companies have adopted a risk-adjusted return on economic capital as a performance measurement. The other sectors – P&C, life and multiline groups – have a long way to go in this respect (see figure 15).

In terms of the tools used to increase or decrease actual capital levels, our survey suggests Bermudian companies are likely to issue new shares, Italian firms tend to use strategic decisions (such as acquisition or divestiture), and Dutch companies have more of a focus on portfolio management.

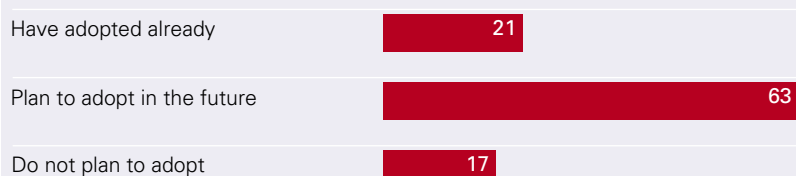
Key

- Have adopted already ■
- Plan to adopt in the future ■
- Do not plan to adopt ■

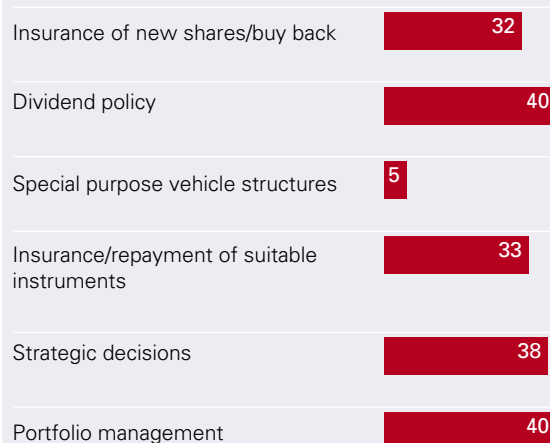
Figure 14 Which performance measurement framework(s) is (will be) adopted in your organization? (% responding yes)



Source: KPMG International, 2004

Figure 15 Have you adopted risk-adjusted return on economic capital in your organization? (% responding yes)

Source: KPMG International, 2004

Figure 16 Tools to increase/decrease capital level (% using tool)

Source: KPMG International, 2004

Usage of these two latter tools is a sign of a more pragmatic approach at a time when investors are reluctant to commit fresh capital. Over the past two to three years, insurers have cut dividends (and life assurers have also cut bonus payouts) but this is only a temporary solution and is unlikely to improve the overall long-term capital position.

Solvency II

The introduction of Solvency II will force insurance companies to employ a capital level that matches the true risks they face. Those that fail to embrace sophisticated risk management will find they have insufficient capital to support the business, with shareholders the eventual losers.

The single greatest concern over implementation of the new regulation is financial exposure to market risk, which reflects industry's continuing reaction to depressed equity markets and low interest rates (see figure 17). One of the major challenges in implementing Solvency II is getting systems and data up-to-speed to be able to handle the more advanced modeling required (see figure 18). Naturally there is an acknowledgement that the new regulations will also bring benefits, most notably in challenging underwriting and investment decisions. This should lead to better control or risks, reflecting a more sensible and mature approach to risk management.

