



**The Actuarial Profession**

making financial sense of the future

## **GIRO Convention**

**23-26 September 2008  
Hilton Sorrento Palace**

### Questioning the Black Box:

Results and discussion from the Deloitte Reserving  
Process survey

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# Agenda

## Introduction

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### 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

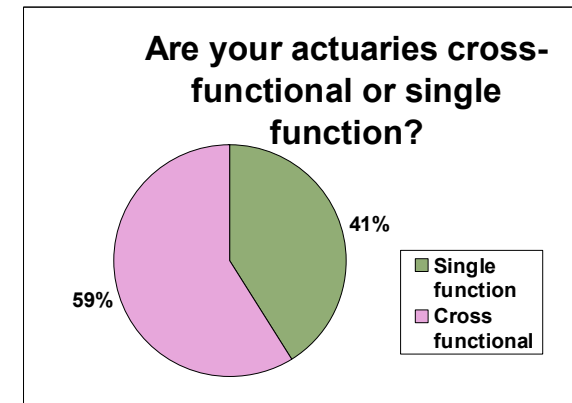
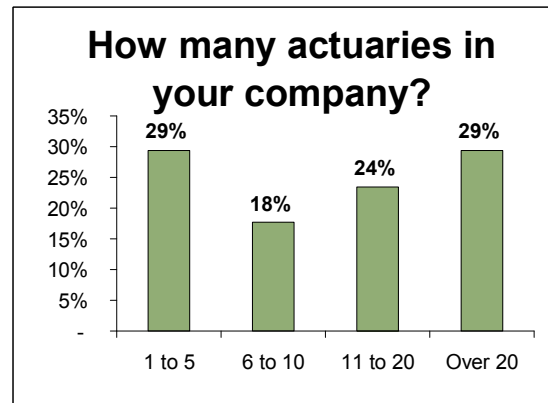
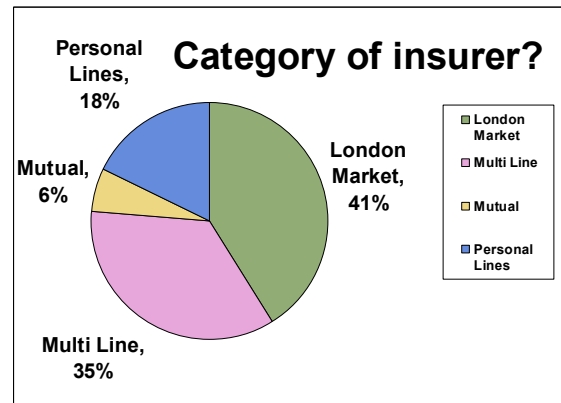
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# Reserving Process Survey

## **Sample Analysis**

## Sample analysis

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



### 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**

## PROCESS REVIEW SURVEY – Reserving Process Timeframe

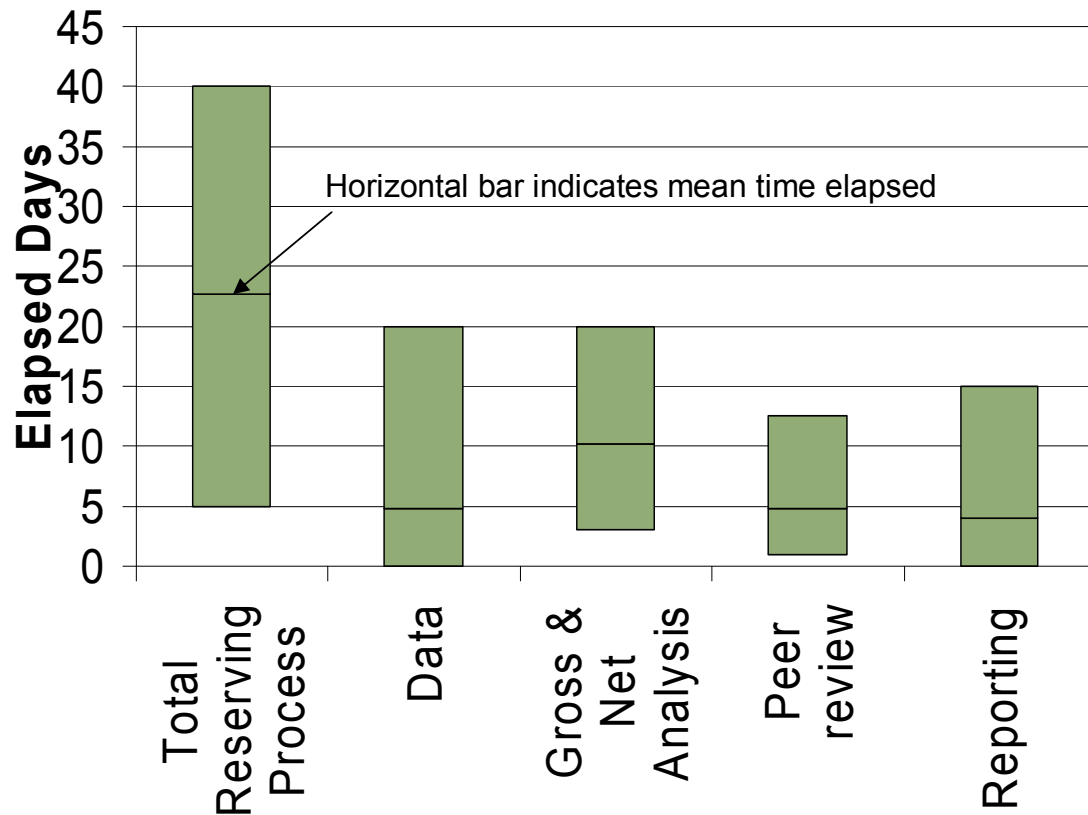
Approximately how many elapsed days does it take for the following elements of the reserving process?

