



INSURANCE

# Solvency II Briefing

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FINANCIAL SERVICES

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# Introducing the complex world of Solvency II

Welcome to the first edition of SolvencyII Briefing – a publication that will be issued several times a year to address Solvency II related issues.

Solvency II is the 'next big thing' in the insurance world. It is intended to create a framework within which European insurance and reinsurance regulation operates. The introduction is a highly complex and challenging process. It is also a process with which KPMG firms are heavily involved, having undertaken the original study for the EU that recommended the proposed Three Pillar Approach\*.

Through SolvencyII Briefing we intend to help senior management and board members keep abreast of the latest Solvency II developments. Solvency II will have wide-reaching consequences for many areas of the business

including the IT, actuarial, risk, operations and finance functions. As such, the articles in this publication will address issues relevant to a range of readers, including risk professionals, finance professionals, actuaries, compliance officers and others.

We start this edition with an article considering the background to Solvency II and highlighting the next steps and some of the issues currently on the Solvency agenda. We then explore a number of these issues, with articles on topics as wide ranging as the implications of Solvency II on the role of risk, through to the debate around cost of capital and risk margins.

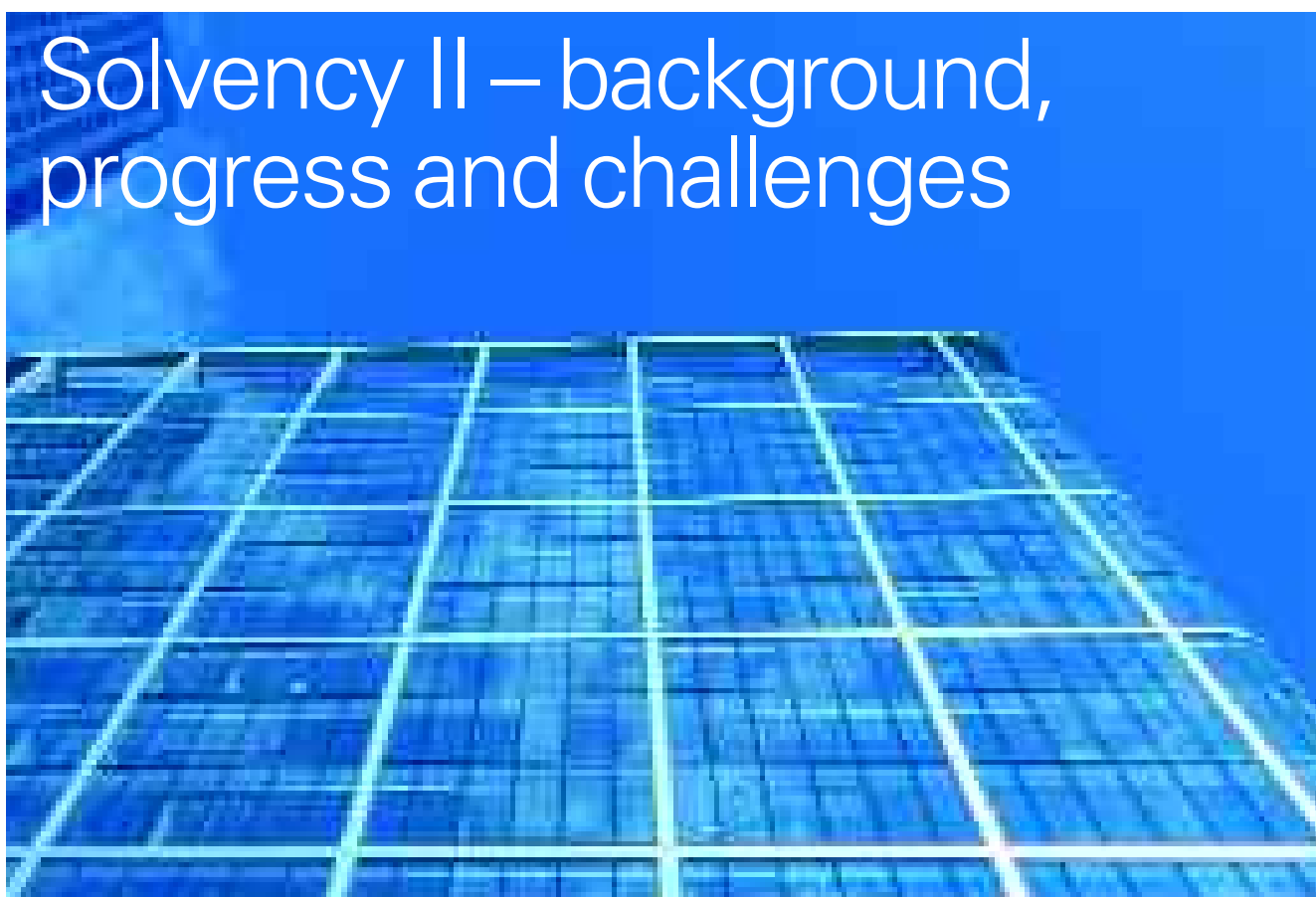
This first edition provides only a taster for the broad debate that is taking place and over the coming years we

expect there to be a number of issues that will come and go. You will be able to read about them here, with contributions from KPMG's global network of insurance risk management specialists. In future editions we also expect to include interviews with key industry figures.

As with all new things, there is no doubt room for improvement. So, we would be interested to receive your feedback on this publication. If you have any suggestions for future editions, then please do not hesitate to contact the editor, Nicholas Hopwood at [nahopwood@kpmg.com](mailto:nahopwood@kpmg.com).

Until the next time...

\* To view this report please visit [www.kpmg.com/financial\\_services](http://www.kpmg.com/financial_services)



# Solvency II – background, progress and challenges

The European Commission's Solvency II project is finally gaining the attention and interest that it merits. In this article we look at the aim of Solvency II and consider the progress and some of the challenges that need to be met if its implementation is to be successful in overhauling the European Insurance Solvency regime.

## From Solvency I to Solvency II

Solvency II is often referred to as 'Basel for Insurers' and to a certain extent this is a reasonable summary. The drive for Solvency II is borne out of the European Commission's desire to replace the existing Solvency I framework, which dates from the 1970s, with a framework that has a number of key features:

- a risk-based approach
- a unified legislative basis for prudential regulation of insurers and reinsurers
- a non-zero failure regime

– a link to the International Accounting Standards Board's work on insurance contracts.

The result of these aims is the Three Pillar Framework (see page 11), as detailed in the original KPMG UK study for the European Commission\*, setting out respectively, capital requirements, supervisory review processes and market discipline and disclosure.

## The process for Solvency II

The Solvency II Directive is to be implemented under the Lamfalussy structure (see figure 1). What this means in practice is that the Directive itself is intended to be fairly high level, with the real detail of the requirements being set out in the Level 2 implementation measures. The Commission will then rely on consistency being achieved between the states through a process of supervisory co-operation and peer review. Level 4 of the structure will see the Commission checking

Member States compliance with the EU Legislation.

