GIRO Conference and Exhibition 2012
Juggling uncertainty the actuary’s part to play

Towards optimal reserving: best practice in the new world
Neil Bruce
Agenda and scope

• Caveats!
• Working party aims
• Trending requirements
• Granularity is king
• Mapping of regulatory bases
• Organizational issues and dependencies
• Example “hints”
• Discussion/opinions

Caveats

• This presentation is based on my personal views
• I do not pretend to know all (or even any of) the answers
• Much of this may be general knowledge
• This work is aiming to provide a baseline of knowledge
• Regulations and “acceptable” methods/structures will vary by company and regulator.
Working party aims

- This presentation is part of “Securing the baseline” under ROC
- This working title for this year is “Towards the optimal reserving process”
- This work is aiming to provide a baseline of knowledge for all GI actuaries (and to some extent their stakeholders)
- The scope of the WP has the potential to be enormous (reserving function procedure manual)
- Hence we’re aiming to cover issues at a relevant level of detail, which will be more granular where we think guidance is valuable.

Trending requirements

How did we get here?

1980’s – Lloyd’s SAO

SLTF/ CRTF

Underwriting year ultimates

Open year certificates

Actuarial processes were a new feature.
Trending requirements
How did we get here?

1990’s – GAAP reserving

Actuarial processes were developing to include accounting concepts.

2000’s – US/UK GAAP reserving and IFRS

Increase in international reporting and evolving of IFRS standards.
Trending requirements
How did we get here?

Mid-2000’s – Additional reporting, ICA

<table>
<thead>
<tr>
<th></th>
<th>IFRS</th>
<th>Planning assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve volatility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLTF/ CRTF</td>
<td>UY ultimates</td>
<td>Earned/ unearned</td>
</tr>
<tr>
<td>US GAAP</td>
<td>UK GAAP</td>
<td>Bad debt</td>
</tr>
<tr>
<td></td>
<td>URR</td>
<td>MI</td>
</tr>
<tr>
<td></td>
<td>ULAE</td>
<td></td>
</tr>
</tbody>
</table>

Planning and capital modelling use reserving outputs and analyses.

Now/soon – Additional regulatory reporting, SII, enhanced MI

<table>
<thead>
<tr>
<th></th>
<th>Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SCR inputs</td>
</tr>
<tr>
<td>Made in Canada</td>
<td>IFRS</td>
</tr>
<tr>
<td>Backtesting</td>
<td>Planning assumptions</td>
</tr>
<tr>
<td>US GAAP</td>
<td>UY ultimates</td>
</tr>
<tr>
<td></td>
<td>TPs</td>
</tr>
<tr>
<td></td>
<td>Different groupings/policies</td>
</tr>
<tr>
<td></td>
<td>URR</td>
</tr>
<tr>
<td></td>
<td>MI</td>
</tr>
<tr>
<td></td>
<td>URA</td>
</tr>
<tr>
<td></td>
<td>MI</td>
</tr>
<tr>
<td></td>
<td>ULAE</td>
</tr>
</tbody>
</table>

Different bases and analyses introduced.
Reserving process and outputs
A more structured view:

Is there a better way?

Reporting has mushroomed over a short space of time

- Actuarial resources have increased, but potentially not fast enough
- IT capabilities and resources have increased, but potentially piecemeal rather than strategically
- Changes to procedures may have been “bolted on” to meet what was a “non-core” additional piece of work
- Higher level of scrutiny and increased documentation requirements make the analysis process slower.
Granularity is king!

Ground up analysis of reporting requirements

• Worth looking at the requirements from each source and assessing what level of detail is needed
• The frequency of each request is important as well
• Are there similar analyses on slightly different bases and/or frequencies?
• Where can approximations be used/justified to convert from core processes to ancillary exhibits and reports?
• Where timing conflicts occur, can AvE or other roll-forward processes be implemented?
• Can documentation be used to streamline the review processes and avoid duplication?

Possible vs. practical

Uncertainty can help!