### 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

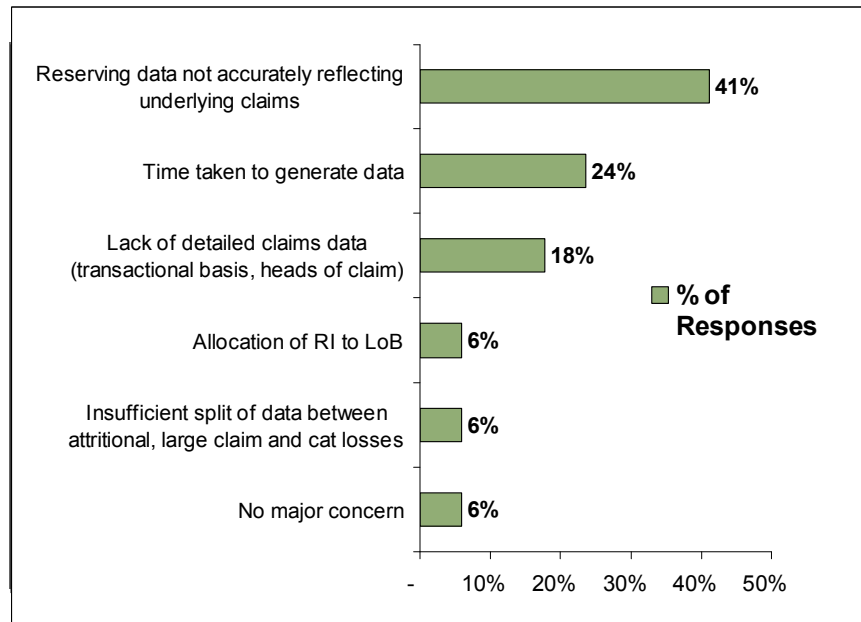
- Material data delays caused by:
  - Legacy systems
  - Multiple data systems
  - Overcomplicated process
- Insufficient automation
- Analysis can consist of business plan estimates as well as reserving



