Milliman Issues in Brief

UK Life INSURANCE

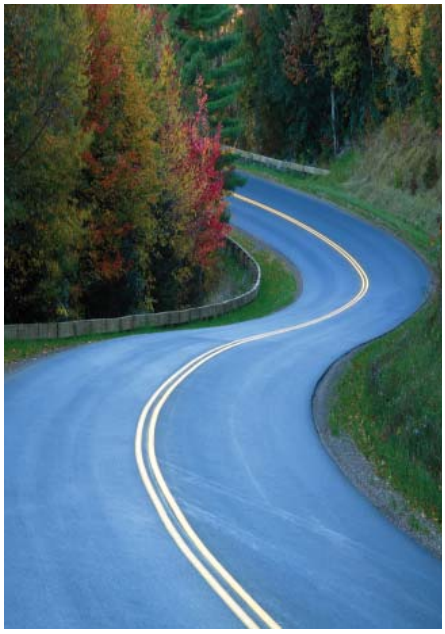
SOLVENCY II: THE LONG AND WINDING ROAD...

Just in time to hit the 2006 seasonal best seller list, the Committee of European Insurance and Occupational Pension Supervisors ("CEIOPS") published a bookshelf of papers on Solvency II.

First to be issued was the feedback report on the second Quantitative Impact Study ("QIS 2").

However, before eager insurers could rush out to obtain a copy, Consultation Papers 15-20 spoiled its chances of being Number 1 on the list.

The insurance industry worked hard over the holiday break to submit a large number of responses by the mid-January 2007 deadline.



So what was it all about?

In this article, we provide a summary of the Solvency II impact studies, consultation papers and issues specific to life insurance.

Continued on page 3

NAVIGATING WITH ECONOMIC CAPITAL

Milliman recently released a report on economic capital, which is now available at *http://www.milliman.com/pubs/recent_publications.php*

Gary Finkelstein and Joshua Corrigan summarise the report and explain how economic capital can be used as a decision management tool for insurance companies to steer their business through changing market conditions.

Continued on page 2

Welcome

to the Milliman UK life insurance newsletter, which discusses current industry issues and aims to bring clarity to an increasingly complex environment.

As activity under Solvency II moves fast ahead, many companies are gearing up to participate in the third round of Quantitative Impact Studies ("QIS 3"), which may be the last chance to influence the Solvency II Draft Directive. This issue focuses on the latest developments under Solvency II.

In addition, we consider how to use economic capital as a major decision tool and new techniques to embed risk management throughout an organisation.

We hope you enjoy reading the newsletter and look forward to your feedback.

InSide

Navigating with Economic Capital

Continued from page 1

The insurance industry continues to evolve rapidly with changing regulations including:

- Market consistent reporting;
- Impending Solvency II, and Treating Customers Fairly (TCF) legislation;
- Economic conditions (low interest rates, volatile markets, and the demise of with-profits); and
- Technology (enabling around the clock risk management).

At the same time, the industry is at an important cross roads[1] deciding whether they will provide guarantees, or restrict their investment business to unit-linked.

Providing guarantees introduces various risks that need to be managed in line with modern capital and reporting requirements.

In this new world, insurance companies can use economic capital analysis as a means to decide which guarantee benefits to offer to customers, the price to charge for them, and the extent to which they will be hedged.

Economic capital means different things to different people. The concept is widely used in the management of a company's resources.

The word "economic" is generally interpreted as referring to either a realistic or market consistent valuation, and this is the likely direction of Solvency II.

The word "capital" also refers to the discounted present (capital) value of future cash flows or to the resources within the company's balance sheet more generally.

Thus the concept can be used either to measure and optimise the capital resources already existing within a business, or to determine the amount of capital required by a business to meet the risks inherent in its liabilities and business operations.

At the heart of putting measurements of economic capital to use, is the assessment of the risks associated with different business decisions and the returns available from them.

For example, a product with guarantees which is not hedged can result in large losses.

The capital value of the losses incurred under the adverse 5th percentile (say) of a large number of possible scenarios is an economic measure of the capital at risk of being lost. Hedging this risk will reduce the economic capital at risk.

