Sailing a Course through Risk Margins

Will it be perilous?

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Contents

1   Introduction

The much awaited Exposure Draft (ED) on Insurance Contracts was issued by the International Accounting Standards Board (IASB) in July this year.

Under the ED, insurance contracts would be measured for financial reporting purposes on the basis that insurers generally expect to fulfil their liabilities to policyholders over time. The current fulfilment value of an insurance contract would be measured using a building block approach consisting of:

- A current estimate of future cash flows
- A discount rate that adjusts those cashflows for the time value of money
- An explicit risk margin
- A residual margin

Each of the components in the building blocks would be calculated to reflect the current fulfilment value objective.

A modified approach has been proposed for short-duration contacts. I do not intend to consider this modified approach in this paper.

This paper focuses on the explicit risk adjustment. In this paper I have looked to explore the following aspects of the risk adjustment/margin:

- the proposed definition of the risk margin
- potential methodologies for calculation of the risk margin
- the pros and cons of each method with particular reference to life insurance liabilities
- examples of how each method works
- impacts for timing and emergence of profit
- comparison to the composite margin approach
- comparison to the current general insurance risk margin approach
- industry views and commentary

The paper is introductory in approach. A vast amount of research and actuarial literature exists relating to the setting of margins for uncertainty on insurance contracts, providing a large amount of detail that is beyond what can be easily covered here. In the Appendix I have set out the key reference material in this area. Further extensive listings of reference material can be found in the reference lists in some of those key papers.

Despite the quantity of literature that exists, even the IASB admit that determining risk adjustments is an emerging practice in the insurance industry. This makes it difficult for the practitioner faced with the prospect of having to calculate risk adjustments under a principles based (rather than prescribed) approach.

2   Overview of proposed measurement approach

The key proposal by the IASB is the measurement of insurance contracts for financial reporting purposes using a building block approach consisting of:

- A current estimate of future cash flows
- A discount rate that adjusts those cashflows for the time value of money
- An explicit risk margin
- A residual margin

Whereas the original proposals put forward in the IASB discussion paper, *Preliminary Views on Insurance Contracts,* issued in 2007 were based on a current exit model (the price that would demanded to transfer liabilities to a third party), the ED puts forward a current fulfilment value. Under the current fulfilment value, the objective of the measurement model is to reflect the fact that insurers generally expect to fulfil their liabilities to policyholders over time.

The following is a brief overview of the ED measurement approach:

Component	Calculation	Re-measurement
Current estimate of future cash flows	Explicit, unbiased, probability weighted estimate of the future cash outflows less the future cash inflows that will arise as the insurer fulfils the contract	At each reporting date – impact to any change through P&L
Discount rate	Consistent with observable market prices, taking into account timing, currency and liquidity of cashflows	At each reporting date – impact to any change through P&L
Explicit risk margin	An explicit estimate of the effects of uncertainty about the amount and timing of those future cashflows	At each reporting date – impact to any change through P&L
Residual margin	A margin to ensure no profit emerges at outset	Amortised over the contract lifetime in line with expected claims

Unlike the Margin on Services approach, neither the risk adjustment nor the residual margin acts as a shock absorber. Both the future cashflows and the risk adjustment are recalculated at each reporting date, with the impact of any changes flowing directly through to profit and loss. This has the potential to introduce a great deal of volatility in profit recognised over the life of an insurance contract.

The residual margin is run off over the lifetime of a contract and not reassessed. It is calculated at level of those contracts within a portfolio that have a similar date of inception and similar coverage period.

Acquisition costs which are non-incremental at the contract level are not included in the calculation of the residual margin and are therefore expensed immediately.

The following graphs show the emergence of profit under the ED methodology compared to Margin on Services for a 10 year YRT contract.

