GIRO Convention

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Hilton Sorrento Palace

Questioning the Black Box:
Results and discussion from the Deloitte Reserving Process survey

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Agenda

Introduction

Reserving Process Survey Results:

- Sample Analysis
- Process Timeframes
- Data
- Reserving Analysis
- Reserve Uncertainty
- Controls
- Wider Issues
- Rate Monitoring
- Looking to the future
- Challenges and Drivers

Best Practice (covered in workshop)
Further discussion
Reserving Process Survey
Sample Analysis
Sample analysis

Split of sample insurers by category of insurer, number of actuaries employed and spread of actuarial role across the company

Category of insurer?

- London Market, 41%
- Multi Line, 35%
- Mutual, 6%
- Personal Lines, 18%

How many actuaries in your company?

- 1 to 5: 29%
- 6 to 10: 18%
- 11 to 20: 24%
- Over 20: 29%

Are your actuaries cross-functional or single function?

- Single function: 59%
- Cross functional: 41%

Majority of respondents

- Good mix of respondents by type of company
- Wide range of size of actuarial team
  - Some plan to expand their teams further
- 2 main types of actuarial team structure
Reserving Process Survey
Process Timeframes
Approximately how many elapsed days does it take for the following elements of the reserving process?

**Key Messages**
- Average number of days to complete reserving process is 23
- Wide variation in reserve review duration
- General consensus on necessity of producing results more quickly

**Symptoms**
- Material data delays caused by:
  - Legacy systems
  - Multiple data systems
  - Overcomplicated process
- Insufficient automation
- Analysis can consist of business plan estimates as well as reserving

Horizontal bar indicates mean time elapsed
Reserving Process Survey
Data
PROCESS REVIEW SURVEY – Data

Which issue most concerns you in relation to the data used for reserving?

- Reserving data not accurately reflecting underlying claims: 41%
- Time taken to generate data: 24%
- Lack of detailed claims data (transactional basis, heads of claim): 18%
- Allocation of RI to LoB: 6%
- Insufficient split of data between attritional, large claim and cat losses: 6%
- No major concern: 6%

Which is the main area in relation to data management / processing you would like to see improved?

- Improved automation for processing / manipulating data: 35%
- Streamlining the number of data systems: 18%
- Obtaining transactional level / heads of claims data: 12%
- Revisiting reserving class structure: 12%
- Data Quality: 6%
- Nothing: 18%

- Variety of reasons why data may not be appropriate for reserving purposes: errors, processing delays
- SII will demand a high level of data quality and relevance for parameterisation of internal models
- Transactional level data is a recurring theme
- Improvement of data manipulation → greater time for analysis
- Demonstrating value for system streamlining is a challenge
- Political factors often influence large scale changes
Reserving Process Survey
Analysis
Between legal entities, business units, departments and classes of business, what efforts does your company make towards keeping analytical processes similar where appropriate?

- Standard internal peer review
- Standardised templates
- Defined default methodologies (e.g. reserving software / models)
- External peer review
- Defined default assumptions (e.g. inflation)

- Default assumptions, methods and external review may become more important in the future with SII
- Wide reliance on judgement and challenge
- Demonstration of adherence to process will be key
- Greatest difficulty appears to be deciding on standard default assumptions

**Graph: % Responses**
- Standard internal peer review: 94%
- Standardised templates: 88%
- Defined default methodologies (e.g. models): 71%
- External peer review: 53%
- Defined default assumptions (e.g. inflation): 41%
PROCESS REVIEW SURVEY – Analysis

For what percentage of gross reserves are non standard, ad hoc analyses performed outside of the main reserving software?

Key Messages
- All respondents performed analysis for attritional claims in dedicated reserving software.
- Non-standard analyses
  - Tend to be performed in ad hoc analysis spreadsheets
  - Greater risk of lack of transparency/ errors/ key man risk

Warnings
- Non standard analysis is often less well documented even though it can be material and pose significantly more uncertainty
- Need to ensure sufficient expertise within business to provide appropriate level of challenge to estimates

<table>
<thead>
<tr>
<th>Percentage of Gross Reserves</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>71%</td>
</tr>
<tr>
<td>1 – 20%</td>
<td>29%</td>
</tr>
<tr>
<td>21 – 40%</td>
<td>0%</td>
</tr>
<tr>
<td>41 – 60%</td>
<td>1 – 20%</td>
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<tr>
<td>Over 60% of reserves</td>
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Reserving Process Survey
Reserve Uncertainty
PROCESS REVIEW SURVEY – Reserve Uncertainty

Which methods do you use to quantify uncertainty?

- Bootstrap: 76%
- Scenario testing: 59%
- Mack Method: 41%
- Other: 18%
- Sensitivity testing of assumptions: 18%
- Multiples of best estimate reserve: 6%

Number of Participants using at least 3 separate methods: 29%

Have you made any allowance for ROC’s “bootstrap shortfall” findings?

- Yes: 67%
- No: 33%

- Significant use of Bootstrap as a reserve uncertainty method
- Only ~30% use 3 or more different methods
- Use of sensitivity testing appears relatively low

- Despite large usage of bootstrap method, very few explicit allowances have been made for its shortfalls
- Sense check based on scenario testing
- Making sure allowances can be clearly communicated
- This will need to be addressed
**PROCESS REVIEW SURVEY – Reserve Uncertainty**

Is the reserve risk within your capital modelling consistent with any reserving uncertainty work carried out by the reserving actuaries?

- **Key Messages**
  - Often joint ownership between reserving and capital
  - Move towards reserving ownership
    - Cross-functional roles
  - Reserving actuaries may not do any uncertainty analysis at all

- **Pitfalls**
  - Responsibilities need to be well defined if joint ownership

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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<td>71%</td>
<td>29%</td>
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Reserving Process Survey

Controls
How would you rate the level of (peer) review of reserving assumptions and judgements?

