Solvency II – An introduction to QIS3 May 2007

1. Introduction

A major overhaul of the solvency system for insurance companies – a project known as "Solvency II" – is currently underway at European Union level. This will replace the current "one size fits all" regime with a risk-based approach to assessing capital adequacy for insurance companies. Risk in this context will be wide ranging and will include insurance risks, operational risks, credit risks and market risks.

The Solvency II project is expected to take a number of years to complete – current estimates see the new regime coming into effect in 2010 at the earliest. However, the authorities have now embarked on a third Quantitative Impact Study (QIS3) which is likely to have a critical bearing on the ultimate shape of Solvency II. The Financial Regulator has written to all Irish life insurers explaining what QIS3 entails and encouraging active participation.

In this briefing note we give a brief overview of the QIS3 exercise and explain why companies should consider participating.

2. Executive Summary

What is QIS3?

QIS3 is the latest Quantitative Impact Study which is being undertaken in order to design the new Solvency II system. All companies are being invited to participate so that the Regulator can understand how the proposed new system, as currently designed, will affect companies' balance sheets. Lessons learned from QIS3 will inform the final shape of Solvency II.

What does participation involve?

Participation in QIS3 involves downloading the "QIS3 pack" (spreadsheet and instructions) and filling in the spreadsheet with information on the company's balance sheet items (assets, liabilities, capital requirements) as calculated in accordance with the instructions provided. The spreadsheet and instructions are well constructed and give very good guidance on what's involved. In simple terms, companies with liability cash-flow projection software (e.g. EV models) should be well placed to undertake the work involved.

Why should companies participate?

At some stage all companies will have to get to grips with Solvency II and how it will affect their capital requirements. It makes sense to do this sooner rather than later. Participating in QIS3 will allow companies to get a good sense of what Solvency II will mean for their business and, more importantly, will allow them to provide feedback to the Financial Regulator before the final shape of the new system is set in stone.

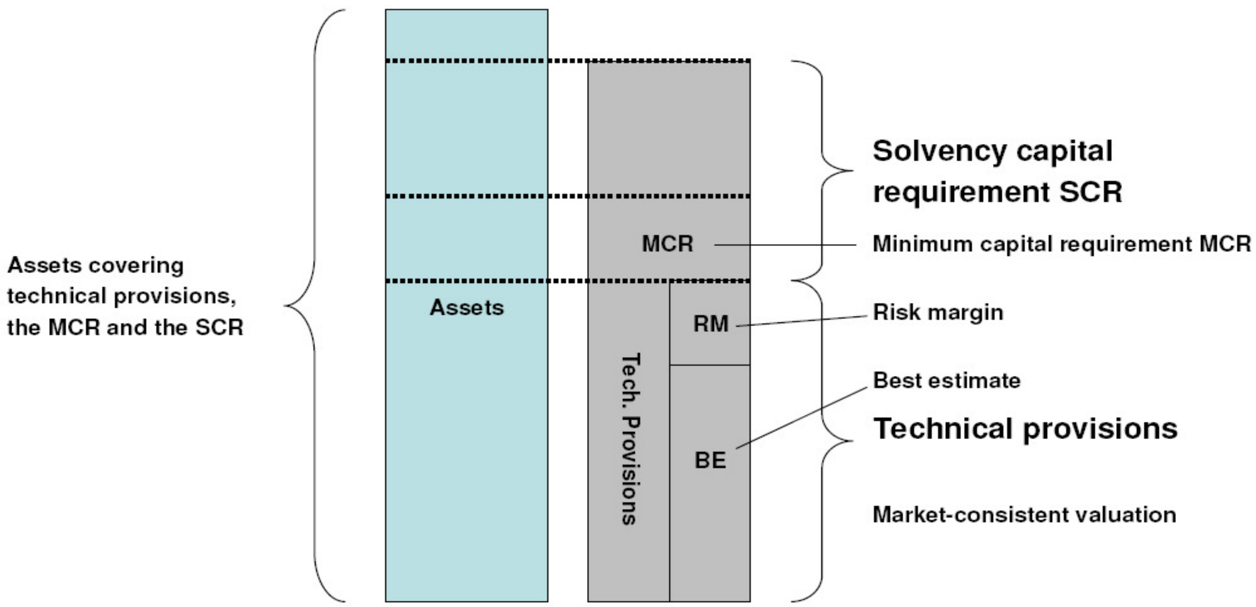
3. Overview of QIS3

QIS3 outlines a framework for calculating the value of the company's assets, liabilities and the required levels of capital – the so-called "Pillar 1" elements of Solvency II.