However, that is the end state. To achieve this there are a number of steps that the European Commission has to go through. While the drafting of the Directive will be undertaken by Karel Van Hulle and his team at the European Commission, in order to be sufficiently informed so as to draft the directive, the EU has asked the Commission for European Insurance and Occupational Pension Supervisors (CEIOPS) to undertake a process of consultation that will inform the make-up of the Directive. This is being done through Three Waves of Calls for Advice (see figure 2) and the Quantitative Impact Studies (QIS) (see figure 3) that form an essential part of the process, informing as they do, the debate as to the make-up of the framework and prescriptive formula for the standard Solvency models. The recent QIS 2 exercise, for example, was undertaken in order to look at the practicability of calculations and the

**Figure 1 The Lamfalussy structure**

<b>Level 1:</b> Framework Directive	<p>The Commission adopts proposed framework directive.</p> <p>Council of Ministers has dialogue with the European Parliament.</p> <p>The Framework Directive is agreed through co-decision (qualifying majority voting).</p>		
<b>Level 2:</b> Implementing measures	<p>The Commission consults CEIOPS and proposes measures.</p> <p>The European Insurance &amp; Occupational Pensions committee (EIOPC) votes within three months.</p> <p>The Commission adopts measure.</p>	}	European Parliament kept informed throughout
<b>Level 3:</b> Supervisory co-operation	CEIOPS works on common interpretation and guidance to achieve supervisory convergence, including through peer review.		
<b>Level 4:</b> Enforcement	The Commission checks Member States compliance with EU legislation.		

Source: KPMG International, 2006

effect on the level of capital required by firms in applying the standard model calculations. It also considered the suitability of two different approaches for the treatment of risk and uncertainty with the market value of the liabilities as a definition for the technical provisions, namely the percentile approach and the cost of capital approaches.

### The challenge

Even though the Directive is not in place, through the ongoing consultation process, a number of issues have arisen and it is clear that Solvency II presents an interesting set of challenges.

The first of these issues has been the treatment of technical provisions within the SCR. The Solvency II debate has been subject to arguments from two camps: those proposing the liabilities should be valued directly on a risk basis (e.g., percentile approach); and those proposing to value them

on a market value basis (e.g., cost of capital approach). By the time of publication the QIS 2 results should be out and we shall be clear on which is preferred by the regulators. However, the topic is complex and Teus Mourik from our Dutch firm investigates the arguments in the following article.

The relation of the Solvency Capital Requirement and the Minimum Capital Requirement (MCR) is of especial concern when the environment is so adverse that a fair number of insurance companies are not able to meet the Solvency Capital Requirement.

The principle underpinning the MCR is that it is an absolute floor, representing the point at which regulators would consider there is unacceptable risk to the policyholders. Should this point be reached then the ultimate supervisory action would take place (i.e. the business would not be allowed to continue). QIS 2 suggests that there will be a transitional formula for the MCR based on the existing Solvency I

## The Solvency II Directive is to be implemented under the Lamfalussy structure

\* Available at [www.kpmg.com/financial\\_services](http://www.kpmg.com/financial_services)

**Figure 2 EU Commission's framework for consultation: technical make-up of Solvency II Directive**

Pillar 2		Pillar 1		Pillar 3	
1	Internal Control and Risk Management	7	Technical Provisions in Life Assurance	19	Eligible Elements to Cover the Capital Requirements
2	Supervisory Review Process (general)	8	Technical Provisions in Non-Life Insurance	20	Cooperation between Supervisory Authorities
3	Supervisory Review Process (quantitative tools)	9	Safety Measures	21	Supervisory Reporting and Public Disclosure
4	Transparency of Supervisory Action	10	Solvency Capital Requirement: Standard Formula (Life & Non-Life)	22	Procyclicality
5	Investment Management Rules	11	Solvency Capital Requirement: Internal Models (Life and Non-Life) and their Validation	23	Small and Medium-Sized Enterprises
6	Asset Liability Management	12	Reinsurance (and other Risk Mitigation Techniques)		
13	Quantitative Impact Study and Related Issues				
14	Powers of Supervisory Authorities		1st Wave of Calls for Advice		
15	Solvency Control Levels		2nd Wave of Calls for Advice		
16	Fit and Proper		3rd Wave of Calls for Advice		
17	Peer Review				
18	Group and Cross Sectoral Issues				

Source: KPMG International, 2006

approaches. According to the parameters put forward in QIS 2, the MCR would require about half the Solvency I capital. However, it is possible that this formula could be replaced by a greatly simplified and lower calibrated version of the Solvency II SCR.

A further debate exists around the calculation of the SCR. What is clear is that the SCR is proposed to be calculated to a 99.5 percent confidence over one year, and that it is to cover as a minimum underwriting risk (and reserve risk in Property & Casualty insurance), credit risk, market risk and operational risk. There are a number of debates including whether the calculation should be based on Value at Risk (VaR) as in Basel II or the so-called Tailvalue at Risk (TailVar, which is considered by many in the

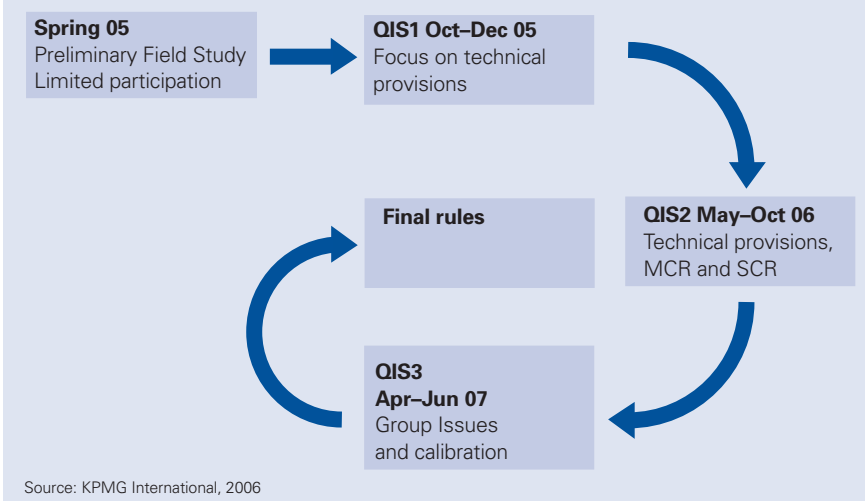
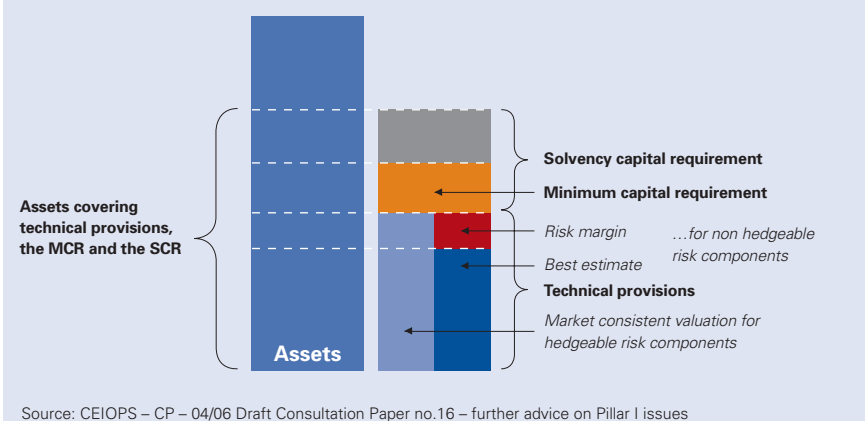
industry to present a better representation of the nature of the tail and the uncertainties). In addition, it is yet to be finalised what disclosures around the SCR can be expected (i.e. the adjusted SCR post supervisory review and add-ons). There are also a number of issues around the nature of the SCR and how suitable it is for small firms. Some of these issues are discussed in the article on page 10.

