Beyond actuarial: How to build a bridge
Paul O’Connor
Azimuth Insights
Citigroup building
What we’re going to cover

• Where reserve “uncertainty” comes from
• Where in the business it can cause an impact
• How we can try to recognise and defend against the impacts of reserve uncertainty

All very qualitative - we are **not** going to cover:
• Quantification of reserve uncertainty
The origins of uncertainty
The origins of uncertainty

Policy designed

- Example
  Unexpected coverage
  (ie “woolly contract wording”)

External

Internal
The origins of uncertainty

Policy designed

Policy written

Example
Changes in underwriting

External

Internal
The origins of uncertainty

Policy designed
Policy written
Event occurs

Example
Inflationary shocks

External
Internal
The origins of uncertainty?

Policy designed → Policy written → Event occurs → Claim reported

Example:
Publicity impacts ("nosy neighbour")

External

Internal
The origins of uncertainty?

Example
Changes in claims handling

Policy designed
Policy written
Event occurs
Claim reported
Claim estimated
External
Internal
The origins of uncertainty?

Example
Changes in claimant behaviour

Policy designed → Policy written → Event occurs → Claim reported → Claim estimated → Settled

External → Internal
The origins of uncertainty?

Policy designed → Policy written → Event occurs → Claim reported → Claim estimated → Settled

Example
Model/judgements (impacted by awareness of the above)

Internal → External

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The meaning of “reserves”

- Best estimate
- Solvency II TPs
- Booked reserves
The meaning of uncertainty?

“Within a range of reasonable best estimates”

“The $y^{th}$ percentile”

“A plausible alternative scenario”

“Best estimate with a margin for prudence”

“An extreme but foreseeable scenario”
Identify the pressure points
Where does reserving lead?

RESERVING OUTPUTS
Where does reserving lead?

- Business planning
  - Remuneration
  - Pricing / underwriting
    - Reinsurance pricing
    - Risk management
  - Reinsurance monitoring
    - Profit and loss
      - Profit commissions
      - Regulatory reporting
  - Capital
  - Future reserving
  - Investment strategy

Institute and Faculty of Actuaries
Damage control
Damage control

How do we more effectively communicate reserve uncertainty?

Two objectives:

- Make better decisions where possible and practical
- Where not possible: to raise awareness

Examples from:

- Capital modelling
- Investment
- Business planning

What about uncertainty?
Capital modelling

Distribution of modelled ultimate reserves against independent reasonable best estimates from reserving activity

What about uncertainty in TO reserves?
Capital modelling

Distribution of modelled ultimate reserves against independent reasonable best estimates from reserving activity

Ultimate reserves

Modelled ultimate reserves

Range

Percentile

 Ultimate reserves

£100m £150m £200m £250m £300m £350m £400m
Investment

What about uncertainty in those liabilities?
Investment

Liability cashflow projections

Cashflow (£)

Future projection year
Investment

Liability cashflow projections

Fewer PPOs and higher mortality

Cashflow (£)

Future projection year
Investment

Liability cashflow projections

Fewer PPOs + higher mortality

More PPOs + lower mortality

Cashflow (£)

Future projection year
Business planning

What about uncertainty in those loss ratios?
Business planning

![Business volumes chart](image-url)
Business planning

Business volumes

LoB 1
LoB 2
LoB 3
LoB 4

Ultimate loss ratio

LoB 1  LoB 2  LoB 3  LoB 4  Total portfolio

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Business planning

[Graph showing ultimate loss ratio for LoB 1, LoB 2, LoB 3, LoB 4, and total portfolio with respective business volumes.]
How can we communicate uncertainty?

- Business planning
- Remuneration
  - Reinsurance pricing
- Pricing / underwriting
  - Risk management
- Reinsurance monitoring
- Profit and loss
  - Profit commissions
- RITC
  - Regulatory reporting
- Future reserving
- Investment strategy
Actions for you
Key actions for you

Reserving actuaries

Know your business:

• Who relies on your reserving results?
• What aspects of those results are most important to them?
• How much does uncertainty matter?

Tailor communication about uncertainty accordingly
Key actions for you

Everyone else

Know your business:

• Are you reliant on the reserving results?
• Which aspects of those results impact you the most?
• How much does uncertainty matter?

Ask for the uncertainty information that you need!
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