| **Margin On Services** | **Exposure Draft** |

Base – Expected emergence of profit. To the extent that acquisition costs cannot be deferred under the ED methodology, a loss will occur at outset.
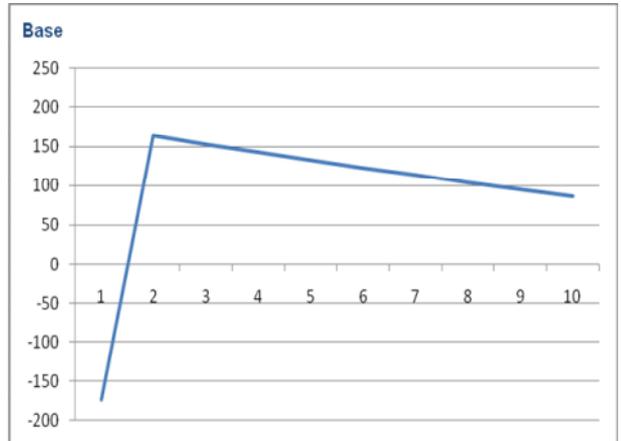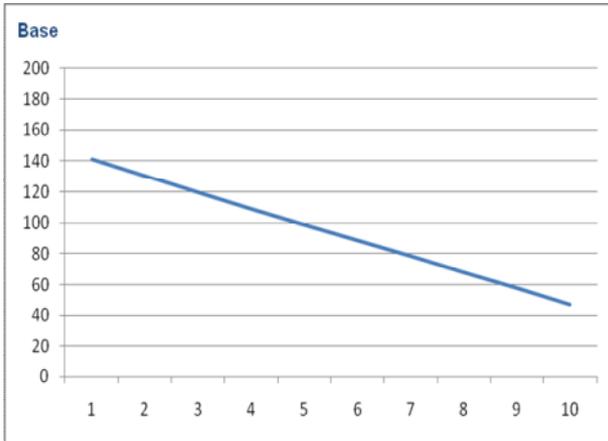
Base

Base

Change in Discount Rate at the end of year 2 – profit emergence moves to red line (compared to blue base case)

Change in Discount Rate 6% to 4% - End of Year 2

Change in Discount Rate 6% to 4% - End of Year 2
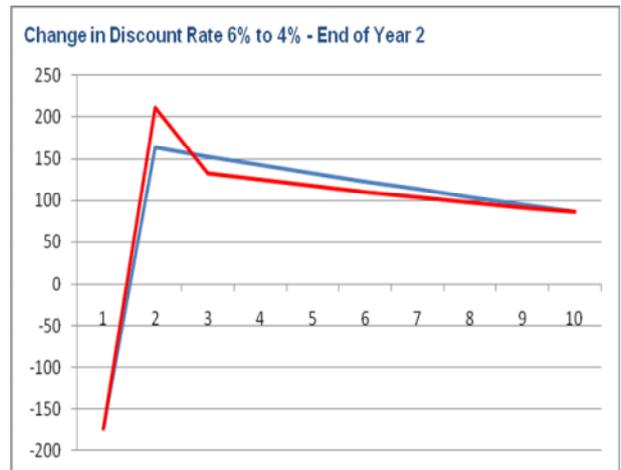
Increase in risk margin at the end of year 3 – ED only. The impact of the change in risk margin flows straight to profit/loss in the period – refer purple line (compared to previous red one).