Lastly, there is still clarity to be gained as to the way that asset risk management should be included within Solvency II. Currently there are some limited quantitative restrictions and eligibility rules. A view that seems to be emerging is that a Prudent Person Plus approach would be sensible in guiding a firm's investment strategy and that there should be asset concentration limits and possible

additional capital requirements for poor diversification. We shall focus on this debate in a future issue.

### Next steps

By the time of publication, the QIS 2 results should have been released and the consultations around the Internal Risk and Capital Assessment requirements (CP 13) and sub-group supervision and diversification (CP14) will be closed. However, there will not be any let up in the activity. Around the time of the publication of this article there is expected to be a Consultation Paper (CP 16) post-QIS 2 on Pillar 1 issues, including technical provisions, the MCR, SCR, internal models and the recognition of eligible capital elements. In addition there will be a Pillar 2 Consultation paper addressing capital add-ons, asset limits and the

**Figure 3 QIS – Quantitative Impact Studies****Figure 4 Adequacy of financial resources**

According to the parameters put forward in QIS 2, the MCR would require about half the Solvency I capital

so-called 'use test' (this will be the topic of a future article).

Early in 2007 an Impact Assessment report will be published. Quantitative Impact Study 3 is due later in Spring 2007, which will look at the calibration of the SCR and group issues.

Then, after all this, the industry can expect to see a Level 1 Draft Directive in mid 2007 with implementation in 2010/2011.

### Early days

Clearly the Solvency II initiative is intended to provide a coherent framework for insurance regulation. In terms of the overall time frame this is still early days, with not even a draft Directive to act as a guide. The process to implement a Directive can

be time consuming and burdened with many complex issues that are taxing to both the industry and the regulators. Over the coming years, there will continue to be challenges and we intend to address these in this publication as they arise.

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# A critical decision

## Valuing insurance liabilities

The first draft of the Solvency II Framework Directive, due for public release in July 2007, will include a definition of the market-consistent value of liabilities (MVL) for insurers as a basis for determining solvency requirements. A critical consideration is the methodology to be adopted for quantifying the market value margin (MVM) for non-hedgeable risks. The industry is currently debating the case between cost-of-capital and percentile approaches. As their decision is imminent, the issues are discussed in this article.

### Background

The European Commission's Solvency II programme forms part of the wider drive to harmonise the level of prudence required of financial services firms to ensure common standards of policyholder protection and encourage a single European market. Solvency II will deliver a comprehensive new framework for regulating insurance business in the Community. Consciously modelled on the Basel II framework for banking, Solvency II is being developed using a similar three-pillar structure, with Pillar 1 setting out quantitative minimum capital requirements based on the market value of insurance liabilities.

In the current phase of the process, the EC is drafting detailed proposals based on technical advice from the

Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS). The European industry clearly has a key role to play, both in making recommendations to CEIOPS and in attempting to ensure that the resultant regulations are workable and achieve their objectives. It should also lead to a more streamlined and efficient framework, minimising unnecessary administration and the burden of reconciliation etc, if the eventual provisions of Solvency II are as closely aligned as possible with IFRS. However, it seems that a part of the industry is currently proposing two different regimes for accounting and solvency supervision respectively, clearly leading to the need for public reconciliation. Therefore, minimising of administrative burden does not seem to be important for the whole industry.

### Quantifying MVL

The European regulators strongly believe that the new Solvency Capital Requirements (SCR) should be based on a total balance sheet approach in which, all assets and liabilities should be valued on a market value where one exists and, where not on a modelling approach, using market-consistent techniques. Since such an 'economic' approach is most closely aligned with market realities and with the way insurers manage and assess their business, this is generally endorsed by the industry.

In particular, there is a consensus that the market value of insurance liabilities ('MVL') should be the sum of the present value of the future Best Estimate liability cashflows, discounted at the actual risk free spot yields and a 'market value margin' ('MVM') to account for risks and uncertainties regarding these cashflows. The still open issues regarding the present value, mainly relate to the underlying Best Estimate scenario and the exact level of the risk free rates. For the MVM component it is believed that hedgeable and non-hedgeable risks need to be treated differently. Hedgeable risks should by definition be determined by mark-to-market approaches, since a market price can be found for them. In principle a company could eliminate its exposure to such risks by purchasing a hedging instrument or transferring the exposure to a willing, rational, diversified counterparty in an arms' length transaction under normal business conditions (i.e. securitisation e.g. derivatives, options, futures etc). It is generally agreed that these market prices can be assumed to be the sum of the expected present value of Best Estimate future cash flows, plus a margin for risk and uncertainty.

### Non-hedgeable risks: two options

Non-hedgeable risks, however, have to be taken into account by an appropriate mark-to-model approach.



This will require the explicit calculation of an MVM. Two conceptually distinct options exist as the basis for this MVM calculation: the percentile approach; and the cost-of-capital approach. Whereas the percentile approach is based on ensuring that risks can be covered at an appropriate level of confidence, typically 75 percent, the cost-of-capital approach seeks to define the MVM in a way that is linked to the returns required by shareholders.

The percentile approach is a purely statistical methodology. It requires complex stochastic modelling of the distribution of risks, and even then produces results which are inevitably arbitrary and likely to have no foundation in market realities. By

contrast, the cost-of-capital approach has a number of theoretical and practical advantages. It is directly linked to a view of what a rational investor would demand in excess of Best Estimate valuation. And, perhaps paradoxically, it is easier to apply in practice than an apparently simple statistical model, since it does not involve stochastic risk analysis.

The cost-of-capital approach is also already the basis of the Swiss Solvency Test (SST), which began to be developed in 2003. The SST is based on a market value of liabilities including a risk margin: 'the risk margin is calculated as being the discounted value of the future costs of maintaining the SST target capital level if the insurance portfolio was

being run off by a third party. For the field test 2004, cost of capital was set at six percent.'

### **Not black and white**

The cost-of-capital approach is not totally free of conceptual difficulties. It requires a judgement to be made on the level of return required by shareholders, which may vary from company to company and fluctuate over time. As the SST example demonstrates, it requires a potentially arbitrary decision on the quantum of risk margin. Nor is its scope of application entirely clear, in particular the distinction between hedgeable and non-hedgeable risk is not black and white (and may vary over time).