# Reserving Process Survey **Data**

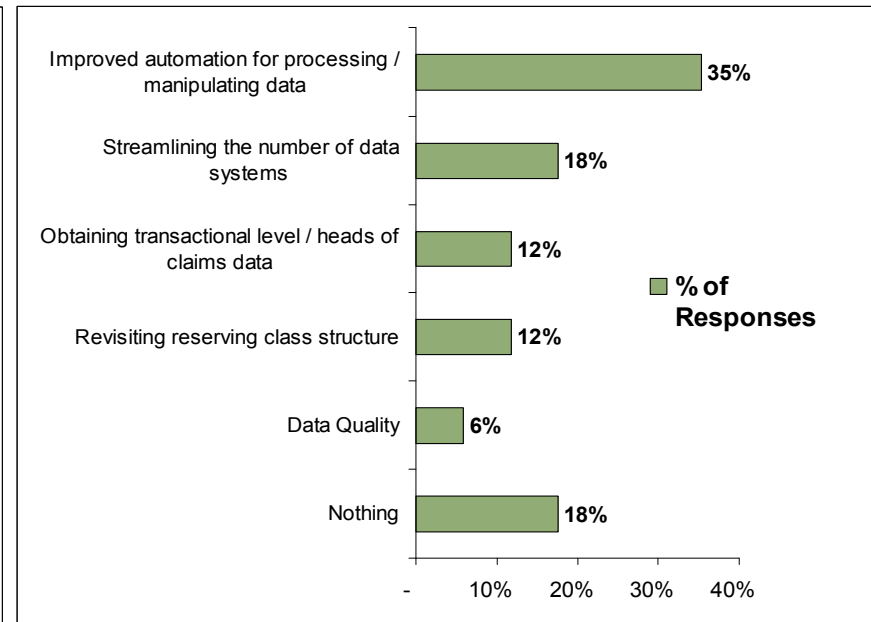
## PROCESS REVIEW SURVEY – Data

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



- 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

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



- 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



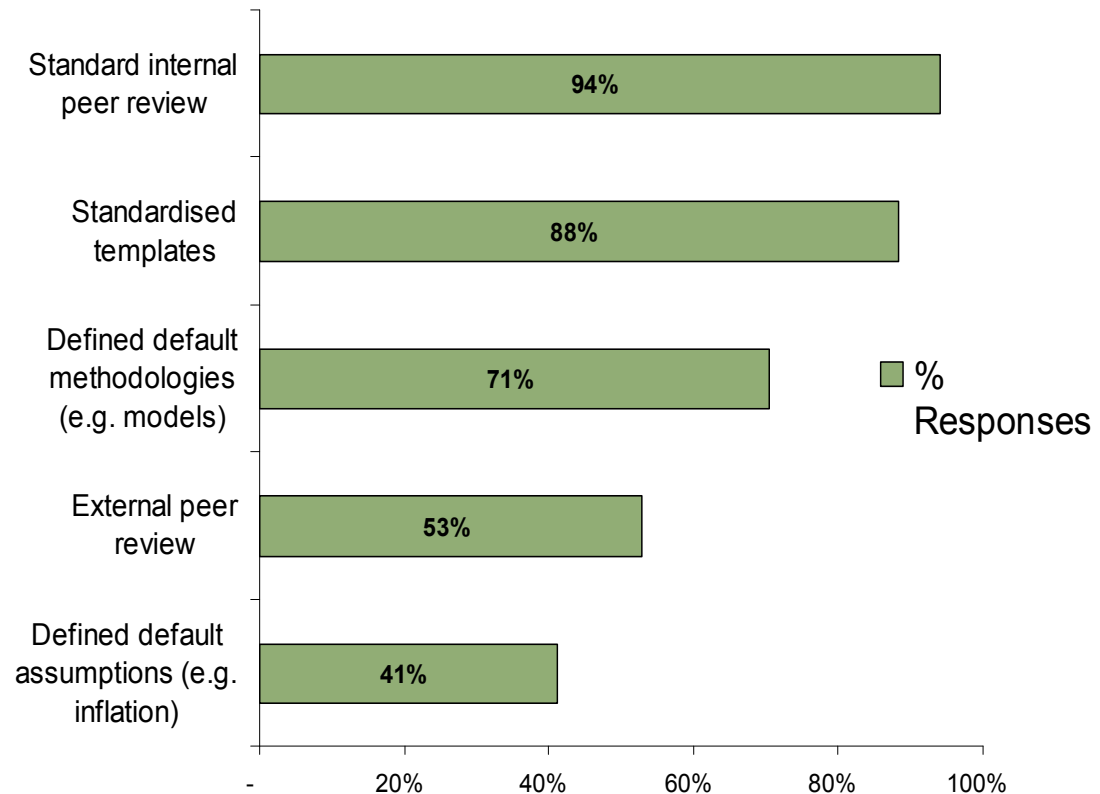
# Reserving Process Survey **Analysis**

## PROCESS REVIEW 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



## PROCESS REVIEW SURVEY – Analysis

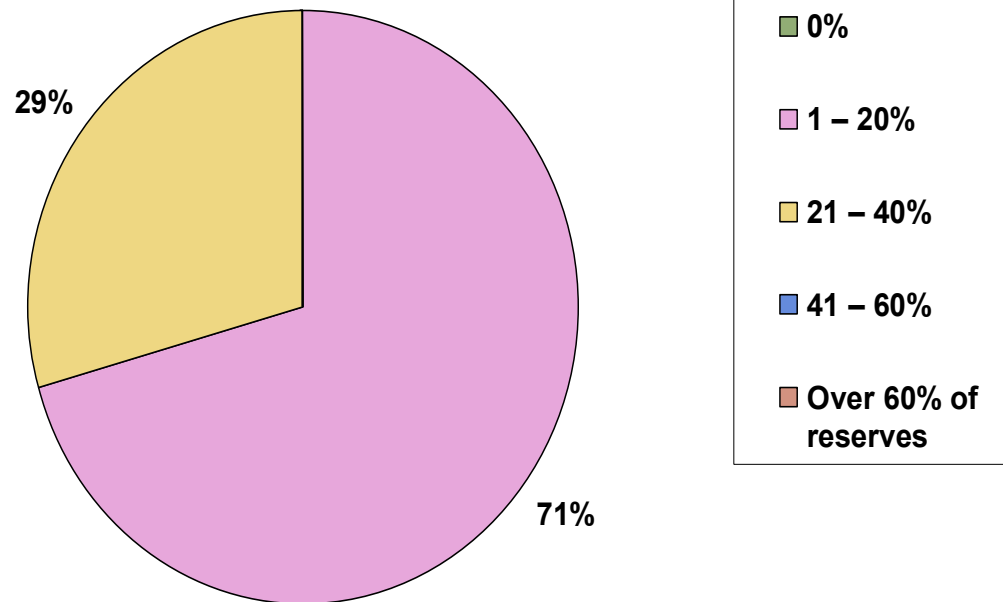
For what percentage of gross reserves are non standard, ad hoc analyses performed outside of the main reserving software?

### 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

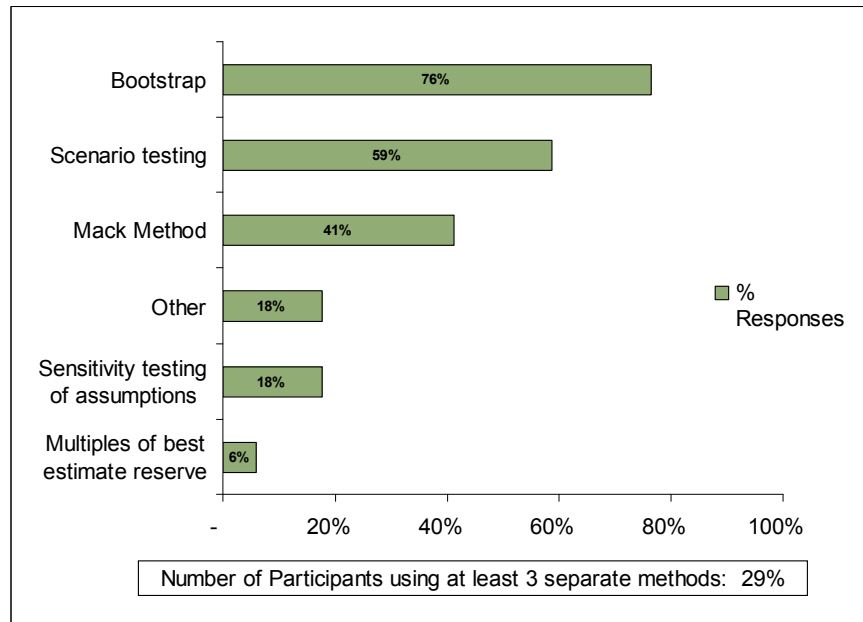


# Reserving Process Survey

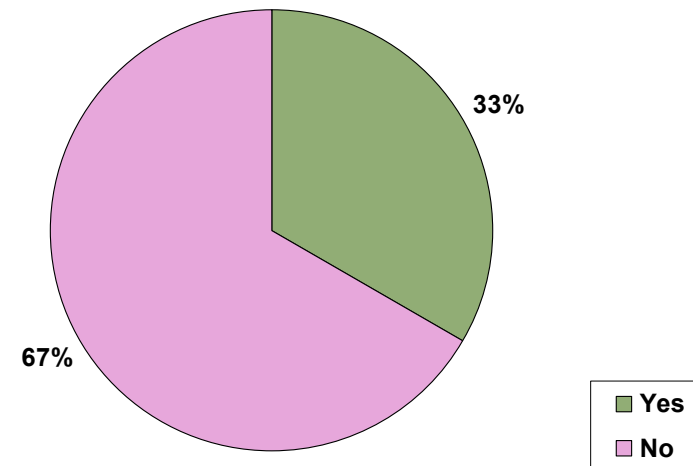
## **Reserve Uncertainty**

## PROCESS REVIEW SURVEY – Reserve Uncertainty

Which methods do you use to quantify uncertainty?