• Managing user expectations of volatility on particular exercises allows targeting of resources:

  - Quarterly reserving +/- $10m total
  - Plan ULR +/- 1% by class
  - Detailed work (Semi)-annually
  - Detailed work annually
  - Use high level AvE as base
  - Concentrate on emerging issues
  - Monthly update for actual rate
  - Focus on new actions: Ad hoc timing
Possible vs. practical

Balance detail and importance

- Be open in the level of accuracy expected in (ancillary) processes and get buy-in from the users of the output.
- Be prepared to use (and justify the use of) risk-based metrics to target resources for some/all exercises.
- Ensure all outputs are reviewed to a detail and frequency that is appropriate, rather than aiming for the impossible.
- Use TAS R to your benefit! Aggregate reports can refer to standard methodology descriptions.
- If possible, automate.

Mapping of regulatory bases

How do regulatory bases interact?

Underwriting year plan
- Bound policies
- Premium collected
- Incepted policies
- Earned claims
- Reported claims
- Future claims
- Future premium
- Risk margin

GAAP
- Claims prov (discounted)

Underwriting Year
- Prem prov (discounted)
- Risk margin (discounted)

Can you design the core process to give this split naturally?
Mapping of regulatory bases
Linking of assumptions

Aim: to indicate where efficiencies can be gained

Trust fund earned reserves
GAAP earned reserves
TP claims provision

Development patterns
UY ultimates
Split: IBNER/ IBNR by loss
Planning process
Allocation of IBNR

A v E calculation
Risk based reserving
Backtesting
MI on trends and approximate earnings
Future claims
Projected Reserves

RI IBNR
TP premium provision
Bad debt
SCR calculation

Organizational issues
Data flows

• Data required from:
  – Finance (Earned premium, expenses)
  – Ceded Re (Proposed programmes)
  – Risk (Risk Margin calculation)
  – Capital team (complex recoveries, allocations, AFR)
  – Management (plan)

• Data required by:
  – Finance (reserves)
  – Ceded Re (analysis of proposed RI, commutations, RI IBNR)
  – Risk (risk register)
  – Capital team (reserve volatility etc)
  – Management (Statutory reports, MI)

Data flows work on both directions, so should be controlled as a whole process
Not piecemeal!
Organizational issues

Principles

• **Rationalise** process for collection and provision of data

• **Educate** department (heads) as to the extent of the connections

• Consider “external” sources in the same way as the internal reserving process:
  – smoother process flows
  – **better appreciation of the whole picture** (both for the reserving and other departments)

Helpful hints (1)

Documentation

• **Tiering** of documentation to avoid repetition:
  – policy (aims of the process) – infrequently amended
  – process/methodology – how the process is carried out, with guidelines as to which method to use when etc.
  – link to MI – such as A v. E analyses to provide additional information (component report)

• Use “notes” during the reserving selection process for documentation of specific selections (Excel or reserving software packages)

• **Report** is used to fill in specifics of deviations from standard procedure and concentrate on current issues and changes of assumptions.
Helpful hints (2)
Binary events

• Within the reserving process this can be approached in many ways
• Use of catastrophe models to give indications of tail-shape for known perils, which could be applied to less well known perils
• Loadings for “unknown unknowns”: zero is wrong!
• Modelling within the SCR: choosing a frequency limit in excess of the capital measure makes life easier.

Helpful hints (3)
Reserving process efficiencies

• Use of databases as the core reserving system:
  – Level of detail required is increasing volumes of data
  – Judgement is always required at some points in the process(!)
  – Use of standard process to provide a “first-cut” can help concentrate resources on areas of concern
  – Assists in storing many assumptions in a easy-to-extract format, which can be useful for e.g. deriving capital model inputs.
Helpful hints (4)
Presentation of results

- Gaining buy-in from underwriters/management:
  - Allow alternative views to be captured in the report
  - Provide back-testing information to a wide audience
  - Use graphical exhibits to highlight issues on particular lines (rather than all lines).
- When discussing it regular MI, refer to the implied reserving effect to emphasise the importance of the reserving process.
- Similarly, tie reserving results into indications for effects on plan ULRs etc.

Discussion

- Does this work look useful?
- Are there any areas in particular that are/would be useful, even if not mentioned here?
- What other ideas do you have to make life easier?
- War stories
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.