

# Solvency II – QIS3 issues

Roger Austin and Marcus Bowser reflect on the issues raised by UK life insurers under QIS3.

In July 2007 the European Commission (EC) released its draft framework directive with ambitious proposals to rationalise, harmonise and modernise insurance regulation across the European Union (EU).

The proposals for a risk- and principles-based solvency regime include incentives to embed risk awareness into the governance, operations and decision-making of the business. The chairman of the body responsible for advising the EC on the Solvency II process recently stated that 'Solvency II is not just about capital – it is a change of behaviour'.

It is anticipated that the directive will come into operation no later than 2012. While that may seem a long time off, the changes are so fundamental that it is likely to be beneficial for insurers to engage in the process sooner rather than later.

## Background to QIS3

As part of the Solvency II initiative the EC has commissioned a number of quantitative impact studies (QIS) to help calibrate the new solvency regime and understand the impact of its proposals. The most recent of these studies, QIS3, took place between April and June this year, with participation encouraged from insurers (and reinsurers) of all sizes across the EU. QIS3 consisted of a detailed spreadsheet that participating insurers had to complete covering the calculation of their technical provisions, risk margins, capital requirements, and available

capital on the proposed bases. Insurers were also asked to fill in a questionnaire to provide qualitative feedback on the proposals.

Early indications suggest that the results from QIS3 are not entirely satisfactory. Although a lot has now been set in stone in the draft directive, there are still some fundamental issues that need to be addressed, such as the treatment of UK with-profits business. We highlight the more significant of these issues later in the article.

Under the current Solvency II proposals, technical provisions would be calculated on a market-consistent best-estimate basis with a risk margin incorporated for non-hedgeable risks. This risk margin is to be calculated on a 'cost-of-capital' basis at a rate of 6% above the risk-free rate. The concept behind the cost-of-capital approach is that if the insurer had to transfer its liabilities in one year's time to another insurer, the receiving insurer would have to set aside sufficient capital to meet the solvency capital requirement for the run-off of the ceding insurer's portfolio, and the risk margin is set to be a proxy for the cost of this capital. Such a risk margin is not required for hedgeable risks as, by definition, if the insurer transferred such risks to the receiving insurer, the receiving insurer could completely hedge these risks and thus would not have to commit additional solvency capital in respect of such risks.

In addition to the technical provisions, the Solvency II proposals require insurers to hold a capital requirement above the technical provisions (see figure 1). The calculation and application of this capital requirement differs significantly from that required under the existing directives. Solvency II requires two capital requirements to be calculated: the solvency capital requirement (SCR), and the minimum capital requirement (MCR). If the level of an insurer's capital in excess of the technical provisions and risk margin falls below the SCR, there will be a ladder of increasing regulator intervention with the aim of restoring the capital position. If the deterioration continued, this intervention could ultimately result in the insurer moving into run-off if the MCR was breached.

Insurers will be able to use one of two methods for calculating the SCR: a standard formula-based approach; or using their own internal model, which must have received prior approval from the regulator. Under the standard-formula approach, the calculation of the SCR involves the calculation of capital charges for a number of underlying risk categories, and aggregating these charges by applying a correlation matrix

(see figure 2). At the highest level these risk categories cover the following risks: non-life, life, health, market, operational and counterparty default. The life risk category is then broken down into subrisks such as mortality, lapse, expense, etc.

## Key issues

In the course of completing QIS3 there were a number of common issues raised by UK life insurers. In this article we summarise some of the main issues.

### With profits

An area that has generated a number of issues for insurers relates to the QIS3 treatment of with-profits business. With-profits contracts within the UK and the framework within which they operate are quite different from with-profits contracts in most other EU countries. For example, within the UK with-profits contracts must 'treat customers fairly', and be managed in a manner consistent with the insurer's stated Principles and Practices of Financial Management. Overall, UK with-profits contracts are inherently more complex and involve more discretion than in most other countries.

Within the Solvency II proposals for the SCR calculation there is an allowance for management actions that is to be welcomed. However, the QIS3 technical specification was unclear as to whether these management actions are limited to future discretionary bonuses or can be interpreted more widely to include the application of market value adjustments, changes to the allocation of assets, and so on.

The particular method proposed to allow for the risk-sharing nature of with-profits business is called the 'KC factor' approach. Under this approach the total capital charge can be reduced to take into account the insurer's ability to reduce future discretionary bonuses. This reduction is calculated by assuming first that no reduction in future discretionary bonuses is made before re-running the calculation for each risk category assuming that discretionary bonuses are reduced. The overall KC factor is then determined by aggregating these reductions using a correlation matrix. However, where insurers have investigated the resulting allowance for management actions, they believe that the SCR calculation did not give an accurate allowance for management actions.