Have you made any allowance for ROC's "bootstrap shortfall" findings?



- 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

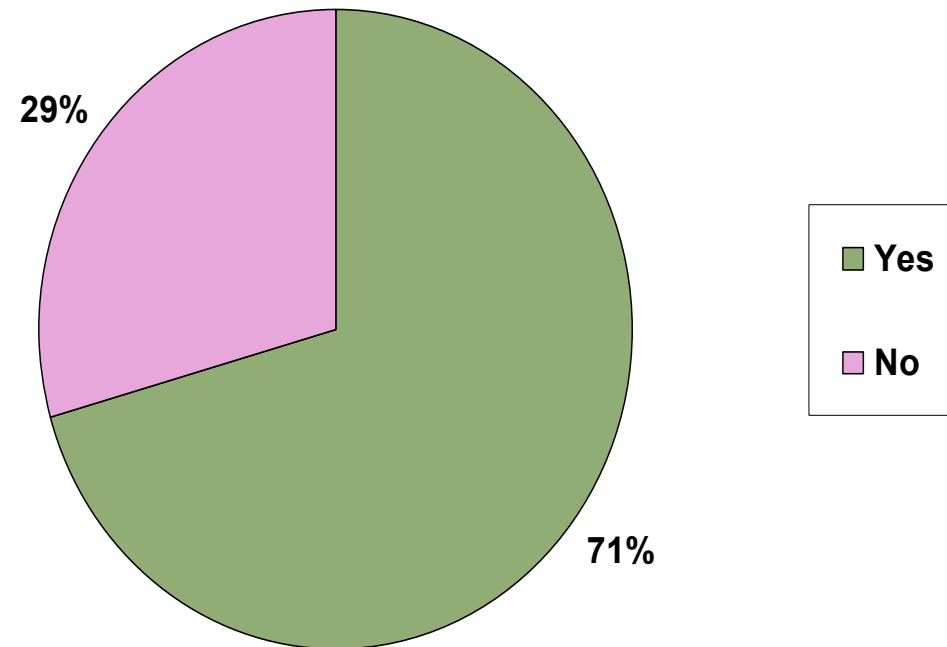
Is the reserve risk within your capital modelling consistent with any reserving uncertainty work carried out by the reserving actuaries?