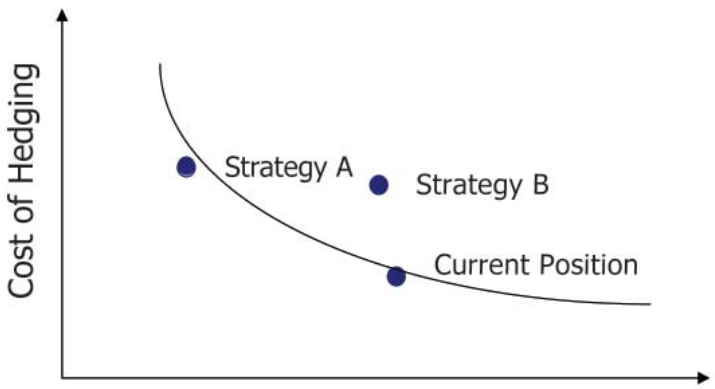
The diagram above plots the cost of hedging against economic capital at risk under the status-quo and two alternative risk management strategies.

Strategy A can be considered as an alternative to the status quo because, although the cost of hedging is increased, the economic capital at risk is reduced significantly.

By contrast, Strategy B (which involves a static hedge with high trading costs which over time becomes ineffective) is not, without modification, justifiable as it leads to a higher cost of hedging without any noticeable reduction in economic capital at risk.

Demonstrating the reduction in economic capital due to market risks is vital in determining what hedging strategy should be adopted. This is one way in which economic capital can be used for business decisions.

Hedge Strategy Optimisation



For further information on variable annuity products, hedging programmes and economic capital analysis, please contact ***joshua.corrigan@milliman.com*** *or* ***gary.finkelstein@milliman.com.***

[1] Winter Issue: Variable Annuities

Newsletter

Solvency II: The Long and Winding Road... (continued)

Continued from page 1

Feedback on QIS 2

QIS 2 was intended to test the practicalities of possible methodologies under Solvency II, but not the financial implications of these.

In summary, it was a partial success in showing how some concepts translated into practical application. However, it also highlighted the drawbacks of imposing a "one size fits all" across a varied European insurance market.

These ranged from difficulties in following instructions to confusion caused by the interaction of differently calibrated models producing apparently anomalous results.

Despite not testing the financial implications, CEIOPS still anticipates that most companies will not be in a radically different financial position under Solvency II than under Solvency I.

The companies that may need to raise new capital are thought to be those with some of the characteristics of non-life, monoline or mutual insurers.

Levels of Participation

QIS 2 was completed by more than 500 firms across Europe, of which more than a third were life companies. One tenth of the life companies participating were UK-based, holding a UK market share of 65%.

In some other countries, particularly Germany, a far larger number of companies with only a slightly higher domestic market share participated.

This raises the obvious concern that the consequences of Solvency II for smaller UK firms have not been analysed and therefore, may not be adequately reflected in future redrafts of the framework.

UK Related Issues

On the technical front, issues of particular relevance to the UK included:

- Harmonising the approach to setting best estimate liabilities. This is critical in a system that removes prudent margins from the value of assets and liabilities and focuses on the risk-based capital required;
- Adopting an approach that successfully allows for the risk absorbency of with-profits business. Whilst many firms opted for the k-factor method, they did so in what appeared to be a fairly arbitrary manner. Future investigations need to ensure that the ultimate method is responsive to the many variables influencing this business class; and
- Considering the relationship between the Minimum Capital Requirement ("MCR") and the Solvency Capital Requirement ("SCR"), especially if it is to be used as an informed tool for regulatory intervention.

In terms of the main lessons learned in QIS 2, future QIS will need to have:

- Clearer definitions and better guidance on the completion of submissions with fewer options to test;
- Wider participation, particularly of smaller organisations; and
- Additional focus on Group Solvency Capital Requirements and on calibration, particularly if anomalous results are to be avoided.

The Consultation Papers

The Consultation Papers ("CP") consolidate the advice of CEIOPs to the EC as well as address certain issues that remain unresolved under the three-pillar approach.

- CP 20 is the most relevant for considering Pillar 1 issues arising from QIS 2 and provides a good indication of the areas to be tested in QIS 3.
- CPs 15-19 deal with specific elements under Pillar 1 but also consider the role of the regulator under Pillar 2 and market disclosure under Pillar 3.

We do not give an exhaustive summary here but focus on the major aspects.

Milliman

Solvency II:

The Long and Winding Road... (continued)

Minimum Capital Requirement

One of the more surprising results from QIS 2 was that, for some companies in certain member states (e.g., in the UK), the MCR was likely to be more onerous than the SCR.

This anomaly arose from various adjustments being made to the SCR that were not applicable to the MCR.