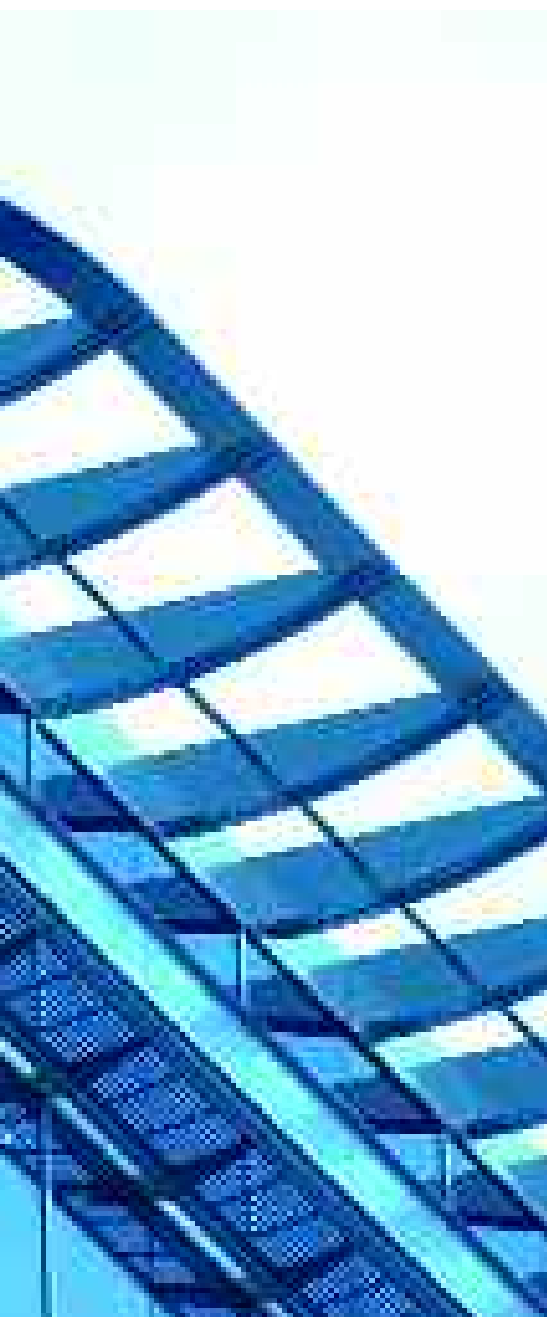
A further source of arbitrary variation derives from the fact that the cost-of-capital approach depends on the product of the required return and the present value of SCRs. Solvency II will provide two alternative approaches to SCR calculation. Large insurers routinely operate sophisticated internal models to reflect the individual characteristics of their liabilities, and suitably validated, these can be used to calculate SCRs. However, for small and medium-sized companies, the challenge of developing internal models could be significant. Solvency II will therefore include provision for a Standard Approach designed to achieve similar results.

The Standard Approach will necessarily incorporate an additional degree of conservatism, and hence impose higher costs on those companies which choose to adopt it. To the extent that the internal model and the Standard Approach produce different results for the SCR, an MVM calculated by the cost-of-capital method will be subject to arbitrary variation – an outcome at variance with its supposedly economic basis.

As a consequence of these considerations, the European insurance industry has been engaged in detailed debate as to which of the two approaches should be preferred. In general, risk managers in the



The CFO Forum have so far considered that it is too soon to exclude alternative methodologies such as the percentile approach



insurance industry, the CRO Forum and the CEA have favoured the cost-of-capital methodology as being more consistent with economic realities and business risk management; the CFO Forum have so far considered that it is too soon to exclude alternative methodologies such as the percentile approach.

A further complicating factor is the fact that only distinguishing Best

Estimate and MVM will generally result in a negative MVL at inception of a new policy, i.e. a gain at inception. From the accounting perspective this is not acceptable for many parties, including the CFO Forum. Consequently this issue may lead to two different regimes for the valuation of insurance liabilities, namely just Best Estimate plus MVM for regulatory purposes and Best Estimate plus MVM plus a 'profit margin' that is released during the run-off of the policy for accounting purposes. However, at the same time the IASB is developing a new model for accounting for insurance contracts based on similar principles. Consequently, all key stakeholders have an intrinsic preference for accounting and regulatory frameworks which are as closely aligned as possible and this may influence the direction of Solvency II.

### **Economic perspective**

From a purely economic perspective, the cost-of-capital approach to calculating MVM is to be preferred, despite the fact that it is not entirely free from a degree of arbitrariness. It is consistent with risk management practice. It offers a more accurate reflection of risk, both in terms of risk type and between product groups. It is transparent, easily verifiable and understandable by regulators and the

market. In addition, it is comparatively easy to implement.

It is also relevant to note that there appears to be no intrinsic reason why either approach should result in a systemic difference in the overall level of prudence required from the market, although individual lines of business may show either an increase or a decrease in capital requirements. CEIOPS are undertaking a series of Quantitative Impact Studies to inform the development of policy: QIS 2 will provide an analysis of whether there are likely to be any structural differences between the two methodologies which will lead to higher capital requirements one way or the other.

<sup>1</sup> Federal Office of Private Insurance (FOP) White Paper of the Swiss Solvency Test, November 2004

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# What's your model?

## The debate around standardised versus internal models is only just beginning

Solvency II is intended to supersede the existing Solvency I regime by 2010/2011. The intention of this is to provide a more quantitative (and qualitative), risk-focussed basis to the level of capital that is held and the supervision that takes place, consistently across the whole European insurance industry.

To do this Solvency II will be operating under the Three Pillar Approach detailed on page 11. A key element of this is the Pillar 1 capital requirements, or Solvency Capital Requirements (SCR) and Minimum Capital Requirement (MCR) (see panel on page 11). Getting these right is fundamental to the success of the Solvency II regime and has been the focus of the two quantitative impact studies undertaken to date (QIS 1, October to December 05 and QIS 2, May to October 06).

To calculate the SCR, firms are to be offered the choice of using either a 'standardised' model or their own internal model. However, implementing such a regime presents a number of interesting challenges that could, if resolved incorrectly, undermine the aims of the regime. In this article we look at some of the key challenges that have to be addressed in the options for SCR, including getting the standard model right and taking an appropriate approach to internal models.

### Standardising the model?

As the current proposals stand for Solvency II, the industry is to be offered a choice of two options for the Pillar 1 capital requirements. Firms can either use a standardised model approach, or they can use an internal model of their own. For many the standard model will appear attractive. After all, someone else has done the hard work and the implementation costs are likely to be much lower, although QIS 2 experience suggests that completing the models can still be very labour and data intensive. There are other considerations as well.

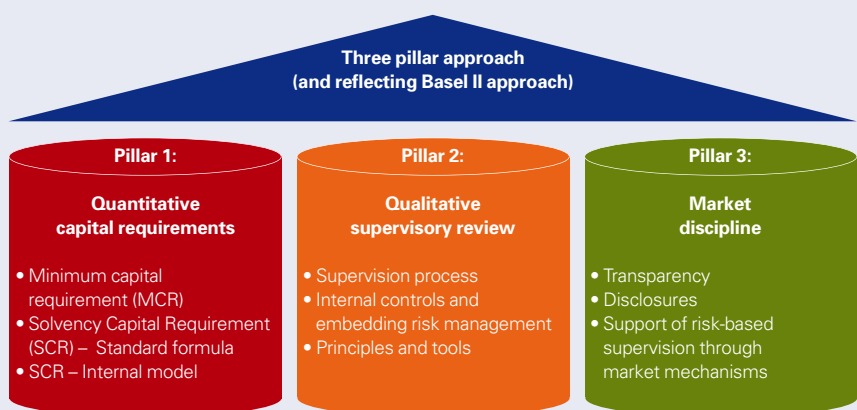
For a start, all insurance firms are different. They have different risk appetites, different control processes and write different business. Therefore, there is an essential challenge in calibrating a standardised model to suit the requirements of the few, let alone the many. However, get it wrong and there are consequences.