Increase in Risk Margin - End of Year 3
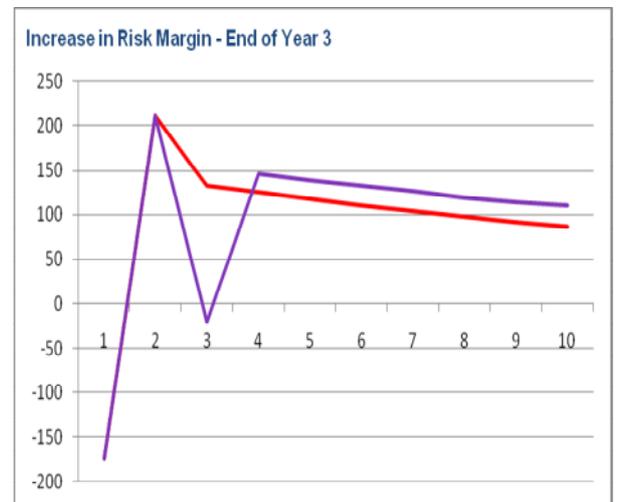
Reduction in claims assumption at end of year 5 – emergence of profit moves to green line. Impact of assumption change under ED is fully recognised in profit/loss, increasing further the volatility of results.
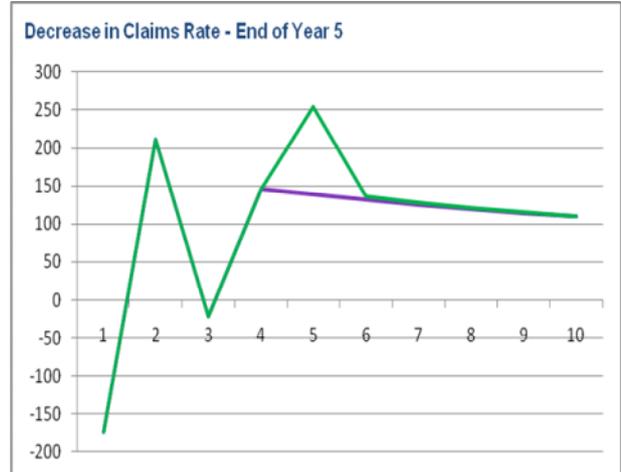
Actual claims experience as per original assumption year 6 on – emergence of profit moves to pink line. MoS is essentially self correcting as profit emergence ends up being as originally expected. However under ED, future profits are reduced to offset the profit realised (in hindsight incorrectly) when the assumption was changed.
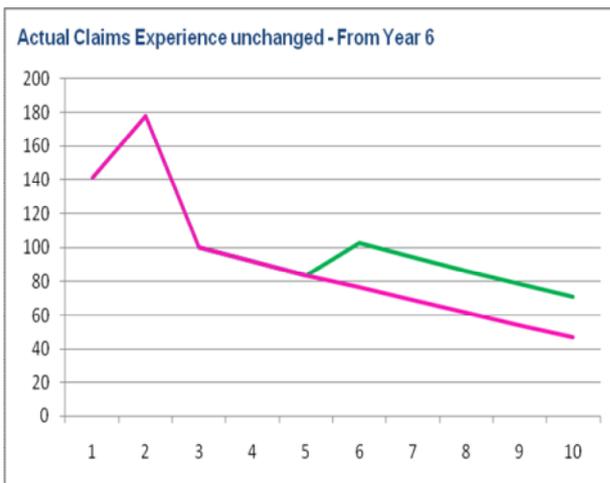

Due to its impact on profit emergence, the risk adjustment is a very important part of the ED methodology. However, unlike the projection of expected future cashflows, the risk adjustment is not currently a familiar part of our life insurance actuary toolbox.

Transition to ED

Upon transition to the new ED methodology, the insurance liability will be remeasured in accordance with the building blocks above, except that the residual margin would be set to zero. The impact of the change in liability from the previous measurement methodology will flow through to retained earnings.

The setting of the risk adjustment in the opening position will therefore have consequences for the balance between opening retained earnings and future profit emergence. Insurers will not want to be in the position of setting the initial risk adjustment too low and having to increase it later, with consequent impact on profit.

3   IASB development of the Risk Adjustment

3.1 Initial thinking

When the IASB restarted Phase 2 of their Insurance Contract project in 2004, allowance for risk and profit was one of the issues listed for consideration. The risk adjustment was discussed several times by the IASB over the next six years.

In their meeting in March 2006, the IASB concluded that the objective of a risk margin is not to provide a shock absorber for the unexpected, nor is it to enhance the insurer's solvency, but that the objective is to convey decision-useful information to users about the uncertainty associated with future cash flows.

In May 2007, the IASB issued a discussion paper *Preliminary Views on Insurance Contracts,* in which the risk margin was defined as an explicit and unbiased estimate of the risk margin that market participants require for bearing the risk underlying insurance contracts. The discussion paper was very principles based and included no guidance on techniques that might be utilised.

Respondents to the discussion paper were said to be largely supportive of inclusion of a risk margin however most indicated that they wanted more information on how to estimate risk margins. In addition, most agreed that the risk margin should provide a measure of the remaining risk and should not be used simply as a shock absorber.

3.2 Conclusions

With the change in focus from current exit value to current fulfilment value, the definition of the risk adjustment was changed prior to the ED being issued.

The risk adjustment is defined in paragraph 17 of the ED as "the maximum amount that an insurer would rationally pay to be relieved of the risk that the ultimate fulfilment cash flows exceed those expected."

The IASB's view is that the risk adjustment should:
- Provide useful information to users about the risk inherent within the insurance contracts written
- Reflect the insurer's view of the economic burden of that risk
- Reduce the otherwise residual/composite margin, the release of which is noted to be somewhat arbitrary
- But not reflect to a high degree of certainty, the amount required to fulfil the contract, which is noted to be a more appropriate objective of the regulator.