Consequently, there are two major options still being considered for the MCR.

- **Modular approach** - this will require insurers to recalculate the MCR from the basic modules of the SCR (i.e. in respect of the assets, liabilities and provisions for run-off expenses).
- **Compact approach** - the alternative approach establishes the MCR as a fixed percentage (<100%) of the last calculated SCR, subject to a minimum of the run-off expenses provision.

The approach preferred by the majority of CEIOPS members is a modular approach.

However, for countries, where the MCR will potentially be larger than the SCR, the compact approach would likely be a more sensible approach.

In both approaches, the MCR would be subject to a specified absolute minimum.

The modular approach is complex in nature but is somewhat simpler than that required for the calculation of the SCR.

It only picks up market risk in respect of assets but follows the same general methodology otherwise.

It is unclear how this approach will deal with diversification between the risk categories allowed for in the SCR.

The compact calculation is almost trivial by comparison (once the SCR has been calculated) but suffers from the obvious drawback that it is not responsive to changes in the risks identified after the date of the SCR calculation.

Solvency Capital Requirement

The SCR calculation will likely follow the structure set out in QIS 2 but a number of extensions and refinements are proposed in CP20.

The main ones applicable to life insurance include:

- Operational risk capital requirement will be a largely factor based calculation;
- Credit risk will be split into separate components dealing with credit default risk and credit spread risk (included under the market risk module);
- Market concentration risk will be assessed directly from the amount of excess asset exposure determined by reference to a threshold amount (which is still to be determined but may be based on the credit rating of the individual counterparty);
- Life underwriting risk will combine disability and morbidity risks;
- A separate module for life catastrophe risk will be introduced; and
- Expense risk will be based on the full expense base rather than fixed expenses only.

The risk absorption offered by with-profits business was catered for, in QIS 2, through the use of k-factors.

However, the arbitrariness in the application of these k-factors, mainly due to a lack of guidance in the instructions, prompted a radical rethink on this matter.

Under the proposed approach, the capital requirement will be considered under each risk heading on the assumption the firm can apply an appropriate management action on the level of the bonus, and also on the assumption that no action can be applied.

The capital required will be the difference between the two assumptions.

The resulting capital components will then be combined within each risk category using the correlation matrix for that category.

The process is repeated for each risk category and the largest result taken as the capital requirement for the class.

This seems likely to set a margin for prudence.

Newsletter

Internal Models

The use of internal models will be encouraged as being evidence of good risk management procedures. These will be subject to the appropriateness tests described in earlier advice, namely, the use test, the calibration test and actuarial model test.

Internal models that provide a complete picture of the insurance business would enable accurate recognition of the benefits of diversification between different risk categories. CP 20 also considers the use of partial internal models to calculate part of the SCR – for example, one of the risk modules of the standard SCR calculation.

Whilst there does not appear to be universal acceptance of this, partial models satisfying the appropriateness tests may be used as long as the firm considers the risks fully either by risk category or by undertaking.

The results of the partial internal model may be substituted for the standard approach and combined with the results of other partial internal models or standard results derived from other modules to produce the SCR.

This will be beneficial to firms with a more significant exposure to certain risks, allowing them to focus attention on those risks and gain benefits from a more appropriate capital requirement.

Ladder of Regulatory Intervention

The MCR and SCR will be used to allow regulators to monitor the development of a firm's capital position by defining trigger points for their intervention.

These will be based on the relative levels of risk inherent in the calculation of the MCR and the SCR.

A number of the participants calculated their MCR to be larger than their SCR in QIS 2.

However, the SCR should be a soft trigger point; otherwise it will usurp the role of the MCR and in effect become the capital trigger point for regulatory action.

Capital Add-ons

Whilst Pillar 1 SCR calculations intend to produce all embracing estimates of the capital required, regulators still need to be able to address deficiencies identified in internal models, omissions of risk categories, or special circumstances that may arise from time to time.

Consequently, regulators are likely to be able to apply capital "add-ons" but these should be neither routine nor formulaic in nature. If applied, an add-on is expected only to apply for one year.

Next Steps

CEIOPS is currently considering the industry responses to the latest CPs issued and will shortly produce the specification for QIS 3.

CP20 along with the output from QIS 3 will provide the final shape for the Draft Directive.

Therefore, QIS 3 may be the last chance for companies to have an input into the Draft Directive.

Consequently, more companies are expected to participate and join in these studies on the long and winding road of Solvency II.