Many offices have found this KC factor approach to be practically difficult (in terms of being able to turn off management actions). So,

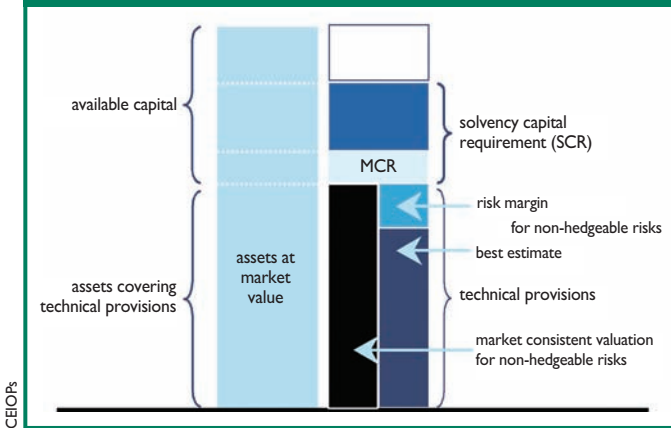


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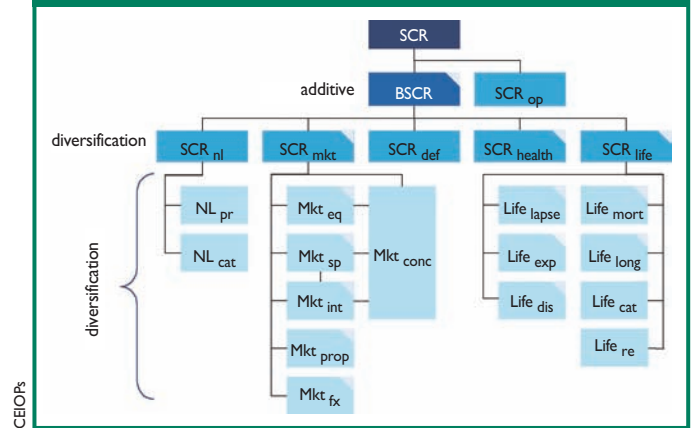


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**Figure 1** Proposed framework for Pillar I



**Figure 2** Calculation of SCR



for example, although it may be relatively straightforward to calculate the stressed values of asset shares turning off management actions, it is not so easy to re-estimate the value of options and guarantees, given the different path of liabilities under stressed conditions. There are a number of further practical problems when using stochastic models.

**Lapse catastrophe stress**

The SCR calculation proposed in QIS3 requires that a capital charge is made in respect of catastrophic lapses for unit-linked policies using the assumption that 75% of such policies lapse. There is a general feeling that this is calibrated too severely.

This is supported by the fact that the actual observed lapse experience of some insurers, who have been subject to severe reputational damage due to events that involved closing to new business, has generally been much less than 75%. In addition, if such extreme lapses occurred it would reduce other capital requirements, but this isn't adequately captured by the correlations.

**Inconsistency between MCR and SCR**

The QIS3 methodology for calculating the MCR and the SCR differ, with the calculation of the MCR being more straightforward. For example, the MCR calculation only takes into account some of the risks covered by the SCR, and also has a different treatment for with-profit contracts (which is not fully defined). These differences can result in the MCR and SCR behaving in different ways in response to risk shocks. This potentially leads to insurers having to decide whether to manage their capital position relative to the MCR or to the SCR, especially where the MCR exceeds the SCR for some insurers.

There is a general consensus within the industry that there should be an alignment of the MCR and SCR, and a number of insurers have suggested that the MCR should be redefined as a percentage of the SCR.

**Operational risk**

The proposed calculation of the operational risk component of the SCR is relatively unsophisticated, not taking into account any potential diversification benefits between operational risk and any of the other risk categories, for example. The calibration of the standard model, and the fact that an internal model can be adopted for the other risk components separately, means that the currently proposed approach fails to provide insurers with a regulatory incentive to improve their risk management frameworks.

**Risk margin and cost of capital approach**

Some insurers have commented that the risk margin calculation seems excessively prudent, and that it is particularly penal for long-term business. They argue that setting the cost of capital at 6% above the risk-free rate may overstate the true cost of capital for well diversified insurers who it is assumed would take on the liabilities. In addition, as the total risk margin is simply the sum of the risk margins across the risk categories, there is no allowance for diversification in the calculation of the risk margin.

The definition of hedgeable risks within the QIS3 specification is slightly unclear in that it defines such risks as those that 'can be perfectly hedged or replicated on a sufficient deep, liquid and transparent market', but then mentions that 'reasonable interpolations and extrapolations from directly observable prices are also permitted'. There is concern that strict inter-

pretation of the definition may prevent the use of reasonable market-consistent approaches.

**Tax**

A few issues have been raised around taxation. Under the stressed conditions tested within the SCR calculation, some insurers commented that there should be an allowance for changes in deferred tax liabilities. For example, unrealised gains may fall under certain stressed conditions leading to a lower expected future tax liability. This is an area where further clarification would be useful.

**Charges on free assets**

As a side effect of introducing a simple approach that does not require the hypothecation of assets to liabilities, there is a capital charge in respect of risk stresses on free assets. This results in the counter-intuitive situation that, all other things being equal, the SCR for an insurer will increase as its free assets increase. □

**Research group**

The Faculty of Actuaries has recently established the Solvency and Capital Management Research Group under the chairmanship of Michael Aitchison. The group is currently prioritising its areas of Solvency II-related research and would welcome suggestions from members of the profession on any related topics that they feel would benefit from research.

Please contact Roger ([roger.austin@austinprofessionalresourcing.com](mailto:roger.austin@austinprofessionalresourcing.com)), Marcus ([marcus.bowser@uk.pwc.com](mailto:marcus.bowser@uk.pwc.com)) or Michael ([michael.aitchison@prudential.co.uk](mailto:michael.aitchison@prudential.co.uk)) with any suggestions.

The members of the research group include: Michael Aitchison (chair), Marcus Bowser, Roger Austin, Stewart Allan, Anne Baxter, Caroline Dick, Torsten Kleinow, Ian Marshall, Susan Morgan, Simon Parrack, Fraser Stewart, and Callum Stuart.