In addition, they believe the risk adjustment should:
- Give useful information to users regarding the main activity of the insurer
- Reduce the amount that is released to profit by way of an arbitrary mechanism, as would a composite margin
- Be conceptually consistent with the market valuations of financial instruments
- Ensures the measurement of a risky liability includes a margin for risk (as opposed to being risk free)

Latter discussions of the IASB were held in conjunction with the FASB. During these discussions, the concept of using a composite margin as opposed to the explicit risk margin and residual margin were considered.

There was some concern expressed that a composite margin would not adequately reflect differences in riskiness of insurance contracts that otherwise had the same expected cashflows. However, it was noted that

in such circumstances, the differing riskiness would be expected to be reflected in the pricing of the contracts, and that a higher price would increase the composite margin.

Other arguments against a composite margin approach are:

- Provides no information on the riskiness of underlying cashflows
- Implications for embedded options and guarantees, which may need to be separated out
- Inconsistent with pricing of financial instruments and written options
- Inconsistent with IAS 37 proposals
- Lack of principle regarding run off of composite margin

Voting by the IASB on the risk adjustment was close – 8 votes to 7. One of the issues for the IASB is comparability with other standards which require an explicit adjustment for risk, eg. IAS 37.

4 out of 5 FASB members voted for the composite margin approach.

Two IASB members voted against the publication of the ED. One of the many reasons cited for this is that they do not believe that it is possible to calculate a risk adjustment objectively.

They also indicate that the risk adjustment and residual margin are likely to vary significantly by insurer for essentially the same underlying risk. The ED provides the example of two insurers which sell identical insurance contracts but calculate different risk adjustments at inception and hence different residual margins. If one of these insurers subsequently changes its risk assessment to equal the other, the change in risk adjustment would flow through to profit/loss in the period whilst the residual margin remains locked in. The year to year results of the two insurers will never be the same even though their assessment of all of the components of the liability would now be aligned.

Other reasons for opposition to the risk adjustment include:

- There is no single technique for calculating risk margins that is universally used and accepted

- Some techniques are hard to explain

- Difficulty in back testing whether chosen risk adjustment was appropriate

- The cost of developing calculation systems

- Inconsistency with IASB's revenue recognition proposals (which are more aligned to a composite margin approach)

- The fact that an increase in the risk adjustment will generate an immediate loss which under normal circumstances will reverse over time into profit, which may be confusing to users.

Despite acknowledgement of the reasons for opposition to the risk adjustment being part of the calculation of insurance liability, the IASB nevertheless believe that the inclusion of an explicit risk adjustment provides better information to users of the financial statements and may also improve the quality of management information.

3.3 ED Principles

The risk margin is stated in the ED to be an adjustment to the discounted cashflow calculation for "the effects of uncertainty about the amount and timing of those future cash flows". It is defined in paragraph 17 of the ED as – "The risk adjustment shall be the maximum amount that an insurer would rationally pay to be relieved of the risk that the ultimate fulfilment cash flows exceed those expected."

It is remeasured at the end of each reporting period and declines over time as the insurer is released from risk.

The risk adjustment is calculated at the portfolio level. The ED defines a portfolio as a group of contracts that are subject to similar risks and managed together as a pool. The risk adjustment within a portfolio should reflect the effects of diversification, however diversification between portfolios cannot be allowed for.

Like all aspects of the measurement of the insurance contract liability, the calculation is carried out separately in respect of the gross and reinsurance obligations.

The risk adjustment needs to consider and reflect all risks associated with the contract/portfolio of contracts. In terms of life insurance contracts these would typically be mortality, morbidity, lapse and expense risk. It is not meant to reflect other risks that the insurer might be exposed to that are not related to its insurance contracts, for example investment risks (except those that affect policyholder benefit amounts), operational risk, asset-liability mismatch risk.

The stated characteristics for the risk adjustment are:

a) Risks with low frequency and high severity will result in higher risk adjustments than risks with high frequency and low severity

b) For similar risks, contracts with a longer duration will result in higher risk adjustments than those of a shorter duration

c) Risks with a wide probability distribution will result in higher risk adjustments than those risks with a narrower distribution

d) The less that is known about the current estimate and its trend, the higher the risk adjustment shall be

e) To the extent that emerging experience reduces uncertainty, risk adjustments will decrease and vice versa.

Although there is a lot of literature regarding techniques, there is an acknowledged lack of research into the determination of the level of risk to allow for, eg. probability of sufficiency to use.