If you would like to discuss the impact of Solvency II further, please contact ***john.mckenzie@milliman.com*** *or* ***philip.simpson@milliman.com****.*

Valuation of Insurance Liabilities Will there be Convergence?

With the development of Solvency II, the discussion concerning the valuation of insurance liabilities has been revitalised.

Karel van Hulle of the European Commission ("EC") is currently aiming for the Solvency II Draft Directive to be issued in July 2007.

The Draft Directive will replace parts of the current European Life and Non Life Insurance Directives and will impact local financial accounting conventions.

There is a lot of work to be done to develop a framework for the valuation of insurance liabilities. However, it seems obvious that the EC would like the liability valuation to be at market value.

As there is still no mature market where insurance liabilities can be traded on a regular basis, it is not obvious how market value should be defined.

When considering how to define the market value of insurance liabilities, the EC considered representations from various industry bodies, including the following:

- International Accounting Standards Board;
- International Association of Insurance Supervisors;
- European CFO Forum; and
- European CRO Forum.

There was a range of views emerging. For example, the CFO Forum appears to currently favour the current "entry value[1] " method including a customer intangible asset, whereas other parties appear to prefer the current "exit value[2] " method.

One key advantage of the exit value method is that it aligns fairly well with embedded value ("EV") calculated on a market consistent basis.

If all components of the balance sheet are valued at market value and the insurance liabilities are based on current exit value then it should be more straightforward to reconcile this to EV.

Consultation Paper 20 suggests that the current direction of Solvency II is the exit value method. Therefore, it is likely that the CFO Forum will respond with feedback and possible counter proposals.

This debate probably has a fair way to run but, whatever its resolution, the challenges facing insurers around frequent best estimate projections, non-hedgeable risks, options and guarantees, movement analyses and clear audit trails remain significant.

If you would like to discuss the topic of convergence of standards further, please contact ***henny.verheugen@milliman.com*** *or* ***emma.mcwilliam@milliman.com****.*

[1] The current entry value is the amount the insurer would charge a policyholder today for entering into a contract with the same remaining rights and obligations.

[2] The current exit value is the amount the insurer would expect to pay today if it transferred all of its remaining contractual rights and obligations immediately to another entity.

Milliman Chairs Workshop on Implications for Life Insurers of Solvency II

John McKenzie chaired a Solvency II industry workshop for Infoline at the beginning of March. He was joined by a number of Milliman consultants from the UK and across Europe who explored the latest findings of CEIOPs in light of the recent Quantitative Impact Studies and impending Draft Directive.

The participants engaged in debate about what Solvency II could mean and discussed questions such as:

- Will small insurers survive?
- Will there actually be a level playing field?
- Will EV become redundant?
- What will happen to Solvency II when IFRS comes in?
- Will insurers become strong risk managers?
- Will there be a shortage of capital and will hedging become routine?
- What changes will occur in group structures and products?

In a forthcoming article, we will publish the results of this survey discussion and some of the other highlights from the workshop. In addition, Philip Simpson spoke on "Integrating Pricing Decisions within a Risk Management Framework" at the one-day industry conference before the workshop. Philip showed that pricing for Solvency II using an interpreted framework such as Enterprise Risk Management, was a logical evolution of using the traditional actuarial control cycle.

Newsletter

Milliman Sponsors 10th Annual Annuities & Drawdown Conference

Milliman sponsored Westminster and City's Tenth Annual Annuities and Drawdown Conference at the end of 2006.

The day brought together key speakers from across the industry to discuss both recent developments and the future of the annuity and drawdown markets.

Gary Finkelstein, Milliman's Financial Risk Management Practice Leader, spoke on the new product development area of Variable Annuities.

These are highly successful products in the US and Japan. Variable annuities combine exposure to the investment markets, with transparent guarantees, that are valued by consumers and allow insurers to differentiate their products from those offered by banks.

The conference was conveniently timed for the week after the Chancellor's Pre-Budget Report in December.

Whilst the market is still coming to terms with the impact of A-Day, the Chancellor announced further changes to Alternative Secured Pensions ("ASPs") rules.

These largely put an end to using ASPs to pass on lump sum death benefits, which was an unintended consequence of the legislation.

There were strong sales of annuities and drawdown contracts in the first three quarters of 2006, and the total retirement income market was approximately £11bn for the 12 months to 30 September 2006.

This highlights the importance of the market for insurers.