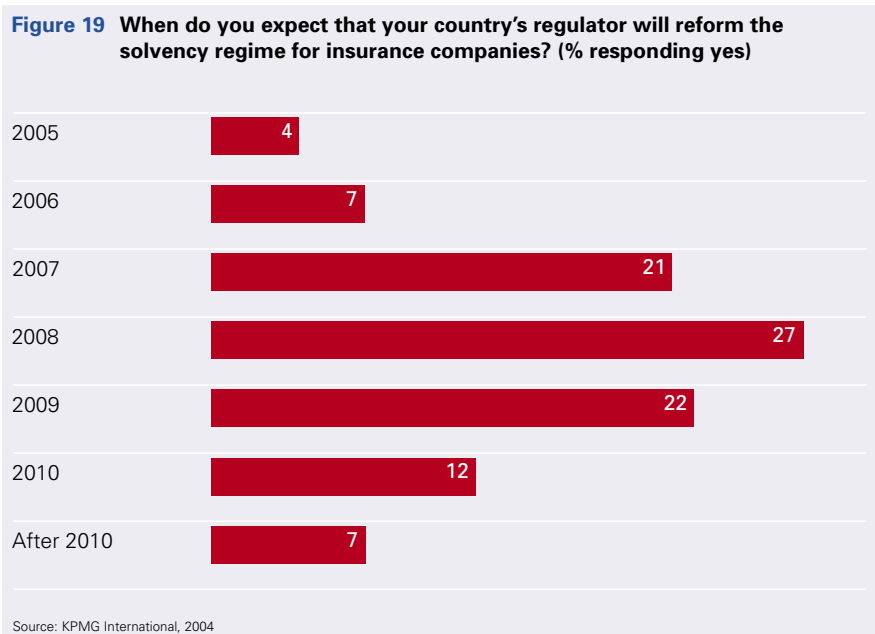
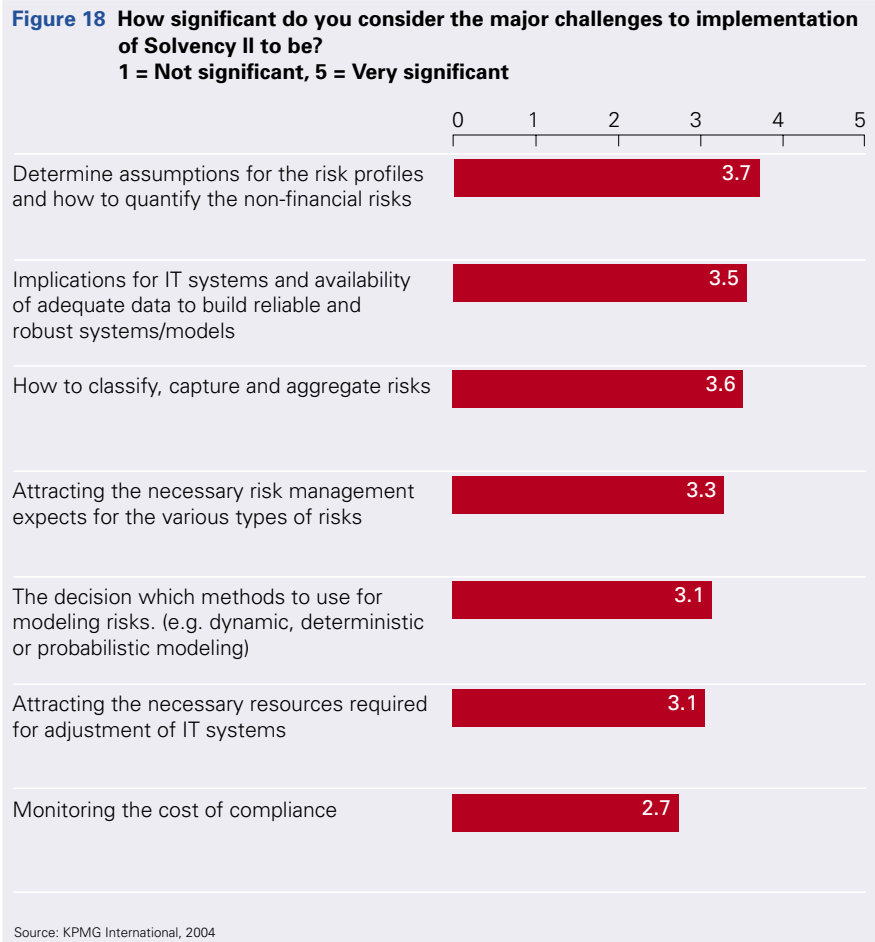
Those that fail to embrace sophisticated risk management will find they have insufficient capital to support the business, with shareholders the eventual losers

There is also a wide uncertainty over when Solvency II will take effect – only in the UK have some dates been set by the Financial Services Authority (FSA) for implementation of similar requirements (see figure 19).

**Figure 17 How significant are the following areas of Solvency II in terms of giving you the greatest cause for concern after implementation?
1 = Not significant, 5 = Very significant**



Source: KPMG International, 2004



Selected country highlights

Bermuda

Bermudian companies tend to underwrite complex risks, and not surprisingly have a fairly sophisticated approach to risk management. The firms surveyed use the widest range of risks models of any country and are fully committed to calculating economic capital – particularly to cover the risk of natural catastrophe. Over two-thirds of those responding use internal capital models.

The executive board exerts considerable power in Bermuda and is the main driver for calculating and managing economic capital.

All the respondents claim to have an idea of the magnitude of the interaction between different types of risk but, in common with insurers in other countries, did not have enough hard data to make accurate calculations.

Germany

Over two-thirds of the German companies surveyed use an internal capital model – in part a reflection of regulatory requirements – and tend to be thorough in calculating economic capital across various types of risk. The majority are at least aware of controlling internal systems and people, and have also developed a risk management framework to cover operating risk.

When it comes to economic and risk-based capital measurement, the respondents were primarily concerned with satisfying the needs of shareholders and executive boards, and less so for regulators, which is indicative of where the power lies in the economy.

As with most of the countries in the survey, there was little or no usage of the capital allocation process for compensation of senior management.

Overall, German companies appear to be relatively advanced in their usage of internal capital models and their focus on integrating economic and capital management processes into risk management practice. This should help them take advantage of the opening up of world capital markets.

Italy

Although the majority of Italian companies responding have a risk management framework covering market, credit, P&C and life insurance risks, less than one in seven use an internal capital model, despite the fact that external models produce less accurate predictions.

Italian insurers also seem to be relatively unprepared for managing the vagaries of operational risk.

As one would expect, the main drivers for calculating and managing economic capital are shareholders and regulators, with less concern for executive boards or equity analysts. In terms of further development, there is a general desire to integrate capital management processes more closely into performance management.

When it comes to increasing or decreasing actual capital levels, the Italian insurers surveyed tend to use strategic decisions such as acquisitions or divestitures as the prime tool.

