Objectives for today’s session

- “I have learnt something today”
- “I could do with thinking more about that”
Agenda

1. Introduction
2. Binary events
3. Consistency
4. Validation
5. Process
6. Communication

The working party

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Objectives
- Education/raising awareness
- Helpful insight, suggested approaches, considerations including examples
- ...but NOT guidance

Current work, future plans
- Presentations: Reserving seminar, GIRO
- Paper
Why care?

- The Technical Provisions are a key part of the Solvency Balance sheet
- ...and a key input into the SCR calculation
- The Solvency Balance Sheet is a key determinant of the (re)insurer’s freedom to act
- You don’t want to upset your regulator!

The requirements

In brief….

- Article 76: “The value of technical provisions shall correspond to the current amount insurance and reinsurance undertakings would have to pay if they were to transfer their insurance and reinsurance obligations immediately to another insurance or reinsurance undertaking”
- Article 77(1): “The value of the technical provisions shall be equal to the sum of a best estimate and a risk margin…”
- Article 77(2): “The calculation of the best estimate shall be based upon up-to-date and credible information and realistic assumptions and be performed using adequate, applicable and relevant actuarial and statistical methods.”
The calculation: its constituent parts

**Claims provision**
- Claims outstanding + IBNR + Expenses – O/s premiums
- Relating to claims occurring before the valuation date
- Discounted at a “risk free rate”

**Premium provision**
- Projected future claims + Expenses – Future premiums receivable
- Claims and expenses relating to future exposure to which the insurer is committed
- Discounted at a “risk free rate”

**Risk margin**
- In theory, the additional amount a willing party would require to accept a transfer of the liabilities
- Cost of capital approach
- % Future SCR discounted back

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Gross and Reinsurance provisions calculated separately
Cash flow basis: no deferral or accruals

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Areas impacted by the Solvency II requirements

- Documentation
- Expenses
- Contract Boundaries
- Segmentation
- Data
- Lapses
- Guidance
- Premium Provisions
- “What is changing?”
- IFRS
- Actuarial Function
- Discounting
- Expected counterparty default
- “Best estimate”
- Binary Events
- Validation
- Risk Margins

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Binary Events

What is a Binary Event?
- Context: SII Technical Provisions are the sum of a best estimate and a risk margin
- A best estimate is the average of all possible scenarios
- This differs from the GAAP/IFRS requirement to reserve for the "reasonably foreseeable"
- The binary events loading essentially covers the "gap" between reserves based solely on historical data and "all possible scenarios"
- Need to allow for both beneficial and detrimental outcomes: hence the term "binary"
- Essential to tailor to each insurance entity
Binary Events
What is a binary event: Examples

<table>
<thead>
<tr>
<th>Not just</th>
<th>Also</th>
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<tbody>
<tr>
<td><strong>Health</strong></td>
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<tr>
<td>Nanotechnology</td>
<td>Big freeze</td>
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<td>Aspartame</td>
<td>Minor earthquakes</td>
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<td>Electro magnetic fields</td>
<td>Higher than expected inflation</td>
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<td>GM crops</td>
<td>Ogden changes (if not already allowed for)</td>
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<td>Nuclear waste</td>
<td>Economic downturn</td>
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<td></td>
<td>Cat loadings (possibly)</td>
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<td><strong>Events</strong></td>
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<tr>
<td>Meteor strike</td>
<td>Anything not already allowed for in your “best estimate” that could happen</td>
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<tr>
<td>Mega Volcanoes</td>
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<tr>
<td><strong>Social Environmental</strong></td>
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<tr>
<td>Global warming</td>
<td>Binary events: Both the bad stuff and potentially favourable outcomes</td>
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<tr>
<td>Polluters</td>
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<tr>
<td><strong>Legislative/Political</strong></td>
<td></td>
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<td>“Step change” in court rulings</td>
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<td>“the greater good” e.g. asbestos, US Healthcare</td>
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<tr>
<td><strong>Other</strong></td>
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<tr>
<td>Contract wording etc</td>
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</table>

Guidance

- Directive & EIOPA – best estimate is a weighted average of all possible scenarios, but a proportionate application is required
- Lloyd’s – suggested method based on comparison of means of full and truncated distributions, states method sensitive to assumptions and difficult to validate
- QIS 5 – may implicitly allow for all possible scenarios, e.g. by use of chain ladder
- Concern from firms over limitations of guidance

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Binary Events

How are firms calculating a loading?

• Methods still being developed
• No consensus
• Assessing probability and severity of representative scenarios
• Truncated distributions
• Apply as percentage load

Binary events
Truncated distribution approach

• Need a distribution of reserves or ultimates (could be based on market data)
  – and then make ONE key assumption (the truncation point)

1. Calculate the estimated mean using data available and assume distribution.
2. Calculate the mean of the "full" distribution assuming truncated at the 99.5th.
3. Uplift is the ratio of truncated to "true" mean.
Binary events

Thoughts

- Truncated distribution alone has lots of drawbacks:
  - Needs a lot of data
  - Very subjective, in particular the selection of the cut-off point
  - Tricky maths
  - Spurious accuracy?
- Judgement will be key
- Loadings should vary by class

Binary events

Possible approach

- Truncated distribution where the data is available
- Scenario approach: workshops – what might we be exposed to
- Consistency with risk logs, reverse stress testing, etc
- Documentation and justification is key
- Relativities area obvious area to challenge
Technical Provisions
Binary Events

What we've heard
• Lloyd's guidance refers to indicative range 2%-5%
• Comments from firms that analysis is producing lower uplifts
• Some firms using zero uplift as existing methods allow for range of outcomes

Other considerations
• Could the Binary Events load be used as a contingency margin?
• Transparency limits this risk
• Isn't this something that should be allowed for in the capital model?
• Is this a UK issue?
• Should be a consensus over time
Consistency with internal model

- The technical provisions must be consistent with the internal model (article 121).
- The internal model must be used within the business (article 120)

- US reporting
- Finance
- Planning team
- Management and the business

Technical provisions
Internal model

Must be consistent

Best estimate (mean) future expectations

Must be used
Consistency with the internal model

- One of the areas where the interaction between the technical provisions calculation and the rest of the business is particularly critical is the assumptions around future business profitability and the associated reinsurance recoveries (i.e., the estimation of net premium provisions).
- Two common approaches are shown below (simplified).