### **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



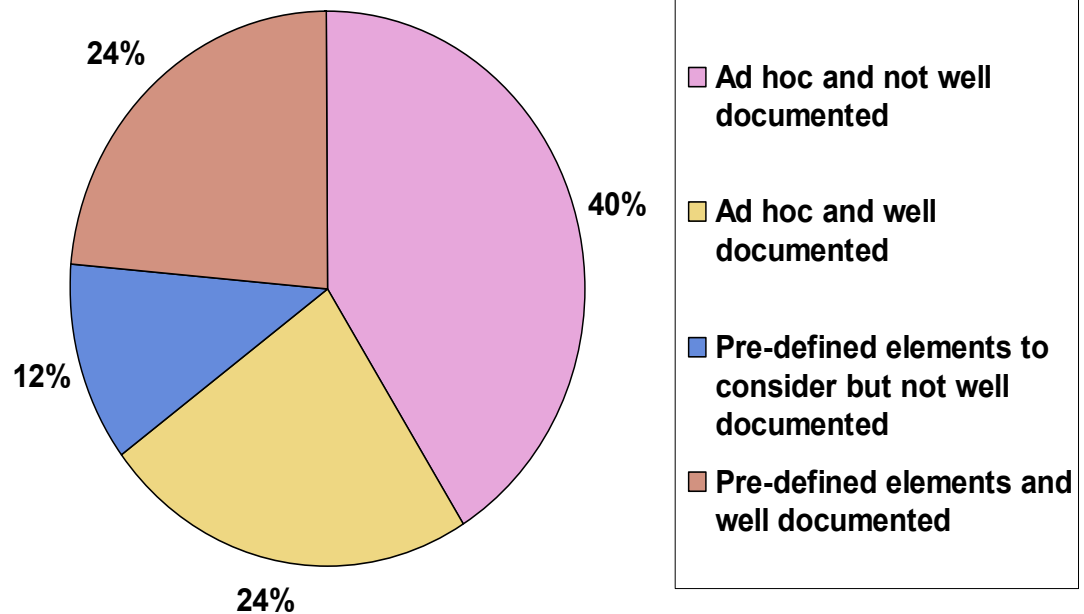
# Reserving Process Survey **Controls**

## PROCESS REVIEW 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

- 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





## PROCESS REVIEW SURVEY – Controls

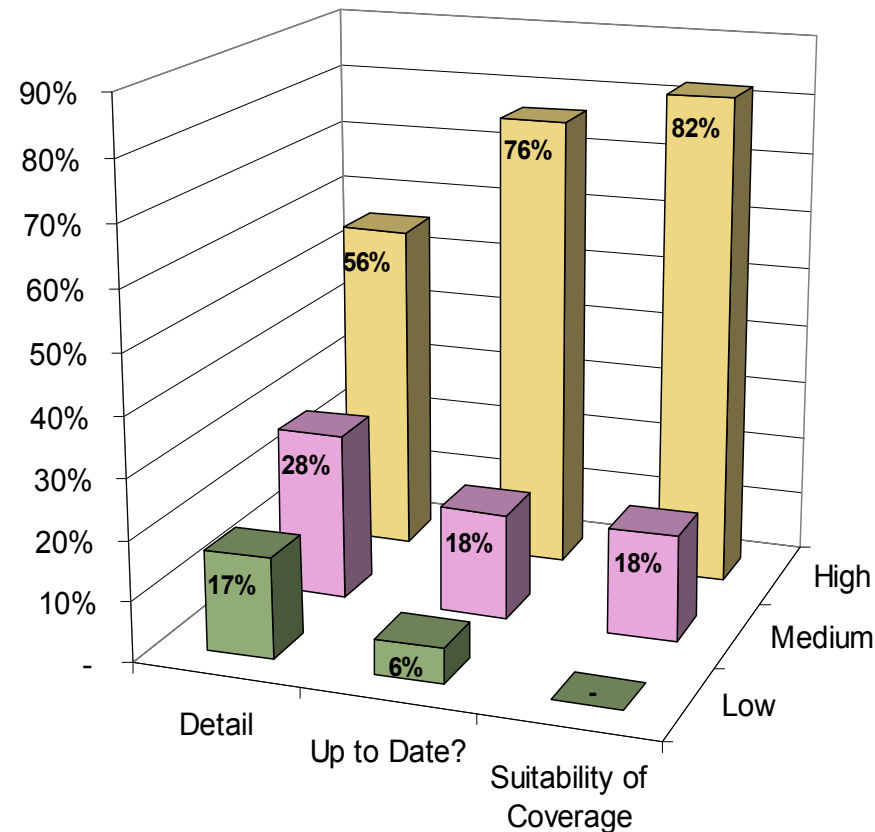
How would you rate the level of documentation that exists around key assumptions and judgements?