As the proposed Solvency II system – as set out in QIS3 – is far more sophisticated and company-specific than the existing regime, it is likely that there will be winners and losers in terms of the transition to the new regime. The idea is that, by engaging in the QIS3 exercise, companies will be able to restate their balance sheet on the (proposed) Solvency II basis and thereby understand what Solvency II may mean for them in terms of the potential impact on their future solvency position.

4. Understanding the Solvency II balance sheet

The shape of a company's balance sheet under Solvency II is likely to look like this:



On the assets side, assets are valued at market value. On the liabilities side, technical provisions are determined as the sum of the best estimate liability plus a risk margin (detailed guidance is given in QIS3 as to how to determine the best estimate and the risk margin).

The Solvency Capital Requirement (SCR) is intended to reflect the target level of solvency capital, so that if the SCR is breached then this would represent a trigger point for dialogue with the Financial Regulator e.g. the company being asked to submit a plan as to how SCR cover will be restored within six months. The standard formula for the SCR is calibrated to provide a 99.5% probability that the company will remain solvent over the following year. It is expected that companies will manage their businesses to ensure that they normally have an excess of assets above the SCR.

The MCR, which it is intended would be reported on a quarterly basis, is set at a lower level and is intended to reflect the absolute minimum level of solvency capital. Breach of this level would lead to swift intervention by the Financial Regulator.

5. Participation in QIS3

As previously mentioned, QIS3 is concerned with drawing up the Solvency II balance sheet. There are a number of stages to this exercise, namely:

- Valuation of assets
- Calculation of technical provisions
- Calculation of Solvency Capital Requirement (SCR)
- Calculation of Minimum Capital Requirement (MCR)
- Calculation of eligible capital

These are considered in some detail in the following paragraphs. First, however, we outline some of the more practical aspects to participation in QIS3.

Practicalities

To get started you will need to visit the QIS3 page on the CEIOPS website http://www.ceiops.org/content/view/118/124 where you can download the instructions along with the spreadsheet which you will need to fill out. Although the technical specification appears at first glance to be a somewhat daunting document to get to grips with, it is quite well written and well laid out. Similarly, the spreadsheet is well constructed and easy to follow, with colour coding and on-screen instructions and also comes with an accompanying manual.

The following paragraphs give a flavour of the work involved in calculating assets, liabilities and capital requirements in accordance with QIS3. Suffice to say, however, that any company which already has cash-flow projection software (e.g. embedded value models) should be very well placed to participate.