<table>
<thead>
<tr>
<th>Underlying assumptions</th>
<th>Internal model</th>
<th>Technical provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal model</td>
<td>Internal model</td>
<td>Technical provisions</td>
</tr>
<tr>
<td>Consistency checked/imposed</td>
<td></td>
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</tbody>
</table>

Both approaches have strengths and weaknesses:

- **Advantages**
  - Guarantees consistency
  - True to SII principles
  - Parallel working to increase speed

- **Disadvantages**
  - Some technical challenges
  - Unclear ownership of assumptions
  - Can lead to inconsistent estimates and implicit assumptions
  - Extra effort required to demonstrate consistency

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Consistency – over to you

- List which areas/items need to be consistent, and between what functions.

- And what happens if there are inconsistencies?

Consistency with the internal model – How consistent?

How consistent is consistent enough?
How will you deal with disagreements
How to measure consistency?
  - By impact on technical provisions
  - By impact on SCR
  - By impact on use test
Output consistency versus input
ESGs will likely cause inconsistencies
How much effort is required/expected to demonstrate consistency?
What do we mean by validation of the technical provisions?

How the industry’s thinking has developed

- Initial concerns regarding Solvency II requirements focussed on justification and documentation of the methods and assumptions.
- The focus then shifted to how much validation is required for the additional Solvency II approaches/assumptions.
- Some insurers are now starting to think about the over-arching governance and independence challenges.
Validation of the technical provisions

- From the latest Level II:
  - Insurance and reinsurance undertakings shall validate the calculation of technical provisions at least once a year.
  - .......Insurance and reinsurance undertakings are able to explain and justify each of these assumptions. Insurance and reinsurance undertakings establish and maintain a written explanation of the methodology used to set the assumptions used.
  - .......monitor, justify and document the changes of assumptions from one period to another.

- Speech by Julian Adams (19 April 2012):
  - "........we will be making use of outside parties ........in the review of technical provisions ..........Whilst not technically part of the internal model requirements, we believe that it would not be possible for us to approve a model without being satisfied as to the accuracy of the underlying balance sheet.............we will be expecting a form of external review to be carried out on the technical provisions of all internal model firms prior to our approval of their model”

Validation – how high is the bar?

Validation under Solvency II has often interpreted as enforcement of what was already best-practice.

Will this be the regulators’ interpretation?

We have seen:
- More focus on independent validation / assurance
- Little change in structure / governance

Is this enough?
Where does the actuarial function fit in?

- The technical provisions must be consistent with the internal model (article 121).
- The internal model must be used within the business (article 120).
- Actuarial function shall ... assess the sufficiency of technical provisions ...(Level II)

Process
The old way

May will be a linear process with occasional feedback loops from management to the actuary.
The actuary may have limited involvement in management adjustments.
**Process – under Solvency II**

No longer a linear process
The actuary will need to be involved throughout

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**Communication**
Communication

- Communication is a two-way process
- Who do we need to communicate to?
- Why is that communication different from the pre-SII world?

Communication Exercise

- With whom do we need to communicate?
- How will that communication be different from the pre-SII world?
Communication Planning

Stage 1: high level communication
- This should start now, if you haven’t already
- General education of key changes to the TP under SII
- Consider the most effective methods of communication to get message across clearly
- Stakeholders - who needs to know?
- Highlight how it impacts them

Stage 2: general principles
- More detailed description of suggested approaches to take
- Highlight pitfalls, issues, things to consider
- Tailor for main stakeholders/situations
- Consider wider audience (not in detail)
- Simple worked examples of key common concepts that can be used as additional tools for communication (depending on outputs of other workstreams)

Communication Planning

Scope
- Who do we need to communicate to?
  - What information is needed for each?
  - What are the key issues for them?
  - What decisions will they make as a result?
- Any impact from introduction of Actuarial function?
- Form of communication: reports, meetings, etc
- Plans, timing
- Documentation
Communication Planning

Scope - Areas to communicate:

• Change to overall approach
  – role to educate wider group of stakeholders
• Context:
  • Why they need to know about this
  • How this fits into the wider SII
• How the SII TPs differ from other reserves provisions
  • Impact of those differences e.g. increased volatility
• What you need from them and when: plans

Communications

Next steps

References to consider:

• SII requirements
• TAS-R, TAS-M, TAS-I
• Lloyds guidance on technical provisions under SII
• Existing reporting packs
Communication - Tools
From GAAP/IFRS to Solvency II

Type of risk:
- Removal of UPR
- 100% of unearned written premiums
- ULAE on earned claims
- BI Bad Debt on Earned Claims Reserve
- Exact Claims Reserve

The calculation: its constituent parts

Claims provision
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Gross and Reinsurance provisions calculated separately
Cash flow basis: no deferral or accruals
Questions or comments?

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged. The views expressed in this presentation are those of the presenter.