3.4 Techniques allowed

The application guidance (Appendix B) of the ED limits the techniques allowed for the calculation of the risk margin to the following:

- Confidence interval
- Conditional tail expectation
- Cost of Capital

In addition, where the CTE or cost of capital techniques are used then there is a requirement to disclosure the corresponding confidence interval to which the resulting risk adjustment corresponds. This leads to the question of whether this means that the confidence interval approach needs to be carried out regardless.

All of the three techniques meet the characteristics required from the IASB, and listed above, in at least some situations, but there is a need to apply judgement in which to apply in various circumstances.

The IASB also acknowledge that there is an additional need to consider:
- Ability to be implemented at a reasonable cost and in a reasonable time
- Ability to be audited

Interesting though, the IASB go on to state in their Basis for Conclusions:

"…determining risk adjustments is an emerging practice in the insurance industry, and so only some insurers have developed the processes and systems to do this. Although an insurer will incur costs to establish and maintain the systems and processes necessary to make explicit cash flow estimates and to manage risk adjustments, the Board thinks that this will result in the provision to users of better information about an insurer's insurance contracts and it might also improve the quality of the information that internal managers use in managing their businesses."

It is useful to bear in mind the risk margin techniques that the IASB considered but did not believe appropriate:

- Explicit assumption methods
  - o factor based methods
  - o judgement based on experience studies
- Multiple of second and higher moments of risk distribution
- Discount rates
  - o Risk adjusted returns
  - o Deflators
- Stress/sensitivity testing
- Stochastic modelling
- Calibration to capital markets or insurance pricing
- Implicit (but unspecified) confidence interval

4 Risk Margin Techniques

4.1 Overview

A risk margin could either be applied to an individual assumption or to the best estimate liability itself. The determination of risk margins can therefore be split into two basic categories:

- Bottom up – overall margins are determined by adding margins on each individual assumption

- Top down – margins are determined at an aggregate level across all assumptions and risk types, relative to best estimate liabilities or required capital

Bottom up techniques, such as confidence intervals and conditional tail expectation, have the advantage of allowing the monitoring of the appropriateness of the risk margins in light of emerging experience. However they hold one particular challenge in terms of what allowance, if any, should be made for diversification.

Top down approaches, such as the cost of capital approach, implicitly allow for diversification benefits.

Bottom up approaches have traditionally been adopted in the US and Canada, while top down approaches are common in Europe particularly with Solvency II.

Risk margins can also be viewed as either:

- Compensation for taking on risk

- Prudent margins to allow for uncertainty in future obligations

In some ways the IASB techniques allow for both of these.

New Zealand life insurance actuaries will already be familiar with the concept of risk margins to some extent in terms of PS5.01 solvency reserving margins, albeit that these are prescribed.

4.2 Confidence Intervals

The confidence interval approach (also referred to as Value at Risk) expresses the risk margin in terms of the extra amount that would need to be added to the expected value so that the probability that the actual outcome will be less than the amount of the expected value plus the risk adjustment equals a target confidence interval.

The confidence level approach is probably most familiar to New Zealand actuaries in the context of general insurance. For general insurance financial reporting purposes, a risk margin is required in relation to outstanding claims reserves and in respect of future claims that might arise from the unexpired premium. The focus is very much on the uncertainty in future claims outgo and related claims expenses.

The calculation of risk adjustments for general insurance claims reserves is relatively complex and several papers have been written by Australian actuaries to provide guidance on how margins might be calculated. Despite this, the setting of GI risk margins tends to be relatively ad-hoc.

The risk adjustment in respect of a life insurance contract under the ED will need to cover not just claims risks but all risks to which the insurer is exposed in relation to an insurance portfolio – mortality, morbidity, lapse, and expense. In addition there is a need to consider how these risks might change over the lifetime of the contract. This adds extra complexity to the calculations that would be required.

Unless a probability distribution of some description determined for the full best estimate liability (expected present value of future expected cashflows), the overall risk margin will need to be determined using a bottom up approach by applying margins to each assumption. This presents particular difficulties in determining the underlying distribution of each assumption and any correlations between each.

With respect to claims distributions, it is usual to assume that the underlying distribution is log-normal or follows a normal power approximation, rather than normally distributed.

In addition there is a need to consider whether a single distribution can be used for each risk component eg. mortality, morbidity, lapse, or whether distributions are required to model separately such elements of risk as random volatility, uncertainty regarding the best estimate assumption, uncertainty regarding allowance for trends.