South Africa

According to our survey, South African insurers have risk management frameworks that cover underwriting, liquidity, market, credit and life insurance, risks, but not operational risk. As with all the other countries, work needs to be done to understand IT and 'people' issues that can impact performance.

Risk calculation is relatively advanced, with over two-thirds of those responding using an internal capital model, while the majority do have some idea of the magnitude of the interaction between different types of risk, although again do not yet have the data to support this approach.

The main driver for calculating and managing economic capital are shareholders and regulatory and executive boards, but not analysts or ratings agencies.

The Netherlands

Our survey suggested that Dutch insurance companies are less thorough than some of their European counterparts in calculating economic capital, with less than one in five covering market, credit or P&C Risk, and only 33 percent having developed a risk management framework for operating risk.

None of the respondents use internal capital models. Given such low risk coverage, it is not surprising that the main priority is to ensure capital management processes comply with regulatory demands – it is clear that management is not driving this approach.

However, all those Dutch firms surveyed use capital allocation for both economic and regulatory capital, suggesting an attempt to reduce risks. Portfolio management was seen as the main tool employed to increase or decrease actual capital levels.

UK

In many respects the UK companies surveyed are quite advanced in having a risk management framework covering a wide range of risks. A majority have also made a start in quantifying operating risk – although clearly have some way to go in collecting sufficient data to support this.

Half of the respondents use an internal capital model, with most of the rest planning to adopt one in the future. Across the sample group, economic capital tends to be higher than regulatory capital, suggesting a pragmatic, cautious attitude.

The overall development of risk modeling, is however, seen more as an act of compliance rather than as an integral part of the business. Management within UK insurers therefore needs to take greater responsibility to understand risk exposures and assess capital requirements.

Australia and Canada: tightening the regulations

The insurance regulatory regime, introduced in 2002, brings Australian general insurers in line with banks and life insurers, who have had modern risk-based solvency and regulatory requirements in place for a number of years.

Firms now face substantially higher minimum capital requirements, based upon a comprehensive risk-based capital model that relates the amount of capital needed to the levels of risk insured.

Australian insurers now apply a more structured and professional approach that should benefit policyholders, regulators and shareholders.

Meanwhile in Canada risk-based measures of capital adequacy have been required for life insurers for several years, and similar measures were introduced for non-life insurers in 2002. Reinsurers also must apply the same risk-based measures, depending on the type of insurance business they assume. And scores are publicly disclosed annually, which attracts considerable attention from investment and credit analysts as well as consumers.

Canadian regulators require capital to be maintained at 150 percent of the minimum level at the very least, and require each insurer to establish a target range within which to manage their capital statistic. This capital management range in most cases is expected to be well above the 150 percent level to allow an insurer to absorb some adverse developments and stay above 150 percent. These requirements are coupled with requirements for annual actuarial reports (dynamic capital adequacy testing, or "DCAT") showing the results of projecting financial results and anticipated capital levels under a number of adverse scenarios. These reports are used by regulators in their supervision, and can help management to consider how to better manage risks such as catastrophes, policy lapses or stock market falls.

Regulators around the world are now considering a similar evolution towards risk-based and future oriented solvency regulation.

Solvency II – lessons from Basel II

The main lessons from Basel II are that active involvement at the consultative stage and rigorous internal preparations can help to minimize disruption to insurers as they get ready for Solvency II.

Pre-implementation: the need to lobby

There is some concern that the regulatory authorities may seek complex models that are expensive to introduce and require large amounts of data that is difficult to gather. And if smaller insurers are obliged to use standardized models for calculating economic capital, they may have to retain higher capital levels, giving their bigger counterparts a competitive advantage.

With a qualitative supervisory review process a central tenet of Solvency II, national regulators will be assessing overall risk management practices. This could again create an unlevel playing field, with insurers from some countries having to hold higher levels of economic capital than others.

Insurers can reduce the effect of these factors – which are also currently causing some concern to banks – by engaging in regular dialogue with the authorities in an attempt to keep any recommendations as simple and pragmatic as possible.

Implementation – resource planning

Insurers will need to plan for the costs of bringing in newer, more sophisticated models, and set up the appropriate data collection to power these tools. The lesson from Basel II is that the resources required are greater than imagined originally. It's subsequently taking longer than expected to implement the requirements, meaning that some banks are overly focused on regulatory matters at the expense of economic capital.

There is much uncertainty over Solvency II, particularly regarding the supervisory review process. However, the winners will be those that treat risk and capital management as a competitive tool, rather than merely a compliance issue. By improving processes now, they will not only keep the regulators happy but also reduce their risk profile and lower their overall cost of capital.

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Peter de Groot

Partner, Global Head of Risk and Capital Management (Insurance)
KPMG in the Netherlands

KPMG has an international network of insurance risk and capital management professionals. To discuss any of the matters raised in this survey or any other risk management, regulatory or business issues, please contact:

Peter de Groot
Partner, Global Head of Risk and Capital Management (Insurance)
KPMG in the Netherlands
Tel: +31 20 656 7489
e-Mail: DeGroot.Peter@kpmg.nl

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