### 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

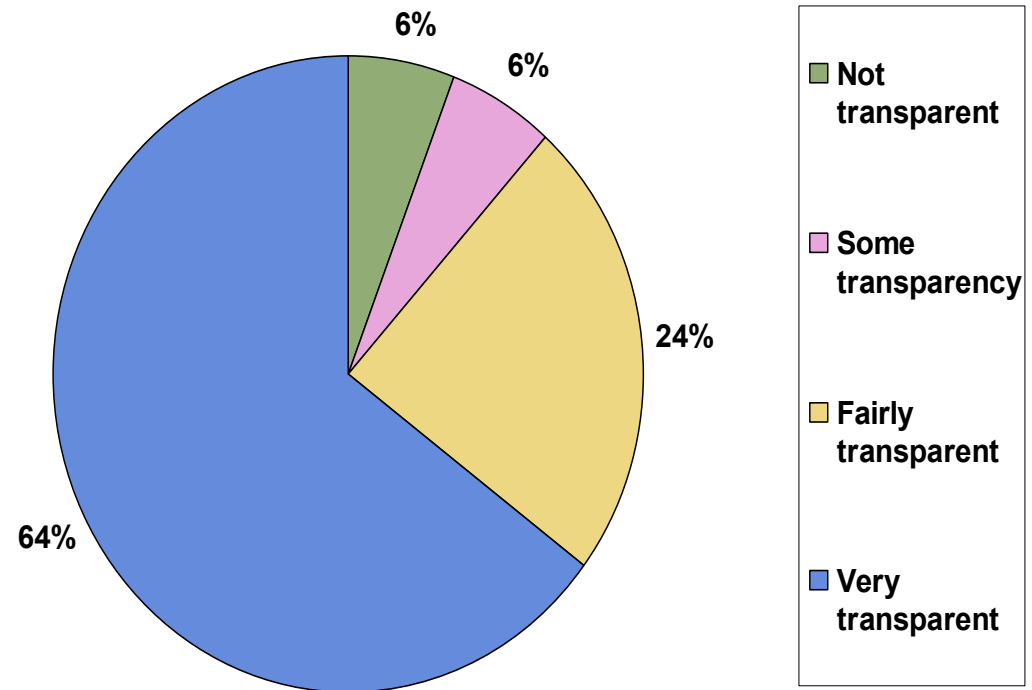


## PROCESS REVIEW SURVEY – Controls

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



# Reserving Process Survey

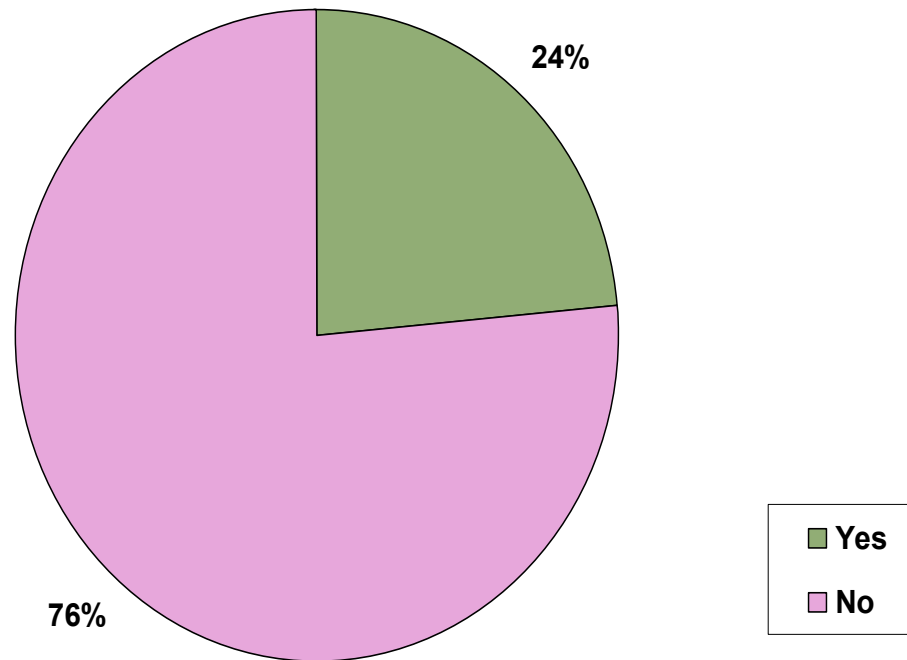
## **Wider Issues**

## 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

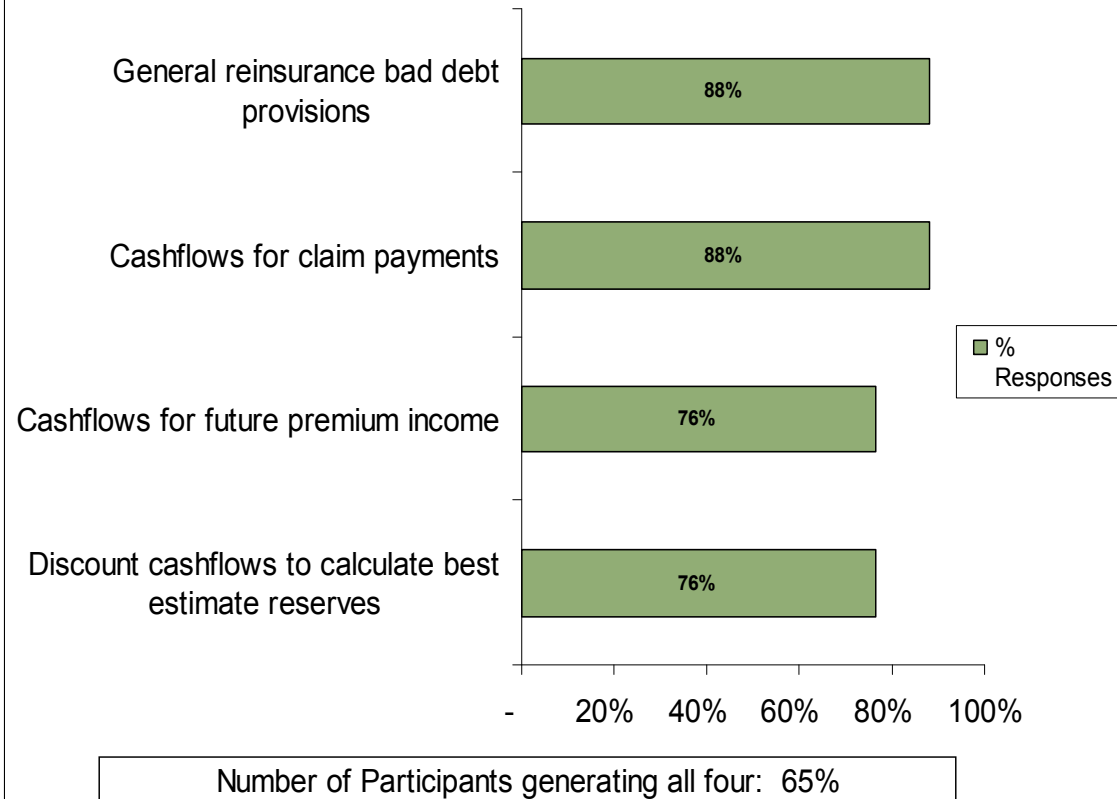


## PROCESS REVIEW SURVEY – Wider Issues

In relation to Solvency II, do you currently have a process in place to generate:

### 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

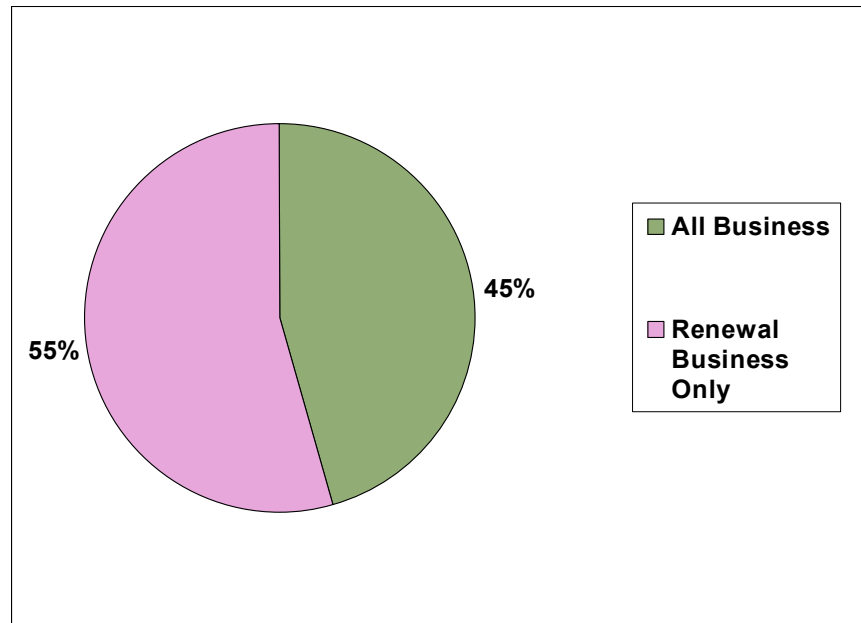


# Reserving Process Survey

## **Rate Monitoring**

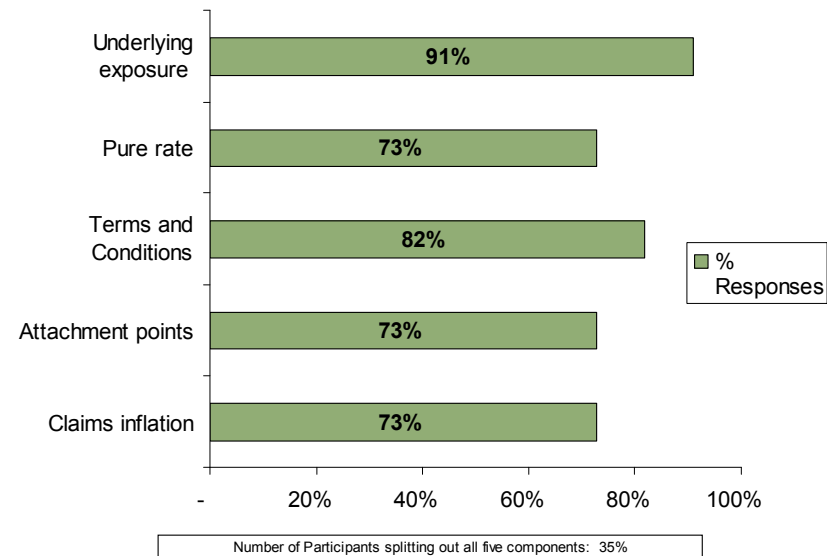
## PROCESS REVIEW SURVEY – Rate Monitoring