Valuation of Assets and Technical Provisions

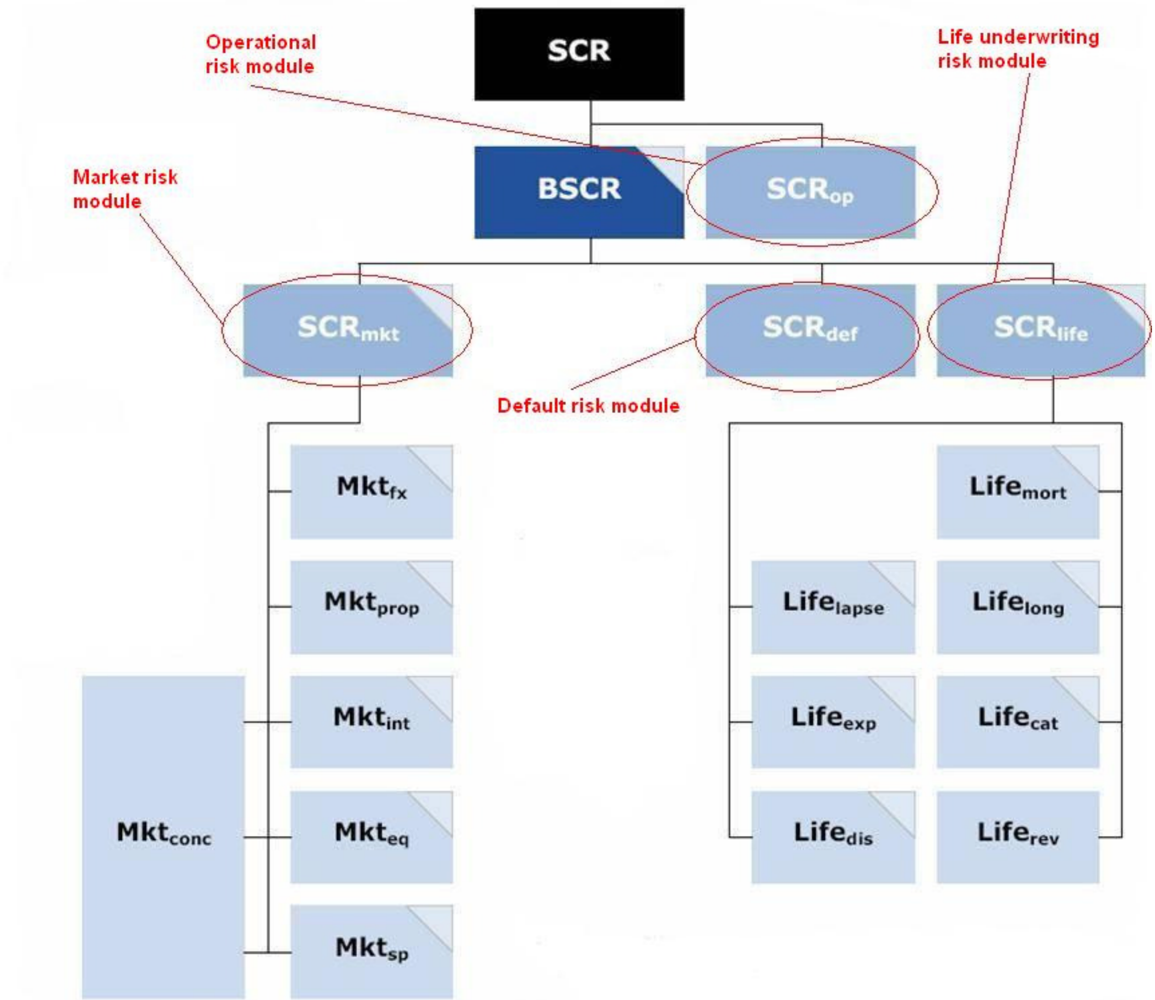
The first step in participation is to calculate the value of assets and technical provisions in line with the prescribed QIS3 methodologies.

Assets are valued at market value. Technical provisions are split into those in respect of hedgeable and non-hedgeable risks. If a risk can be perfectly hedged then the replicating portfolio provides a directly observable price or value which should be taken as the technical provision. For non-hedgeable risks the technical provision is equal to the best estimate plus a risk margin, calculated using what is known as the “cost-of-capital” approach. The rationale for the “cost-of-capital” approach is that, if a company could no longer meet its MCR and had to transfer its liabilities to another insurer, the company taking over the risks would need to establish solvency capital in respect of those risks and would need to be compensated for this.

Solvency Capital Requirement (standard formula)

The standard formula calculation for the SCR breaks risk into a number of high-level categories: non-life, life, market, default, health and operational risks. Only life (SCR_{life}), market (SCR_{mkt}), default (SCR_{def}) and operational (SCR_{op}) risks are likely to be of relevance to Irish life assurers.

The structure of the SCR calculation for life assurers is set out in the following diagram.



The calculation of the SCR follows a "bottom up" approach: the capital requirement for each sub-component is calculated separately and fed into the QIS3 spreadsheet. The individual capital requirements are then automatically combined by the spreadsheet, using a built-in allowance for correlation, into the overall SCR.