Whether, and how, to take into account diversification between risks is another factor that needs to be considered.

Whilst the confidence interval approach might seem relatively simple at first, there are definite complexities involved in applying it in practice.

Examples

The literature includes several examples of confidence interval approaches, although none are totally comprehensive. Again, I believe this illustrates the complexity of practical application.

The IAA Risk Margin Working Group paper (refer Appendix for reference) includes a comparison of the risk margins resulting from four different portfolios, of varying skewness, using the confidence interval and CTE approaches. Their results are reproduced below:

Risk margins at selected confidence levels: As a percentage of discounted current estimate

Coverage type	γ (skewness) & dist used	Percentage of discounted current estimate				
		Confidence level			CTE	
		65%	75%	90%	40%	75%
Product A - simple life product	0.2 (NP)	1.1%	2.0%	3.9%	1.9%	3.9%
Product B - motor 3rd party	0.4 (NP)	4.4%	8.5%	17.6%	8.4%	17.6%
Product C - "risky" liability	0.8 (NP)	7.1%	15.7%	35.7%	16.2%	33.9%
Product D - catastrophe cover	8 (LN)	-16.0%	15.1%	123.2%	51.7%	164.6%

NP = normal power approximation to compound Poisson distribution
LN = log-normal distribution

As can be seen, the risk margin increases with the skewness of the distribution and with the level of confidence. For extremely skewed distributions, the confidence interval approach breaks down.

The risk margins at 75% under a confidence interval approach are around half of those calculated using a CTE approach. The risk margins at a 40% under a CTE approach are similar to those at 75% using a confidence interval approach and at 75% are similar to those using a 90% confidence interval. This highlights the care that needs to be taken in selecting the percentage level.

Further examples of the application of both the quantile and cost of capital approaches are included in Appendix D of the IAA RWG paper.

The Bui and Cummings paper (refer Appendix for reference) sets out an example of how confidence intervals might be used to determine the random volatility aspect of mortality risk for a YRT contract. They observe that:

- Skewness increases the risk margin

- Small portfolio size adds to the risk margin

- The risk margin under a 75% probability of sufficiency is around a quarter to a third of that under a 99.5% probability of sufficiency.

Bui and Cummings go on to consider margins for uncertainty in the level of the best estimate assumption and trend uncertainty and then combine all these margins into one margin relating to mortality risk.

Setting the margin level/probability of sufficiency

One of the difficulties in applying the confidence interval approach (and the CTE) is in relation to determining the actual confidence interval to use. Unfortunately there is currently very little guidance on how this might be determined and it is acknowledged by many to be an area where further research is carried out.

In general, the following should be considered in setting the level of margin:

- The greater the uncertainty in the best estimate assumptions, the large should be the risk adjustment. Consideration should be given to the degree to which experience data is relevant, reliable and/or credible.

- Margins should reflect fluctuation in historical experience

- Changes in environment that might limit the applicability of past experience to future obligations would be another area of uncertainty

- The methodology to determine the margin level should be applied consistently.

It is likely that in the absence of robust guidance, implementation will rely heavily on judgement.

Pros of the Confidence Interval approach

- Easy to communicate
- Best suited to distributions which are not highly skewed and do not vary significantly over time

Cons of the Confidence Interval approach

- Hard to apply when probability distribution not statistically normal which is often the case for insurance contracts
- Difficult to apply to some risks/assumptions eg. expenses
- Requires judgment in setting the confidence level. In addition, the confidence level may need to vary over time.
- Difficulty in determining allowance that should be made for management actions that might mitigate risk eg. increases in premium rates or increases in expense charges
- Difficulty in determining whether and how to take into account diversification between risks.

In conclusion, the Confidence Interval approach appears to be reasonable in theory but is actually relatively complex in practice.

4.3 Conditional Tail Expectation

Under the Conditional Tail Expectation approach (CTE – also know as tail VAR) the risk margin is calculated as the expected value of the outcomes in the extreme of the distribution less the mean. Thus a 75% confidence level is the expected value of all outcomes that are in the highest 25% of the distribution.

It is most useful when more extreme events need to be considered.

The pros and cons of the CTE approach are largely similar to those of the confidence interval outlined above. Specific pros and cons are:

Pros of the CTE approach

- Provides a better reflection of the potential extremes than the confidence interval approach and is more appropriate to use when the underlying distribution is heavily skewed
- Particularly useful for insurance contracts with skewed payments – eg those with embedded options, interest guarantees, or covering low-frequency, high-severity risks, or where signification concentration of risk

Cons of the CTE approach

- However one of the practical issues is whether enough is actually known of the extremes of the underlying distribution of outcomes.