Are rate changes recorded for:



- 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

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



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

# Reserving Process Survey

## **Looking to the Future**

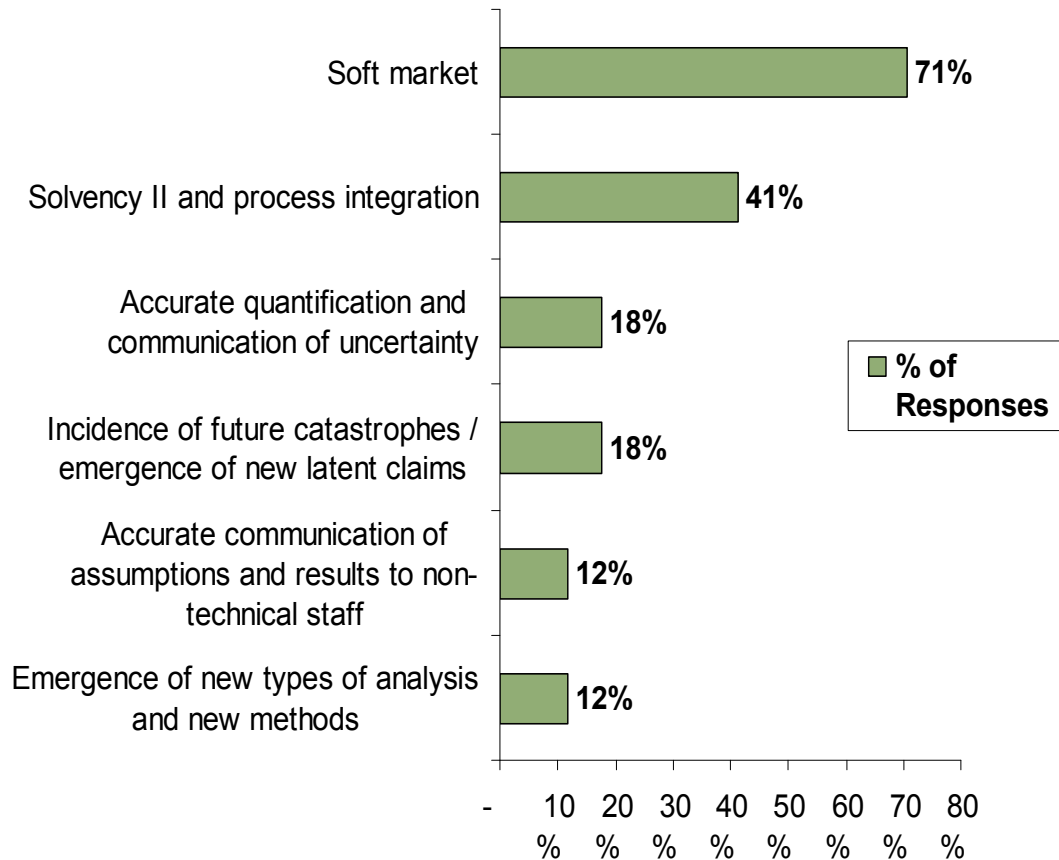


## PROCESS REVIEW SURVEY – Looking to the Future

What do you see as the greatest challenge for reserving actuaries and the reserving process over the next few years?

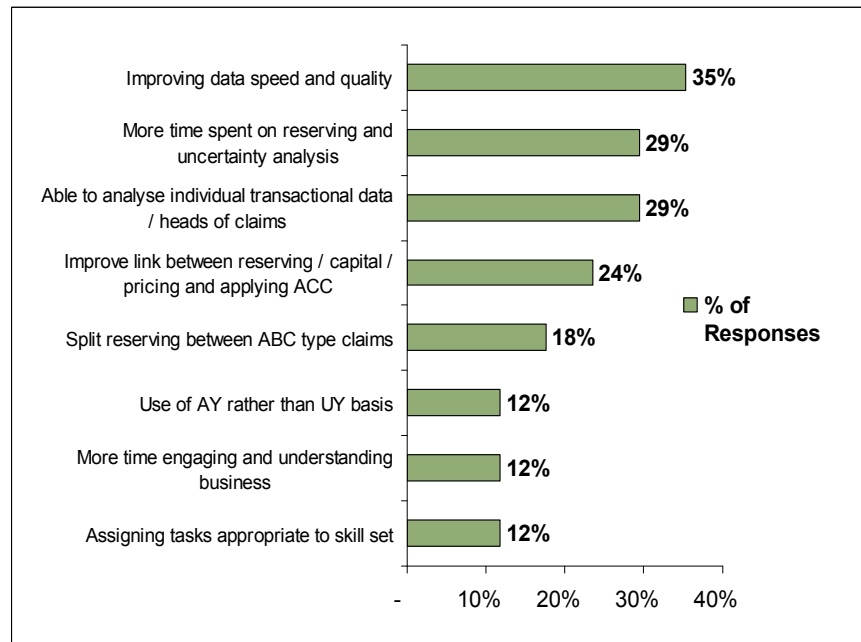
- Soft market
- Solvency II and process integration
- Accurate quantification and communication of uncertainty
- Correct interpretation of trends & patterns
- Incidence of future catastrophes / emergence of new latent claims