Looking at each of the modules in turn:

Operational risk is treated as a separate add-on to the basic SCR. It is calculated as a percentage of premiums and technical provisions and is subject to a maximum of 30% of the basic SCR. It has been noted that this approach is relatively crude and will need further development (particularly for companies writing unit-linked business).

The **default risk** module is concerned with the risk of counterparty default in respect of risk mitigating contracts like reinsurance and financial derivatives. The main inputs to the counterparty default risk module are the estimated 'replacement cost' of an exposure and the probability of default of the counterparty.

The **market risk** module is further subdivided into a number of sub-components, namely equity, property, interest rate, property, foreign exchange, concentration and spread risks. The capital requirement in respect of each sub-component is typically calculated as the impact on the company's balance sheet that would arise under the prescribed "stress test". For example, for the equity risk sub-component, the capital requirement is calculated by taking the change in the company's net assets following a 32% fall in global equity values. The various market risk capital requirements are then combined (automatically) using a correlation matrix to give the total SCR for market risks.

Life risk is similarly subdivided, with the key sub-components relating to mortality risk, longevity risk, catastrophe risk, lapse risk and expense risk. Again, the capital requirements arising under each heading are automatically combined by the spreadsheet, allowing for correlations, to give the overall SCR in respect of life risks.

To encourage participation by smaller companies who may not have the desire or ability to calculate the SCR as set out above, a series of simpler "factor-based" approximations can be used. For example, the factor-based approach to the life mortality risk component is simply to take 0.15% of the company's total capital at risk.

Minimum Capital Requirement (MCR)

The MCR calculation follows a similar format to the simpler factor-based version of the SCR but less extreme scenarios are examined. The MCR is intended to be calibrated to reflect a confidence level of 90% over one year (VaR), as opposed to the 99.5% level for the SCR. There is also an Absolute Minimum Capital Requirement (AMCR), analogous to the current Minimum Guarantee Fund and set at a similar level (in the €1 million to €3 million range).

Calculation of eligible capital

The QIS also requires companies to categorise their capital into three Tiers according to the criteria provided. For most Irish life companies all eligible capital items will fall into Tier 1.

Other

QIS3 is also particularly interested in understanding the impact of Solvency II on insurance groups and contains further specific details for group submissions. These are intended to capture information on group diversification benefits, transferability in a group context and the size and nature of group-specific risks. Insurers who currently use their own internal models for determining economic capital requirements are also invited to share the output from those models as well as providing results on the basis of the standard formula.

6. Why should companies participate in QIS3?

Although this is the third QIS it is the first one to focus on calibration, rather than design. As such it is important that companies participate to find out if the capital requirements produced under QIS3 are appropriate for their company, and if not, to flag any particular issues at an early stage. The European insurance regulators have stated that, although this will not be the last QIS, it represents a very important stage in the calibration of the new solvency regime. If companies don't participate at this stage they might find it too late to influence the shape of Solvency II.

The Financial Regulator is asking firms to provide information on a "best efforts" basis and is encouraging firms to make partial submissions if it is not possible to complete the whole survey. From the Financial Regulator's perspective, a good level of participation in QIS3 by Irish firms will allow the Regulator to understand the implications for the Irish industry as a whole and to make representations at European level if necessary.

Finally, it is unlikely that the structure of Solvency II will change radically from that outlined in this QIS. This will not be the last such study but any future exercises are likely to involve tweaks to formulae rather than wholesale redesign. Companies will, therefore, have to undergo this exercise at some point in time and by participating now on a "best efforts" basis they gain a useful insight into the likely shape of Solvency II and the opportunity to make a submission highlighting any particular issues for their company.

In summary, companies will, at some stage, have to get to grips with Solvency II and what it will mean for their capital requirements. It makes sense to do this sooner rather than later. Participating in this QIS will allow companies to get a good sense of what Solvency II will mean for their business and, more importantly, will allow them to provide feedback to the Financial Regulator before the final shape of the new system is set in stone.

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