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Dear Paul, Sam,

Solvency II: Risk Margin Comparison

In response to your request we have set out in this letter a comparison between three different types of approaches to the calculation of a risk margin for technical provisions. You are aware that an important part of the technical provisions is the best estimate reserves where a consistent and harmonised approach will need to be developed as the very first component within the solvency system. We do not cover the best estimate reserves in this paper, but concentrate on the risk margin comparison.

The approaches in respect of risk margins that we have decided to focus on are the Percentile Approach as currently recommended by the Commission; the Cost-of-Capital Approach as recommended by the CEA and CRO Forum as well as what we have called the Assumption Approach representing the current practices.

Groupe Consultatif does not recommend one approach over and above others, as each method has its advantages and disadvantages. From an actuarial perspective each approach has a number of challenges that need to be resolved, and in some cases there are dependencies on factors which are yet to be defined. For example, in our opinion the Cost-of-Capital has clarity only once the required level of capital has been defined. We are conscious that not only the choice of approach to the risk margin is important; the level of risk margin that will arise in practice will be dependent on the assumptions and decisions made as part of the calibration for either approach. We note that the main aim of having a risk margin as part of technical provisions is to be able to transfer the liabilities to a third party, thereby also providing some protection for policyholders.

We hope that this relatively simple comparison will crystallise some of the characteristics of each approach and their outstanding challenges to regulators, industry and the actuarial profession - and will form the starting point for further investigations. We believe, at this point in time it would be beneficial to analyse the implication of each approach to compare, contrast and assess the overall implication for the margins and ultimately policyholder protection.

This discussion paper has been developed by Groupe Consultatif's Solvency II Pillar I Non-life working group in consultation with the Solvency II project team and the GC's Insurance Committee. As you may be aware the International Association of Actuaries currently has a working party on risk margins, and this paper also draws on work done in that forum (part of their work will focus on providing examples).

We look forward to continuing our dialogue with you.

Best regards,

A handwritten signature in grey ink, appearing to read 'A. Olesen', with a horizontal line extending to the right.

Annette Olesen

On behalf of Groupe Consultatif's Solvency II Pillar I NL working group

Introduction

Under the fair value approach the technical provisions would ideally be established as the best estimate discounted reserves plus a market value margin based on the market cost of hedging (the price at which a transaction might reasonably be concluded with a purchaser). This market value margin is appropriate for most financial risks, and technical provisions should reflect a market-consistent approach in respect of such risks. For insurance risk, however, which is not traded to any great extent, there is no readily appropriate market value margin.

As no liquid market exists for non-life liabilities a proxy for the market value margin is required. The three available approaches are explored below (from here on referred to as risk margin).

Criteria for the risk margin

The key criteria for a good risk margin are in our view:

- Ease of calculation
- Stability of calculation between classes and years
- Consistency between different companies
- Consistency with overall solvency system
- Consistency with future IFRS Phase 2
- As close as possible to market consistency

In addition the risk margins should

- Sit on top of best estimate (defined as mean value of discounted reserves)
- Capture uncertainty in parameters, models and trends to ultimate
- Be harmonised across Europe
- Provide a sufficient level of policyholder protection together with the MCR/SCR

Comparison of 3 possible approaches to determining the risk margin

The table below sets out a comparison between the Percentile Approach as currently recommended by the Commission; the Cost-of-Capital Approach as recommended by the CEA and CRO Forum as well as what we have called the Assumption Approach representing the current practices.

In our opinion the Cost-of-Capital approach has clarity only once the required level of capital has been defined. We note that if a building block approach is being used (the 3 building blocks being the best estimate reserve, the risk margin and the solvency capital) then the second and third building block are interdependent (at least if the risk measure currently proposed by the European Commission for the solvency capital is applied). For the Cost-of-Capital approach the capital measure could be prescribed externally by say the regulator (similar to the approach taken in Switzerland), or could be based on companies own capital assessment (increasing the complexity of the approach) in either case the linkage still exist between the second and third block. For the purpose of this paper we have assumed that the capital measure is specified externally to the company, which ensures market consistency.