4.4 Cost of Capital

The rationale behind the cost of capital approach is that the insurer will need to hold a sufficient amount of capital (regardless of any regulatory requirement) to ensure that it can fulfil its obligation to policyholders. The risk adjustment then reflects the compensation the insurer will require for holding that capital.

The cost of capital approach is a top-down approach.

Under the cost of capital approach, the risk adjustment is calculated as follows:

1. Calculate the amount that the entity would need to hold with a high degree of certainty (say 99.5%) that the amount would be sufficient to cover its obligations to policyholders. Effectively this should capture nearly the entire tail of the distribution as per confidence interval approach.

2. The difference between the amount calculated and the expected value represents the capital required.

3. The risk adjustment is then calculated as the cost of holding the capital amount required in all future periods, and then discounted to the current period using the risk free rate of return.

Effectively the cost of capital approach measures the risk margin as the discounted value of the return required on the capital amount above the risk free rate.

For New Zealand insurers, the cost of capital approach could potentially provide a more straight forward approach to risk margins for life insurers than other techniques.

The calculation of the insurance risk capital charge proposed by the Reserve Bank of New Zealand in its draft solvency standard for life insurance business includes a calculation of a Solvency Best Estimate Liability, which could be considered to be the amount calculated in Step 1 above. The Solvency Best Estimate Liability is similar to the current PS 5.01 Solvency Liability which is generally recognised as being designed to cover a

combination of adverse circumstances that would be expected to arise once every 200 years, that is a 99.5% sufficiency. This would have clear advantages from a computational point of view.

There may be a need to consider any additional risks are present, but that would need to be done for solvency purposes as well.

Cost of capital charge

The cost of capital charge rate used in Step 3 above should only reflect the return demanded above the risk free rate, and should only include factors that are relevant to the uncertainty relating to the insurance contract itself. Risks unrelated to the insurance contract liability such as asset risks, mismatch risks and operational risks should not be allowed for in the cost of capital charge.

Under Solvency II and the Swiss Solvency Test, the capital charge rate is set by the regulator. In the IASB context, the charge will need to be determined by the insurer.

This area is one that is recognised for further research.

Pros of the Cost of Capital Approach

- Implicitly takes into account diversification
- Relatively easy to implement and calculate where economic capital models already exist
- Stability of calculation across reporting periods
- Consistent with how investors view the business

Cons of the Cost of Capital Approach

- Difficulties in determining an appropriate cost of capital to use
- Potential to be influenced by circumstances not relevant to general purpose financial reporting and measuring risk and uncertainty of particular portfolios of insurance contract only, particularly where reference is made to regulatory solvency capital
- Need to be able to calculate the capital amount at each future reporting date which adds to amount of required computation (potentially projections within a projection)
- No clear and transparent feedback on appropriateness of resulting margin
- Need to calibrate for disclosure to confidence interval probability of sufficiency

5   Use and view of risk margins internationally

As we might expect, international views with regard to risk adjustments are heavily skewed toward current reporting requirements.

Europe

The Cost of Capital approach is likely to be preferred in Europe due to Solvency II requirements. There have already been papers out of Europe, contrasting the requirements of the ED vs Solvency II, highlighting the areas of similarity. The cost of capital approach is noted as one of these. The European CRO Forum in particular has come out in favour of a cost of capital approach.

Australia

The Institute of Actuaries of Australia wrote a letter to the IASB in March 2010 voicing their concern regarding the proposed approach of the IASB and advocating for a view of the residual margin as a shock absorber.

They raised concerns similar to those outlined in section 3.2 regarding the interaction of the risk adjustment which is remeasured each period and the residual margin which is not and the risks of misuse and/or manipulation that this might lead to.

International Actuarial Association

The IAA Risk Margin Working Group (RWG) in their 2009 paper *Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins,* researched the issues involved in the measurement of insurance contract liabilities focusing on current estimates and risk margins, with a view to helping determine future practice in these areas for both general purposes financial reporting and regulatory purposes.

With regard to risk margins, the IAA RWG came to the following conclusions:

"The cost of capital method (without simplification) is the most risk sensitive and is the method most closely related to pricing risk in other industries. However, in part as a result, it is also more challenging to implement than other methods.