If the capital requirement is too high it penalises small firms without the capability of modelling – or niche firms whose experience does not necessarily reflect that of the market. On the other hand, if regulators set the calibration too low, then it discourages people from building their own internal models and from implementing a risk framework within the business, thereby undermining one of the purposes of Solvency II.

Indeed, it can be argued that there needs to be a significant cost benefit to firms that undertake their own internal models. And this is not just hearsay, there is real evidence in the banking sector. Under Basel II, banks are offered a number of options in the risk category of operational risk, ranging from a Basic Indicator Approach (BIA) to the Advanced Measurement Approach (AMA) (see opposite page). It is interesting to note that there is a real lack of banks applying for AMA. They just do not see sufficient benefits given the set-up costs required. This is a stark contrast to credit risk where capital savings are much higher.

### Internal model choices

However, for those firms that choose to use the internal model approach, there is a further set of challenges. At the moment we do not know what the expectations are in respect of internal models. There has been much debate and many stakeholders, such as the influential Chief Risk Officers' Forum, have provided views as to what should be required for an internal model to be acceptable. Since Solvency II is being implemented under the Lamfalussy process (see page 3), much of the detail will not be contained in the draft Directive, but in the Level 2 implementation requirements. As such there are many interesting questions around internal models that will continue to be debated.

**Figure 5: Three pillar approach**

Source: KPMG International, 2006

First and foremost: How can insurance companies be encouraged to invest in internal models without inviting them to 'game' the system. Currently there is some debate as to whether to allow for partial models (i.e. a mixture of internal model and standard model). Yet allowing partial models should increase the likelihood that a firm will embark on a true programme of risk management. It can be argued that it is better that a firm models its key risks internally as this will provide an incentive for better risk management. For instance, a small general insurer can choose to model the insurance risks (i.e. underwriting risks), thus gaining a better understanding of the risks within the portfolio. Such an insurer could understand its risk profile better than the competitor that models all risks using the standardised model only. If for a particular insurer insurance risk is the most material risk, it could be more effective to model operational, credit and market risk using less sophisticated means, and instead channelling energy and funds into the understanding of the core risk. Nevertheless, cherry picking needs to be avoided. Regulators need to be certain that a standard approach has not been used because it gives a lower answer. It is also likely that regulators will pressurise larger firms, at the very least, to build their own internal models no matter what the firm's preference.

A further challenge is, if regulators do not tell firms what an internal model should look like, then how do regulators ensure consistency

between standards applied in countries that have very different levels of sophistication? The regulators have firmly ruled out to standardize the modelling approach in order to achieve consistency. This is laudable because any standardisation would both set arbitrary limits to the future use of technical improvements and relieve insurance undertakings from having to understand the risks they are facing as deeply as possible. On the other hand, regulators are now faced with the problems that this review process would necessarily have to be exhaustive (and likely expensive) and that they would have to internally achieve high consistency. For the industry it would be important that structures are created which support the enforcement of even handedness.

The other aspect that is often overlooked is that under Pillar 2, firms are required to assess all material risks qualitatively and quantitatively and come up with strategies for each risk as well as for their future solvency capital. Very likely, future looking sensitivity analyses and stress tests will have to be performed. All this would require a fair amount of modelling, even for companies which will use the standard model. The question for Solvency II is what is to be expected in terms of modelling sophistication for Pillar 1 and Pillar 2?

### Conclusion

Clearly, there is still much room for debate as to the relative merits of

If the capital requirement is too high it penalises small firms without the capability of modelling – or niche firms whose experience does not necessarily reflect that of the market

standardised versus internal models. Regulators can expect to see stakeholders continue the debate until implementation and beyond. And, as regulators have seen from the banking sector, it is virtually impossible to build a regime that will satisfy all the parties.

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**MCR** – likely to be the point at which a firm would be closed by the regulator.

**SCR** – risk based level of capital.

### Basel terminology

#### Basic Indicator Approach (BIA)

Calculated through applying a factor to average of three years gross earnings.

#### The Standardised Approach (TSA)

A more sophisticated version of the BIA, applied to business lines. However, firms are also expected to show some movement towards AMA.

#### Advanced Measurement Approach (AMA)

More explicit modelling expectations using internal and external loss data. High expectation in respect of embedding an operational risk framework within the business.

# Risk management standards – fit for Solvency II?

With all the discussion of the Solvency II debate, much of the focus has been on the quantitative aspects contained within the Solvency Capital Requirement (SCR) of Pillar 1. However, firms should not overlook the Pillar 2 requirements and the challenges presented in meeting these, in particular, the introduction of a suitable risk management function. If the regulatory review identifies weaknesses in the risk management processes within a firm, then there is likely to be a greater loading given in the form of the adjusted SCR (capital add-ons). In this article we consider some of the challenges of building an effective risk management function and the lessons learnt to date.

## **Need for risk management**

The calls for advice within Solvency II clearly articulate the need for an independent risk management function. As John Tiner of the UK regulator, the Financial Services Authority (FSA), said in April 2006 at a conference on Solvency II:

“Solvency II should aim to encourage insurance firms to use, and reward them for using, modern risk management practices appropriate to the size and nature of their business”.

However, Solvency II is not being developed in isolation and many of the



**Figure 6 Governance – Three lines concept**

<b>First line</b>	Actions (to manage risk) in line with business objectives, policies, regulation and internal standards
<b>Second line</b>	Objective risk analysis and reporting to support and challenge business objectives, policies, regulation and internal standards
<b>Third line</b>	Confidence that 1st and 2nd lines are operating in line with policies, regulation and internal standards

Source: KPMG International, 2006

supervisory authorities helping shape the requirements have their own regimes that already impose some expectations of risk management. As a result not all firms are in the position of having no existing risk management processes. In the UK, for example, the regulator implemented the Prudential Sourcebook at the end of 2004, introducing requirements in respect of the management of risk (Pru 1.4). It introduced more guidance on systems and controls for each of the Prudential risk categories (insurance, market, credit, operational, liquidity and group risks), including the expectation of specific risk policies and appetites in each area. More recently, Lloyd's of London issued its Principles for Risk Management, setting out its expectations of the firms operating in its market-place in this area. In other countries such as Italy and Germany, regulators and authorities are also asking firms to report on how they manage risk.

At the same time, much is being written on the topic of Enterprise Risk Management (ERM) and how firms can benefit from ERM. In particular the COSO framework is gaining greater attention, in part due to its links to Sarbanes Oxley.