	'Percentile' approach	'Cost-of-Capital' approach	Assumption approach
Historical background	<p>This approach was first described (for regulatory purposes) and prescribed by the Australian Regulator (APRA) in the Prudential Standard GPS 210 – <i>Liability Valuation for General Insurers</i>.</p> <p>APRA has not followed a similar approach for life business.</p>	<p>This approach is described in the white paper on the Swiss Solvency Test (SST) – see website – and is intended to apply to both life and non-life business.</p> <p>This approach was not fully implemented until January 2006 in Switzerland.</p> <p>Some companies in EU member states have started implementing this internally.</p>	<p>Industry practice.</p> <p>Historically non stochastic approaches are used to determine the reserves.</p> <p>Parameters are selected on an arbitrary but hopefully prudent basis to include a risk margin or in some countries by having prudent case estimates.</p> <p>Management risk is much greater when methods are arbitrary and it is difficult to defend any one number.</p>
Definition of Risk Margin	<p>The 75% percentile of the discounted ultimate future payments less the best estimate. The EU propose that the percentile is not allowed to be less than 50% of the standard deviation above the mean (this is in line with APRA's approach).</p> <p>A clear definition is required of what the percentile is to be applied to i.e. a particular percentile does not imply a gross or net reserve at the same percentile.</p>	<p>Cost for future required (marginal regulatory) capital to run off the existing liabilities</p> <p>Requires a projection of future capital requirements for the liabilities under consideration. The projection requires are a method to determine the capital, and assumptions for example the margin required over risk free rates of return.</p>	<p>Implicit assumptions e.g. non-discounted reserves, prudent development factors, prudent initial expected loss ratios</p>

	'Percentile' approach	'Cost-of-Capital' approach	Assumption approach
Ease of calculation	<p>Best practice would be to consider a stochastic approach, this will rely on actuarial judgements.</p> <p>Key discussion point is whether the distribution is based on the overall company portfolio – or by line of business with or without allowing for diversification.</p> <p>Issues also exist on how to deal with long tailed business, asbestos or other classes of business where triangles do not exist.</p>	<p>The calculation is mechanically driven by external factors, but actuarially complex</p> <p>Key assumption: 1) existence of (marginal regulatory¹) capital and 2) setting of the cost of capital</p> <p>Typically the calculation would be expected to cover the full run-off period.</p> <p>The cost-of-capital approach avoids the more complex calculations (to measure the impact of volatility) being necessary at the technical provision level. However more complex calculations will still be necessary to arrive at the final solvency figures. Also the amount of complexity inherent in applying the cost of capital approach to technical provisions (cash flows, projections, determination of ROC rates etc.) should not be underestimated.</p> <p>The capital could be defined in a number of ways for example representing the overall capital required by the company or only the capital required to support the reserves.</p>	<p>Easy but not transparent and no harmonisation across companies.</p>

¹ The term '(marginal regulatory) capital' has been used, as we have assumed that the capital measure is specified externally to the company, which ensures market consistency. Conceptually for a given company it would be appropriate to use an economic capital basis.