Within the quantile family of methods, CTE approaches are conceptually more sound than confidence interval approaches, with the difference being significant for products with more skewed risk distributions."

They also came up with a list of areas for further research, including:

- Setting parameters for the methodologies, including probabilities of sufficiency under quantile methods and the cost of capital under the Cost of Capital approach
- The basis for and methods of incorporating shape and time elements of risk measures
- Methods of incorporating risk perception and risk preference and changes in them in risk margin methods
- Exploration of methods other than those already explored to determining risk margins eg those using utility theory
- Consistency in setting risk margins gross of reinsurance, net of reinsurance and for the reinsured part of the liability
- Measurement of the effect of contract adaptability, discretionary benefits and asset/liability management on risk margins.
- The effect of risk concentrations on risk margins

- Guidance on the use of copulas for assessing diversification benefits in current estimates and risk margins

FASB – US

As noted previously, the FASB voted in favour of a composite margin approach rather than an explicit risk margin. This is one of the key differences between the FASB and IASB proposals. If this difference eventuates it will significantly affect the comparability of results across jurisdictions.

6 The Future – will it be perilous?

Submissions on the IASB Exposure Draft are due by 30 November 2010. It is likely that the IASB will move quickly on a final standard for insurance contracts following that date. There are a number of IASB board members due to move off the board in 2011 and there is little appetite to go over the complexity of the issues involved in accounting for insurance contracts with a new group of board members.

Unless there is a clear steer away from the explicit risk adjustment in submissions on the Exposure Draft, it is highly likely that the risk margin will be a part of the new methodology for accounting for insurance contracts. I noted above, that submissions on the IASB's discussion paper were largely supportive of an adjustment for risk.

It has been acknowledged in much of the literature that research and guidance is lacking in respect of many aspects of the setting of risk adjustments and this will no doubt result in a flurry of activity should the IASB confirm the explicit risk margin as a key building block in its measurement approach.

In Europe, there would likely be a great deal of movement toward using a Cost of Capital approach, leveraging off Solvency II and this will no doubt feature in European submissions.

So what are the likely implications for New Zealand insurers?

In considering the allowable techniques for calculating the risk adjustment, there would be clear benefits from being able to use a cost of capital approach based on components of the regulatory capital calculation that insurers will already need to determine. This would also have the advantage that financial reporting, solvency and embedded value calculations could all be determined within the same model.

There may be implications for company structures. For example, a service company approach could be used to limit expense risk, in addition to mitigating any unfavourable impacts from acquisition expenses.

Will it be perilous? Yes I believe so. The risk adjustment is a significant component of the ED methodology due to its potential to impact the emergence on profit, yet its calculation is complex and subject to a reasonable amount of judgment. This is in an area of actuarial thinking that is still only really emerging.

Appendix – Key References

There is a reasonable amount of information that has been compiled relating to the measurement of risk in the context of life insurance. The following is a list of the key papers that I referred to:

1. **PricewaterhouseCoopers (Rubin L, Ranson N and Shi X),** *Analysis of Methods for Determining Margins for Uncertainty under a Principle-Based Framework for Life Insurance and Annuity Products***, Society of Actuaries 2009**

   http://www.soa.org/research/research-projects/life-insurance/research-analysis-framework-life-annuity.aspx

   This paper is the result of a Society of Actuaries research project to identify and compare methods for determining margins for uncertainty under a principle based framework proposed in the US for the statutory financial reporting of insurance contracts. The review was intended to be based on both existing literature and original research. The paper has an extensive reference list.

2. **IAA Risk Margin Working Group,** *Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins***, International Actuarial Association**

   http://www.actuaries.org/LIBRARY/Papers/IAA_Measurement_of_Liabilities_2009-public.pdf

   This paper is the result of research by the IAA risk margin working group into the issues involved in the measurement of insurance contract liabilities. It focuses in particular on measuring current estimates and risk margins, with a view to helping determine future practice in these areas for both general purposes financial reporting and regulatory purposes.

3. **Bui, H and Cummings B,** *Risk margins for Life Insurers***, Institute of Actuaries of Australia Financial Services Forum May 2008**

4. **IASB References**

   Exposure Draft ED/2010/8 *Insurance Contracts*, July 2010

   Basis for Conclusions – Exposure Draft ED/2010/8 *Insurance Contracts*, July 2010

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