- Non-existent
- Ad hoc and not well documented
- Ad hoc and well documented
- Pre-defined elements to consider but not well documented
- Pre-defined elements and well documented

![Pie chart showing the distribution of responses]

- Ad-hoc freedom preferred
- Regulatory framework important
  - SII and SOX tend to favour a prescriptive approach
- Documentation reducing with seniority
- Documentation means
  - Templates
  - Reports
  - Meeting notes
- Tied to number of review loops

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PROCESS REVIEW SURVEY – Controls

How would you rate the level of documentation that exists around key assumptions and judgements?

Key Messages
- Level of documentation generally high
- Conflicting views on the suitability of this
- SOX compliance generally requires high level of mechanical documentation

Pitfalls
- The level of documentation needs to be appropriate to the
  - Materiality
  - Risk
  - Regulatory environment
  - Business needs
PROCESS REVIEW SURVEY – Controls

How transparent is the audit trail from the booked reserves in your balance sheet to your actuarial best estimates?

- Not transparent - no clear mapping from the booked reserves to the actuarial best estimates
- Some transparency - mapping from booked reserve to best estimate at an aggregate level only
- Fairly transparent - clear mapping by class from booked reserve to best estimate, no clear rationale for the allocation of margin between classes
- Very transparent - clear mapping by class from booked reserve to best estimate, with a clear rationale for the allocation of margin between classes

- Ownership between finance and actuarial
- Adjustments challenged?
  - Actuarial
  - Finance
  - Reserve committees
- Explicit margins increasingly important

64%
24%
6%
6%
Reserving Process Survey
Wider Issues
PROCESS REVIEW SURVEY – Wider Issues

Do you make use of any additional reserving methodologies specifically to allow for reserve cycle effects?

- Yes
- No

- Lots of interest
- Very little quantitative adjustment for soft market
- Particularly relevant given current market conditions
- Judgemental adjustments will be hard to justify and document

Pie chart showing:
- 76% Yes
- 24% No
In relation to Solvency II, do you currently have a process in place to generate:

- General reinsurance bad debt provisions
- Cashflows for claim payments
- Cashflows for future premium income
- Discount cashflows to calculate best estimate reserves

**Key Messages**

- Only 65% of companies can currently produce all 4
- Very little movement in terms of developing a “best estimate” process
- Movement towards reserving ownership rather than capital

Number of Participants generating all four: 65%
Reserving Process Survey
Rate Monitoring
**PROCESS REVIEW SURVEY – Rate Monitoring**

Are rate changes recorded for:

- All Business: 55%
- Renewal Business Only: 45%

Are the rate strength changes broken out into any of the following underlying components?

- Underlying exposure: 91%
- Pure rate: 73%
- Terms and Conditions: 82%
- Attachment points: 73%
- Claims inflation: 73%

Number of Participants splitting out all five components: 35%

- Some companies attempt to find premium a customer was previously charged (larger risks)
- Many monitor actual vs technical as a proxy for rate change for new business
- Accuracy of pricing models critical if doing this

- Not so relevant for Personal Lines companies, so not considered for this question

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Reserving Process Survey
Looking to the Future
What do you see as the greatest challenge for reserving actuaries and the reserving process over the next few years?

- Soft market
- Solvency II and process integration
- Accurate quantification and communication of uncertainty
- Correct interpretation of trends & patterns
- Incidence of future catastrophes / emergence of new latent claims

- Challenge to reserve accurately for soft market
- Will also need to be able to justify “best estimate” selections made during soft market for SII
- Better communication

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What do you see as the main areas where improvement could be made within the reserving process, and what benefits do you think this could bring (e.g. time/reduced risk)?

- Improving data speed and quality: 35%
- More time spent on reserving and uncertainty analysis: 29%
- Able to analyse individual transactional data / heads of claims: 29%
- Improve link between reserving / capital / pricing and applying ACC: 24%
- Split reserving between ABC type claims: 18%
- Use of AY rather than UY basis: 12%
- More time engaging and understanding business: 12%
- Assigning tasks appropriate to skill set: 12%

% of Responses

What do you see as the key risk within the reserving process?

- Data quality: 24%
- Correctly allowing for soft market: 18%
- Understanding impact of claims initiatives: 18%
- Internal (key man risk) / external staff risk: 18%
- Errors in process due to lack of peer review: 12%
- Understanding and capturing changes in book over time: 12%
- Correctly allowing for soft market: 12%
- Time and error risk due to tight deadlines: 12%
- BF prior selection: 12%

% of Responses

- Detail and quality of data will be more important under SII
- May be a limitation for Lloyd’s syndicates
- Emerging methods to analyse transactional data
- Wide range of risks within the reserving process
- Data quality may significantly impact internal models
Reserving Process Survey
Challenges and Drivers
Challenges & Drivers

Key Challenges

• Getting people on board

• Internal politics

• Effective Communication:
  • Setting up of discussion / planning forums
  • Setting challenging but realistic targets

• Leaving adequate time for design and testing

• Demonstrating value

Key Drivers

• Governance pressures:
  • Risk management
  • Solvency II
  • External Auditors
  • Internal Audit

• Competitive Opportunity:
  • Define standard
  • Improve decision making with better MI
  • Allow more value adding activities
  • Improve staff performance via “buy-in”
  • Confidence in what is being done

Optimisation of Reserving and Wider Processes
Further Discussion

- Solvency II
  - Will it drive change?
  - What are the key areas?
- Process timeframes
  - What is your ideal?
- Your ideas