Sessional Research Discussion Meeting – 26 March 2012

Staple Inn Hall, London

Solvency II Technical Provisions – What Actuaries will be doing differently?

Here are four areas that we would like to discuss in the order we would like to address them. In places we have been deliberately controversial to stimulate discussion.

Premium provision

One approach to calculating the gross premium provision is to use a loss ratio multiplied by the unearned premium to derive an undiscounted ultimate; apply a claims payment pattern; add expense cashflows; deduct future premium cashflows and discount everything back to the valuation date. There are two key assumptions here: the loss ratio and the cashflow pattern. Other assumptions include future expense amounts (potentially expense ratio and accrual pattern), assessment of premium received to date relative to earned premium (including consideration of agent balances and bad debts, etc.) and premium amounts to be received in the future (and pattern).

How should the loss ratio be derived? At face value, this may seem to be a simple question. However, it is simply not enough to project forward last year's loss ratio. One should allow for changes in premium rates and in the risk mix – not necessary if you are working at a very granular level, but for most of us risk mix changes are a very real concern. One could use plan loss ratios or pricing loss ratios. Perhaps, but remember that the premium provision loss ratio only applies to the obligated business, and assuming that the company is continuing to write business, the plan loss ratio may be "off" as it allows for future business and future changes in risk mix. Also, the plan loss ratio may be prudent, or based on "stretch" targets, and it may not be the entity's best estimate, but influenced by external factors, such as Lloyd's SBF requirements. Pricing loss ratios are also likely to be "off" unless all of your obligated business can be said to be from the same cohort. There is also the very real question as to whether pricing should feed into reserving at all. We will, however, need to be able to justify our assumption relative to other assumptions such as these already used by the business.

For those entities that reserve on an accident year basis, cash flow patterns for the premium provision may not be readily available. Does this mean that we are all going to have to reserve paid claims on an underwriting basis? Alternatively is it sufficient to estimate of future premium provision cash flows based on an average accident date from unearned balances and interpolation from an AY pattern?

There are many practical issues that crop up related to premium provision:

1. Accounting Data: Ensuring consistency between accounting data and premium provision, overcoming granularity and allocation challenges.

2. Credit control systems: Ensuring consistency between premium provision and creditors and debtors, dealing with funds sitting in clearing accounts.

3. Outstanding premiums: Splitting into earned and unearned.

4. Seasonality influences: e.g. due to concentrations of policy start dates

5. Expenses: Who owns the assumptions, granularity issues and validation. Is the data sufficient for Solvency II?

6. Ensuring consistency between reinsurance creditors and credit for reinsurance and lack of sufficiently granular reinsurance data.

Usually Finance departments are responsible for most of these. We have observed that traditionally Finance and Actuarial function use data differently. Does the data exist in the form that we, the actuaries, need it? To what extent are we, as actuaries, happy to rely on our Finance colleagues for assumptions/inputs into SII numbers for which we will be responsible? Are we and our Finance colleagues "on the same page" when it comes to SII?

Binary events

There appears to be a lot of uncertainty over the definition of a binary event. For the purpose of Solvency II technical provisions, we, on the working party, define a binary events loading as the balancing item between the true best estimate reserves and the best estimate as currently understood. As the "best estimate as currently understood" differs between companies, so will what is included in the binary events "bucket". For example, some entities may include in their best estimate an allowance for future changes in the Ogden discount rate, so, provided that allowance is a probability weighted best estimate, they will not need to allow for Ogden changes in their binary events loading.

The term "binary events" has been subject to some criticism. However, it is useful in one aspect – it reminds us that we are required to consider both unusual positive as well as negative events.

Having agreed a definition, there are various approaches to deriving a binary events loading. Is a truncated distribution appropriate, or is this simply too subjective – especially as regards the selection of a cut-off point? Is a scenario based approach likely to be too pessimistic, given a tendency to focus on potential negative outcomes and ignore the possible positives? Is it possible or practical to link binary events to the treatment of emerging risks?

We will often need different binary event loadings for premium provision, because of the additional exposure to future events, such as cats that tend to be reported quickly. There is an argument that, unless we are very careful, we could end up double-counting if we use a loss ratio to set our premium provision: it depends what is included in that loss ratio.

Finally, does the loading for binary events present an opportunity for insurers to apply a "back-door" loading to the technical provisions and reduce the probability of a negative run-off in the technical provisions. Why shouldn't we be doing this?

Validation

We are required to carry out back-testing and to validate our technical provisions. As a profession, we ought to have a view as to how much validation is enough, and who should be carrying it out? Is it acceptable for a reserving actuary to validate his own figures, or should there be an independent third party? Does an independent review of Technical Provisions by a third party (and the corresponding discussions that follow) satisfy the requirement? If so, what does the scope of the independent review need to be? Should validation be based on rules, set according to ranges based on methods like bootstrapping, or is a more subjective assessment of the methodology and assumptions used acceptable or preferable?

Here is an expanded list of questions that we have been considering:

Validation of Data

1. Data ought to tie back to the audited figures. How close is close enough?

2. Can we rely on a third party to validate data?

Validation of Methods and Assumptions

1. Documentation of assumptions and basis for assumptions: How different does this need to be from current actuarial reporting that is compliant with actuarial standards?

2. Back-testing: Introduction of a framework to assess actual accruals relative to expectations (based on distributions) on a granular basis (i.e. reserve segment). Assessment on an aggregate basis (i.e. Company total), and levels in between granular and aggregate (i.e. Solvency II segmentation, all Property, all Motor, etc.) require correlation assumptions. How sophisticated need this be? Are we devoting enough resources to it?

3. Sensitivity Tests: How different should sensitivity testing be from current practice compliant with actuarial standards?

4. Scenario Tests: Do we need these for TPs?

5. P&L Attribution Tests: Is this relevant to for TPs?

How does one validate expert judgement or a binary events loading?

Governance considerations

1. Responsible person, position, or department: Is validation within the same department, ie with the validator reporting to the person ultimately responsible for the TPs, sufficient?

2. Requirements for documentation

3. Requirements for peer review

4. Frequency of validation

5. Escalation

Reinsurance

Solvency II requires companies to estimate their gross provisions and reinsurance provisions separately. Currently net:gross ratios are widely used to derive net from gross reserves for reporting purposes. But where a company has significant non-proportional reinsurance, is this approach acceptable for Solvency II, or indeed has net:gross had its day across the board?

Solvency II Technical Provisions are on a cash flow basis. We know cash flows can be more challenging than you think BUT reinsurance cashflows add new dimensions of complexity. One should consider gross cashflows and then allow for settlement delays, possible disputes, performance related commissions or adjustment premiums and possible defaults - which could be dependent on the timing of payments, the size of losses and underlying losses, especially for large losses and binary events. There are then further considerations of items such as PPOs, where the claim may pay out for several years before the reinsurance recoveries kick-in.

Common approaches can be to assume the reinsurance patterns are a simple lag or stretch from the gross and then apply a simple bad debt percentage. Are these really adequate in all cases? Are these adequate in any cases?

Given the non-proportionality, complexity and possible dependencies in the cashflows, does this mean that in reality stochastic methods are the only way to tackle to problem?

Consistency with the internal model for reinsurance (and reinsurance bad debt) is a particular challenge but this seems an area where the SII requirements could easily drive real world benefits for firms.