The enhanced annuities market is expected to continue to grow.

The proportion of lives eligible for such annuities is considerably higher than those actually taking them up and therefore, take-up rates are expected to increase with awareness.

Longevity is a key risk that companies need to consider.

As people live longer the expected term of an annuity contract increases.

This has implications for product design and companies need to design investment strategies that match an appropriate measure of pensioner inflation over the longer term.

If you would like to discuss annuities or longevity risk further, please contact ***phillip.sturgess@milliman.com*** *or* ***emma.mcwilliam@milliman.com.***

What's New at Milliman

Please join us in congratulating Phillip Sturgess and Tom Wicling on qualifying as Fellows of the Institutes of Actuaries in December 2006.

Phillip has experience in the areas of Mergers and Acquisitions, Part VII Transfers, Independent Expert projects, model office valuations and annuitant mortality and pricing.

Tom has experience in the areas of pricing annuities, mortality projections, Mergers and Acquisitions, statutory valuations and modelling.

European Office News

Our Amsterdam office has expanded rapidly over the last year (since opening in April 2006), now consisting of eight people on the Life actuarial team.

The team has deep knowledge of both the Dutch and Belgian insurance markets and offers a wide range of services to Life Insurance companies such as: Embedded Value and statutory reporting, risk and value-based management and merger and acquisitions support.

For further information, please ***henny.verheugen@milliman.com.***

Milliman Newsletter

Embedded Risk Management

A Case of Perspective?

Significant progress has been made in many areas of risk management, but when it comes to integrating the financial risks with the non-financial risks, and embedding the whole framework into the organisation, companies are still struggling.

Best practice for modelling non-financial risks currently uses a scenario approach. Experts make estimates of each scenario's severity and frequency and then combine the scenarios using some reasonable approach.

The main problems with this method are that it fundamentally requires you to choose the right scenarios in the first place, and you have to use considerable judgement in choosing the severity and frequency estimates. Trying to assess correlations between these scenarios and with other risk types is very subjective.

In order to genuinely connect day-to-day risk management with the modelling calculations, they should be focused on the same information.

The scenarios should be chosen from a rational assessment of the risk exposure of the organisation and the loss estimates derived from some understanding of the underlying dynamics of the organisation and its environment.

Traditional modelling approaches ignore the causes of risk and simply focus on the distribution of losses.

Milliman consultants have developed new techniques which provide a representation of the whole risk landscape of the organisation.

The output is easy to understand but is rigorously underpinned with a structure which enables analysis of where key risks lie and what causes them.

The analysis highlights areas of significant threat and opportunity and is easily embedded into existing business planning processes.

It captures all forms of risk and their interactions and so explicitly provides a basis for choosing the scenarios for economic risk capital modelling.

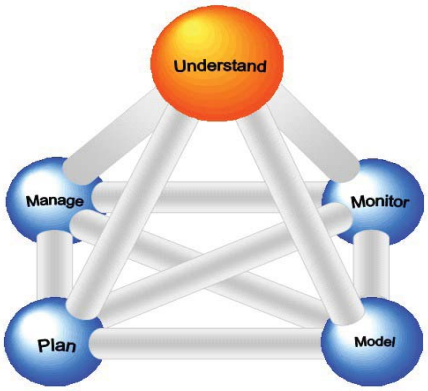
Having structured the analysis of risk exposure in this way, organisations can begin to model risk events based upon the causes of those events rather than simply using statistical estimates.

This explicitly links calculations to management information emerging from the organisation and ensures that there is a connection between day to day risk management and capital calculations.

By looking at the problem a different way, it is clear that huge improvements in the understanding of risk can be made.

Finally, integration of the different risk types within capital calculations can be achieved.

"Understanding the risk profile lies at the heart of managing it and integrating risk into planning"



If you would like to discuss the impact of Operational or Strategic Risk further, please contact ***neil.cantle@milliman.com*** *or* ***oliver.gillespie@milliman.com.***

Contact Information

Milliman
Finsbury Tower
103-105 Bunhill Row
London EC1Y 8LZ
Tel: +44 207 847 1500
Fax: +44 207 847 1501
www.milliman.com

Offices Worldwide
UK - Germany - Italy - Poland Netherlands - Spain - Switzerland United States - Bermuda - Latin America - India - Japan - Hong Kong China - Korea - Australia

For additional copies of the newsletter and to provide feedback, please contact your usual Milliman consultant or jill.nixon@milliman.com.