- 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



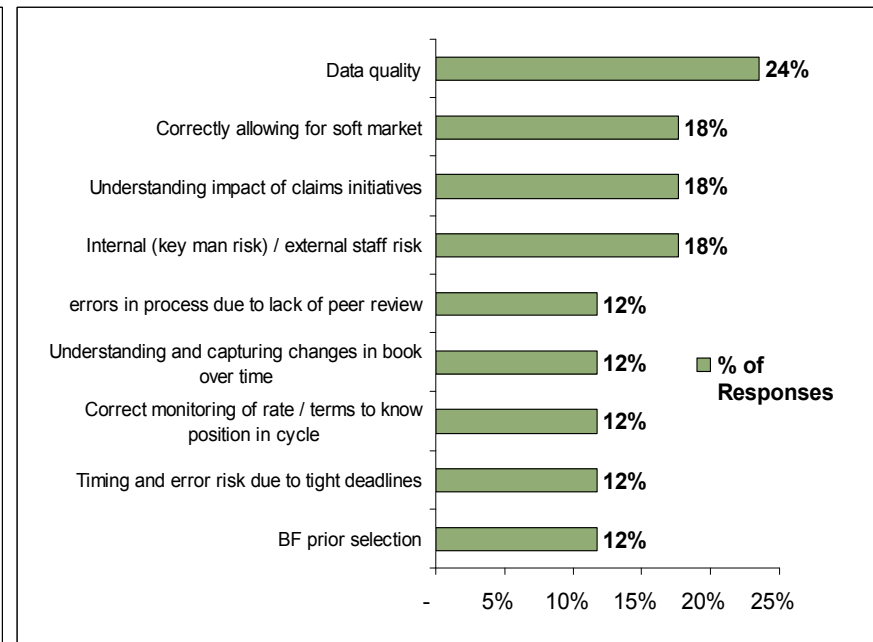
## PROCESS REVIEW SURVEY – Looking to the Future

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)?



- 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

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

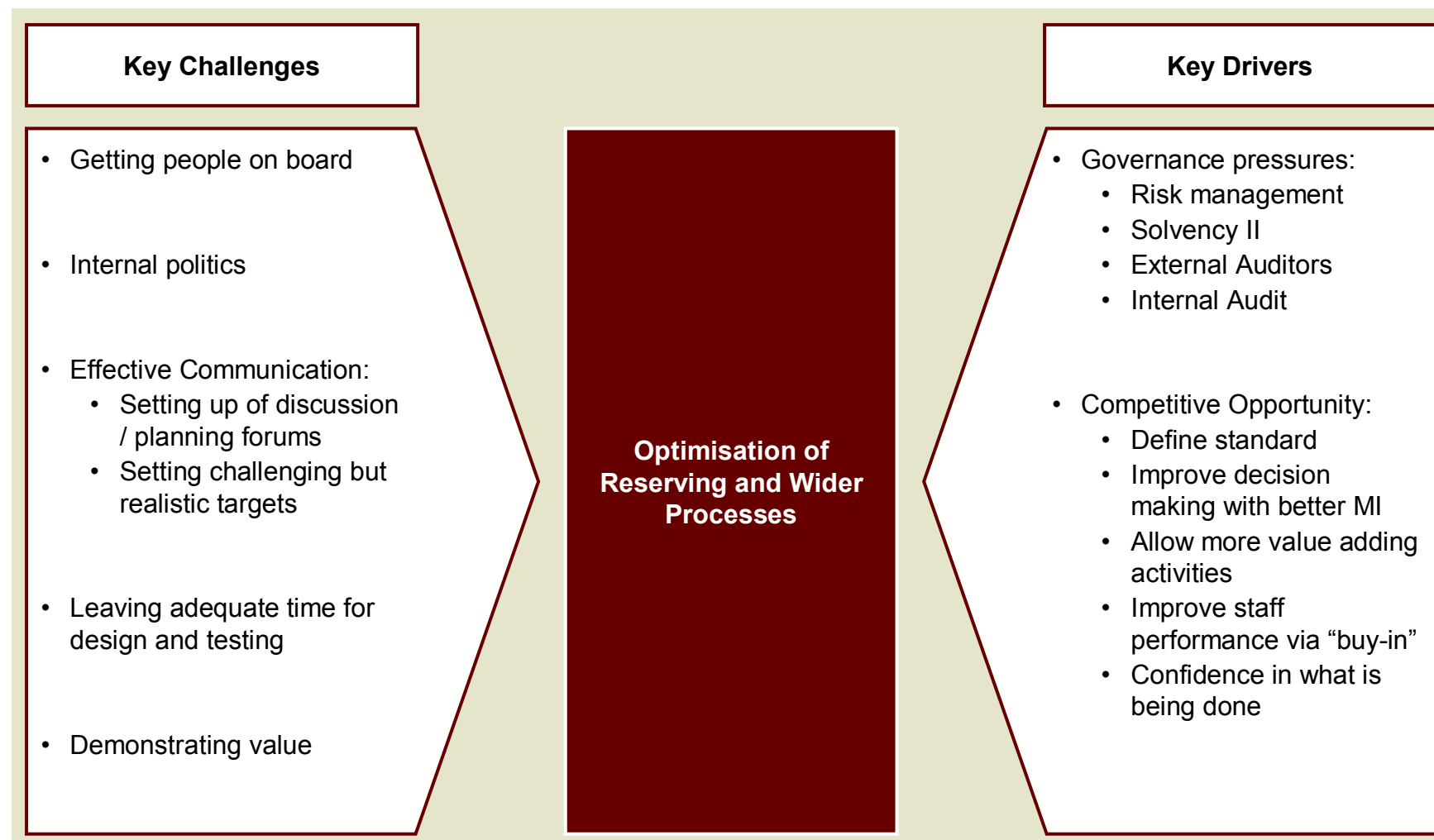


- Wide range of risks within the reserving process
- Data quality may significantly impact internal models

# Reserving Process Survey

## **Challenges and Drivers**

# Challenges & Drivers



## Further Discussion

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

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