Many firms have responded to the above growth of risk management expectation by allocating some form of responsibility to a newly created

role of Chief Risk Officer (CRO). Solvency II will continue to emphasise the message that risk management is a core competence for an organisation. Indeed, the early consultation papers suggest that there should be an independent risk management oversight role within an organisation. Given the expectations for Solvency II have insurers done enough and do they need to go further? The answer can be found in the lessons learnt to date.

### **Lesson 1: Risk management hasn't stopped surprises**

Many firms are starting to recruit dedicated CROs. Indeed, many are starting to be well known in the industry and recognised as having important views that the industry should listen to. At the same time, in spite of the Solvency II capital assessment needs not yet being articulated in detail, many firms are starting to introduce their risk capital models. In the same way, many firms are starting to put in place processes that will enable better identification, assessment and control of risk. The Risk Committee is becoming a common feature of the insurance market.

And yet there have still been losses that have been greater than expected. Hurricane Katrina exceeded many estimates as a result of the oil prices rising, a factor that some had not factored into their loss modelling and

that had not been identified by the risk identification process. As a result management is asking how the risk management process can be improved to avoid such surprises in the future. In part, an answer to this might rest in lesson 2.

### **Lesson 2: Role confusion**

While a number of firms have appointed risk managers, there is considerable variation in the level, experience, seniority and status of these individuals within the organisation. In some organisations the risk manager has senior status and a real ability to challenge and provide an in-depth risk assessment (e.g. looking at the terms of contracts). In others the role is limited to completion of a basic risk assessment without any empowerment to challenge decisions – an essential requirement of the risk function.

Equally there appears to be continued confusion as to the respective roles of compliance, internal audit and risk. Some larger organisations have structured themselves along the lines of a Three Lines of Defence Model (see figure 6) where risk provides a second line independent challenge and audit provides confidence that the first two lines are operating as intended. However, many small firms remain unsure as to how to apply such principles in an organisation with a limited head count. Solvency II is likely

## Risk management needs to be truly embedded within an organisation and many firms would fail this test, even in the banking sector

to force clarity over the roles within an organisation.

Many firms persist in compliance focus and fail to see the broader application of risk management techniques as a means for gaining competitive advantage. This may be in part a result of skills shortage.

### Lesson 3: Skills shortage

KPMG International's second *Annual Risk and Capital Management in Insurers (2006)* survey highlighted a number of challenges that prevent firms from setting up an effective risk management function. Central to firm's concerns was the ability to identify and recruit appropriate staff. The effective risk manager will have a blend of qualitative and quantitative skills. Both are essential since he/she needs to quantify exposure and at the same time identify appropriate controls and mitigation techniques.

The individual needs sufficient gravitas and authority to challenge the front line business units, as well as the interpersonal skills and business knowledge that we would expect to find in any senior management position. The banking sector sometimes use an effective tactic and transfer people from the front office into the second line role and give the second line a status and remuneration commensurate with these skills. Will Solvency II force the insurance industry to follow the same route? KPMG member firms are certainly seeing evidence that could support this.

### Lesson 4: Risk management needs to be embedded

A key lesson for insurers as to where risk management needs to go and how Solvency II might be different from the current regime for banks that can be found in Basel II. The guidance to banks in respect of Basel II has been developing over a much longer period than that being developed for insurers and as a result there is much greater understanding in the industry as to what is expected. Given that the European Union is seeking consistency across the financial services industry, insurers can take many learning points from Basel II as to the role of risk.

A particular example can be seen with the recent publications around the Capital Requirements Directive (CRD). Such feedback provides a strong indication as to the standards that are likely to be applied in future under Solvency II and it supports the lessons noted above. Included within the feedback is the real issue – risk management needs to be truly embedded within an organisation and many firms would fail this test, even in the banking sector.

Under Solvency II firms will need to demonstrate that their risk management framework is the basis for a dynamic process, that management information flows both up and down the organisation and that the risk assessment process has a concrete influence in the decision making process. If firms cannot demonstrate that their risk assessments reflect the reality in their organisation (for example with control

scores in the risk register varying month on month) then this will undermine the regulatory view of the risk management process. A lack of transparency around the decision making process and the role of risk within this would further weaken the regulators perception of the role of risk in the firm.

The question firms really need to ask themselves therefore is: 'how did risk management information influence our business decisions?'. Firms that cannot answer this question are likely to find that their capital requirements under Solvency II will be higher as the regulators will not believe that risk management is integrated into their business.

### Survival of the fittest

The insurance industry has moved a long way in establishing risk management within the business. Firms have had varying degrees of success in implementing risk standards and there is certainly much still to do. Solvency II will only continue to drive insurers down the new and improved risk management road. Those that fail to meet the standards are likely to have higher capital costs and may find it increasingly difficult to survive in the new environment.

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# Operational risk management: quite a way to go

Operational risk remains a significant challenge, both for senior managements in insurance companies and for regulators. By analogy with Basel II, Solvency II is likely to require insurers to incorporate an explicit assessment of operational risk in determining regulatory capital. But the EU Commission's proposals are taking time to emerge. In the meantime, in this article we examine how getting a better grip on operational risk management for business purposes is increasingly pressing.

The risk-based approach to capital adequacy and regulation has developed rapidly in recent years. Operational risk – necessarily a more diffuse and imprecise concept – proved somewhat more difficult, but now plays a significant and independently defined role in banks' risk management frameworks and in regulatory structures. In particular, the EU Directive 2006/48/EC includes a standard approach, a basic indicator approach, and an advanced measurement approach for operational risk. Solvency II for insurers is also likely to require an assessment of operational risk – through the use of either standard or internal models.

The International Association of Insurance Supervisors (IAIS) defines operational risk as:

'the risk that deficiencies in information systems or internal controls will result in unexpected loss. This risk is associated with human error, system failures and inadequate procedures and controls.'

Regulators have already gained a valuable lesson in developing operational risk management regulations for banks and hence the possibility of Solvency II mirroring Basel II guidelines to modelling and managing operational risk is unlikely to surprise the industry.

Although it is far from an exhaustive list, examples of the key operational risks that regulatory authorities may require insurers to consider when modelling operational risk capital requirement are:

- The likelihood of fraudulent activity occurring that may impact upon the financial or operational aspects of the firm.
- The technological risks that the firm may be exposed to regarding its operations.
- The operational risks to which the firm is exposed arising out of writing insurance business. For example, there was debate and concern over whether claims from the World Trade Centre attack were to be classified as either single or multiple

events due to less than clear policy wordings, leading to unexpected costs.

- The marketing and distribution risks that the firm may be exposed to. For example, the dependency on intermediary business or a firm's own sales force.
- The impact of legal risks. For example a non-insurance related legal action being pursued against the firm.
- The management of employees – for instance staff strikes, where dissatisfied staff may withdraw goodwill and may indulge in fraud or acts giving rise to reputational loss.
- The resourcing of key functions such as the risk management function by staff in appropriate numbers and with an appropriate mix of skills such as underwriting, claims handling, accounting, actuarial and legal expertise.