	'Percentile' approach	'Cost-of-Capital' approach	Assumption approach
Stability of calculation (in a non-changing environment both externally and within the company's risk profile)	Stability driven by a number of judgements on the underlying volatility. High reliance on actuarial judgements.	Stability driven by external drivers in the form of 1) movement in the (regulatory) capital figure, and 2) assumed returns. Likely to be more transparent.	Only as stable as the actuaries/ senior management decisions.
Consistency between - Life/NL - Reinsurance/ Direct	Can be made consistent dependent on how prescriptive the rules are. In practice more difficult to get consistency between Life/NL due to different (national) approaches. Non-life reinsurance and non-life direct business can be aligned.	Consistent due to the use of (regulatory) capital and cost of capital in all businesses. Not consistent however if the regulatory capital being costed is itself not consistent as between Life/NL/Reins/Direct.	Very dependent on the actuaries/ senior management decisions. Consistency would be hard to achieve both between companies and in particular across countries.
Consistency/ alignment with solvency framework	Indirect link insofar as reserve risk over one year is part of the SCR. In order to ensure that there is no double counting the percentile has to be calculated on the distribution of the ultimate payments in one year's time given today's information.	Clear link	No link
Consistency with future IFRS Phase 2 development – likelihood of consistent tech provisions in accounting statements and in regulatory reporting	Percentile driven technical provisions are unlikely to be compatible with current GAAP's (in different territories) or with future market consistent approach under IFRS.	Cost-of-Capital derived technical provisions will be incompatible with existing GAAP/ IFRS Phase I, but increase the probability that at some future date the accounting statements and solvency reporting may again converge (anticipating IFRS Phase II).	Avoids opening further new differences between accounting statements and solvency reporting.

	'Percentile' approach	'Cost-of-Capital' approach	Assumption approach
Degree of market consistency	Unlikely to be market consistent (for example given that it is portfolio variant and given the arbitrary nature of setting 75% parameter etc.).	Conceptually should be market consistent but this may be undermined by pragmatic or prescriptive approaches that will need to be adopted for capital and for setting risk free rates of return etc.	Non existent
Level of prescription	Lends itself to being quite "principles based". Potentially missing a logical link with the (regulatory) capital.	Pre-described due to direct link with (regulatory) capital. May need quite a lot of prescription to avoid different interpretations of Cost-of-Capital by different regulators or by different companies.	Flexible
Limit room for manipulation	Partially dependent on disclosure requirements. Dependent on actuarial judgement when selecting variances, distributions, level of aggregation etc.	Less room for manipulation, but dependent on the definition of capital (which may be driven by actuarial and wider judgements).	Manipulation is possible unless assumptions are made more explicit and monitored through disclosure.
Extent of coverage of all risk categories	Mostly focused on insurance risk, in particular reserving risk.	Consider the risk types reflected in the capital measure, most likely to include insurance, market, credit and operational risks.	Arbitrary

	'Percentile' approach	'Cost-of-Capital' approach	Assumption approach
Level of margin	<p>Hard to predict, and even QIS may not provide clarity.</p> <p>For the percentile Approach experience from Australia indicated that the weighted average risk margins on outstanding claims liabilities varying by class between 4.5-12.0% of discounted best estimate reserves for Direct business and 6.3-17.6% of discounted best estimate reserves for Reinsurance business. Figures are quoted gross of reinsurance.</p> <p>Source: APRA General Insurance Risk Margins Industry Report, Oct 2005</p>	<p>Hard to predict, and even QIS may not provide clarity.</p> <p>For the Cost-of-Capital approach experience from Switzerland indicate 2-8% of discounted best estimate dependent on type of business written (this is on an overall portfolio, taking into account diversification between lines of business). Calculated on single lines risk margin is higher (2% - 50%+) All numbers quoted are gross of reinsurance.</p> <p>Source: SST</p>	<p>No separation between best estimate and risk margin</p>
Key objective: to achieve consistent and harmonised best estimate liabilities between companies, countries and years			
Challenges	<p>Technical provisions will be highly dependent on levels of aggregation (not portfolio invariant)</p> <p>Lack of methodology to deal with long-tailed business</p> <p>Difficult to analyse movements/ developments</p> <p>Black box will raise a barrier to understanding</p> <p>Perception if actual market run-off is different to the set percentile (say 75%)</p>	<p>Projection of the capital base (and the extent to which this can be simplified)</p> <p>Provide explicit protection</p> <p>Release of profit linked to reserving risk</p> <p>Its ability to make a reasonable adjustment for diversification will depend on whether the regulatory capital allows sensibly for diversification</p> <p>A risk exist that this could become a black box approach as well</p>	<p>Lack of harmonisation</p> <p>Not transparent</p> <p>Easy to manipulate especially over the cycle</p>