With varying degrees of explicitness insurers, along with all other major businesses, have always been aware of, and taken precautions against, such risks. Increasing public concern over corporate governance, reflected in regulators' growing obligations to protect investors and consumers, will lead to rapid development of a much more systematic framework for

operational risk management and to the requirement to provide adequate cover for such risks in regulatory capital. As such insurers are likely to be required to satisfy qualitative criteria for well-documented risk assessment and management systems which are closely integrated into business decision-making and reporting.

Basel II provides for three different approaches to the quantification of operational risk:

- 1) The Basic Indicator Approach (BIA): where a simple percentage of net income is set as the level of regulatory capital required.
- 2) The Standardised Approach (TSA): where individual (and different) percentage requirements are applied to different lines of business and the result totalled.
- 3) Advanced Measurement Approaches (AMA), where bespoke models, data sources and statistical techniques are employed to develop a more relevant quantification of the operational risk facing a particular company.

In contrast, the UK FSA's latest Individual Capital Adequacy (ICA) guidelines for insurers on measuring operational risk is more principle based and do not dictate a standard methodology.

As yet, it is unclear whether and how the Basel II framework will be translated into the Solvency II context. The Commission's Insurance Committee has made it clear that the Solvency requirements will cover the quantifiable risks to which a supervised institution is exposed to, namely insurance risk, credit risk, market risk, operational risk and liquidity risk. Current proposals suggest the adoption either of a standard formula (cf. Basel II's

## Many insurers believe they are carrying more operational risk than they would prefer and/or that they are over-providing capital against it

Standardised Approach) or internal models (i.e. AMA type model) in cases where these can be demonstrated by insurers to improve risk management, better reflect their true risk profile and be appropriately validated.

Developing adequately validated internal models, maintaining them and using them as a basis for business decision-making is complex and expensive. The standard formula will be applied to companies that lack the necessary resources, including most, if not all, small insurers. Nevertheless, small companies may well decide to develop internal models themselves as well. But it is not yet obvious how closely Solvency II's internal model will be analogous to the Basel II Advanced Management Approach, particularly since it is envisaged that partial use of models may also be authorised – including for small companies – 'if these models fulfill validation conditions, including compatibility with the standard formula'<sup>1</sup>.

Since the draft Solvency II Framework Directive is scheduled for publication in July 2007, with firm proposals having to be issued for discussion in the near future, there will be a need for clarification of these issues. This should ultimately appear in the level 2 implementation guidance. In the UK, the regulator has issued Principles providing guidance around the quantification of operational risk, but even this is less detailed than the AMA requirements under Basel II.

Faced with uncertainty, it appears that many insurers may be hanging back, waiting to see what will emerge. This would be a mistake. In particular, it is a mistake to pigeon-hole operational risk as (simply) a regulatory issue, and for senior management to rely on a compliance department to respond to firm requirements whenever it may emerge. In fact, effective operational risk management, based on a company's own analysis of historical record of losses and future unexpected events, should be part of insurers strategic decision-making.

A recent survey of the London Market<sup>2</sup> reveals that here, at least, operational risk management is regarded with increasingly high importance, and is viewed by management as more than a regulatory task. Many of the respondents reported having a Risk Committee and Corporate Governance oversight: a defined Risk Management function with established roles and responsibilities and internal audit review.

Increasingly, too, companies are seeking to ensure that operational risk is reported up to board level in a format which combines a summary risk position with an action plan for mitigation. There are also signs that risk management structures are being aligned to support some business goals. But only a minority of companies embrace operational risk capital allocation and policy in taking strategic decisions. And as yet, very few insurers employ sound quantitative or statistical

methodologies for measuring operational risk and the capital provision it implies. Nearly half say they do not use any actual historical data (internal or external) in estimating operational risk. However, if insurers are to benefit from AMA type model for quantifying more 'realistic' operational risk capital, then the need to build up an integrated loss data base from all sources is a priority.

Many insurers believe they are carrying more operational risk than they would prefer; and/or that they are over-providing capital against it. These alone are powerful drivers for the development of more sophisticated operational risk quantification tools and the collection of historical data, both from within and from outside the business, to support it.

In some aspects Insurers in the UK are 'ahead of the game' in managing and quantifying operational risk capital due to the FSA's ICA regime. A number of companies already have an integrated risk management model which incorporates operational risk within a stochastic framework. This is reflected in our global Risk and Capital Management for Insurers Survey which shows that under 24 percent of firms, including UK firms, had methodologies for modelling operational risk<sup>3</sup>. And, on the basis of our London Market survey a majority of London market insurers would satisfy many of the qualitative standards of the Basel II Standard Model Approach requirements. In KPMG firms' experience, the areas of qualitative standards, which many insurers would currently struggle to satisfy are:

(i) Systematic tracking of operational risk data including material losses by business lines.

(ii) Integrated risk assessment system which is responsive to the activities of Insurers.

(iii) Demonstration of how risk management outcome has influenced management actions.

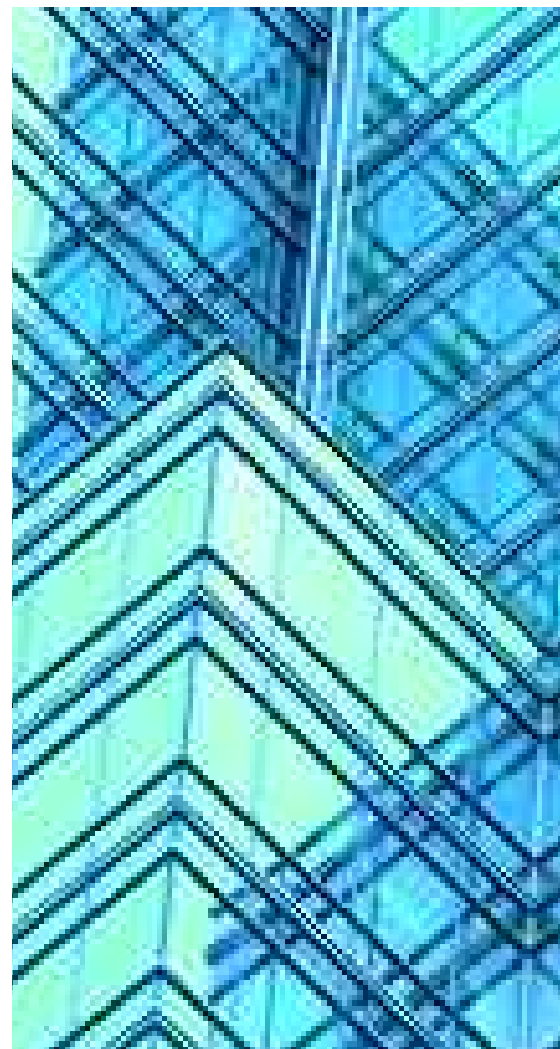
Experience suggested much the same picture across Europe.

Even for firms that calculate operational risk, a number of technical issues still pose significant challenges. Allocation of operational risk between head office and branches can often be little more than arbitrary. The correlation between different sources of operational risk, and the impact of 'common-mode failures' are dependent both on detailed modelling and good historic data. There are both theoretical and practical uncertainties over the extent to which credit might be taken for diversification benefits. In all cases, there may be more explicit regulatory guidance in future. But to wait for the Solvency II regulatory framework to be finalised would be to postpone the benefits which effective operational risk management can bring and expose shareholders and policyholders to unnecessary risk.

<sup>1</sup> Amended Framework For Consultation On Solvency II, MARKT/2515/06, European Commission, April 2006

<sup>2</sup> Operational Risk Survey, KPMG UK, July 2006

<sup>3</sup> Risk and Capital Management for Insurers, Second annual survey of capital assessment practice in the insurance sector, KPMG International, April 2006



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# Data – a big challenge for Solvency II

## Data and Solvency II

Solvency II has several components which will lead to new data requirements. The calculation of the regulatory risk capital ('Solvency Capital Requirement' or SCR) would necessitate collecting additional historical data, as well as possibly, external data for most insurance companies. The SCR is based on the calculation of the market value of liabilities which is significantly different from the calculation of statutory reserves and requires different data sets. As a new requirement Solvency II will have a qualitative risk management component which will make requirements on data which still need to be systematically collected.

## Data for risk capital

To date much of the thinking around Solvency II has concentrated on the calculation of the SCR. In particular, CEIOPS has conducted so called 'Quantitative Impact Studies' (QIS 1 and QIS 2) in which insurers were invited to calculate the SCR according to formulas provided by the supervisory authorities as well as the market value of liabilities. These two exercises have provided a first impression on the minimum data requirements for Solvency II. A company which had difficulties in gathering the data necessary for QIS 1 and QIS 2 would almost certainly have to improve on its data management in order to satisfy the future regulatory minimum standard. As an example, such difficulties could have arisen

from the requirement of providing data history dating back 15 years on net combined ratios for all non-life lines of business. If the SCR is calculated using an internal model, significantly higher data requirements can be expected.

The SCR will very likely be calculated at a level of confidence which approximately covers a one in 200 year event. In order to make a sound estimate one would require more data than most companies have. For instance, a European insurance company may not have been affected by 9/11 or Hurricane Katrina, but in order to achieve the desired level of confidence the possibility of such catastrophes would have to be taken into account. This could be achieved through the usage of external data. Industry experience shows that external data have been successfully used by banks in order to estimate their risk capital for operational risks. But data quality in external databases takes years to refine.

Members of the supervisory authorities have suggested that an internal model may be required to produce a total distribution incorporating all risks. The implication would be that the standard approach using linear correlations may not be suitable. More sophisticated modelling would be needed which in turn would require the collection and management of additional data about the dependence of risks. It is also conceivable that supervisors would require specific attention to higher tail dependence of risks.





### Valuation of liabilities

The SCR will be based on a market valuation of assets and liabilities. There are several approaches to the valuation of liabilities which are currently being discussed (see page 6). All these approaches would have different implications for data systems.

- **Cost of capital approach.** This would require a Best Estimate reserve based on the realistic projection of future cashflows. An additional market value margin would be calculated as the cost of capital for the capital needed to cover regulatory risk capital in future years. Hedgeable risks (for which deep, liquid markets exist) would be valued directly, employing current market data. New data inputs would mainly be parameters for calculating the run-off of the reserves according to Best Estimate.
- **Scenario based approach.** The market value of liability would be based on cashflows which are projected into the future under various long term stress scenarios. In addition to the data necessary for the cost of capital approach, one would have to maintain different data sets for stress scenarios. Such a valuation was introduced for life insurance companies by the German supervisor in the context of QIS 1 and QIS 2.
- **Percentile approach.** This would require the stochastic projection of cashflows into the future. In this

case the data system would probably have to interface a dedicated actuarial IT application which works with model points rather than individual contracts. The generation and storage of model points would be a further data issue.

Since most of this data would represent Best Estimates, the statistical data on which they are based would have to be stored in order to ensure reproducibility and the possibility of future back testing.

### Data for risk management purposes

CEIOPS has indicated that Solvency II will require a risk management function which is separate from operational day-to-day functions. This risk management function would monitor all major risk categories (including operational risks) against approved risk tolerance limits. Insurance companies would be required to gather information about current and future risks, on an ongoing basis. These measurements should be performed quantitatively and/or qualitatively.

### Challenges for data collection data systems

New requirements will necessitate the broadening of systematic collection and maintenance of additional risk data. For many companies some of the required risk data (e.g. operational risk data) have not yet been actively considered. Insurance companies will be required to collect realistic Best Estimate data which may substantially



differ from data used for statutory purposes. Below are some examples of where traditional data collection may fall short:

- In some jurisdictions it may not be possible to estimate the non-life reserve risk directly from the reserving history of the company because reserve management is often influenced by the local tax regime.
- The reliance on data histories may make it necessary to normalise historical data according to a fixed standard in order to be meaningful. The following two examples from life and non-life insurance illustrate the necessity of normalisation:

– Life insurance: Disability insurance is sometimes linked to provisions in the state social security system. A change of criteria for receiving public

disability benefits would then imply that over time the occurrence of actual disability would not be in line with the granting of disability benefit. This in turn would bias historical data for risk management purposes

- Non-life insurance: In recent years cars have become much more expensive but on the other hand they contain features which reduce the probability of accidents, for instance ABS, traction control, electronic parking assistance. As a result of leaps in technology old accident statistics cannot simply be compared with current data.
- The collection of operational risk data would require new collection processes and a culture in which admitting failure is preferred to the possibility of failure being discovered by others. Otherwise

the measurement of the operational risk component could be biased.

### Conclusion

Solvency II will require far reaching enhancements to existing data collection. While many details are not clear yet, the economic focus of Solvency II gives clear indications on the principle which will be followed. The economic focus also indicates that these enhancements will not merely be a regulatory exercise but can be used in practice to better manage the risks the company faces. Many banks emerging from Basel II preparations are citing much improved data as one of the key business benefits of their Basel project. From both a business perspective and from a change management perspective, it would be advisable to start early with the design of a data management system which is flexible enough to anticipate Solvency II requirements. (IT systems for data management will be a subject of discussion in our next issue.)

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# Keeping you informed

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## Insurance specific thought leadership

EU Solvency Report  
Globalizing the Risk Business: surviving and competing in the global insurance industry  
Implementing IFRS in the Insurance Industry  
Insurance Insiders: [www.kpmginsiders.com](http://www.kpmginsiders.com)  
M&A appetite and strategy in the global insurance industry  
Principles & Presentation  
Risk and capital management : a new perspective for Insurers  
Second survey of Capital Assessment Practice

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## Conferences and industry events

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Nov 06	Solvency II & Risk Management Summit	Brussels
Dec 06	Risk Minds 2006	Geneva
Jun 07	Derivatives and Risk Management Summit	London
Jul 07	International Insurance Society Conference	Berlin

If you would like to be informed about issues of the day or talk to our professionals, please contact Nicholas Hopwood ([nahopwood@kpmg.com](mailto:nahopwood@kpmg.com)) or visit our web site at: [www.kpmg.com/Industries/FS/](http://www.kpmg.com/Industries/FS/)

KPMG has an international network of regulatory and risk and capital management professionals. To discuss any of the matters raised in this edition of SolvencyII Briefing, or any other regulatory, risk management and data management matters please contact:

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