



Institute
and Faculty
of Actuaries

GIRO40

8 – 11 October, Edinburgh



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D1: Update from the GIROC Reserving Research Workstream (featuring ‘The Life Cycle of the Peril’)

James Orr (Chair)
Sarah MacDonnell
Alex Marcuson
Chris Smerald
Richard Kelsey

ertise
ponsorship
Thought leadership
Progress
Community
Sessional Meetings
Education
Working parties
Volunteering
Research
Shaping the future
Networking
Professional support
Enterprise and risk
Learned society
Opportunity
International profile
Journals
Support

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Running Order

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| • Introduction | James |
| • Reserving Survey results and plans | Sarah |
| • ‘The Life Cycle of the Peril’ infomercial | Alex |
| • Story-telling | Chris & Richard |
| • Next Steps | James |

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GIROC Reserving Research Working Party

- Established after ‘hot topics’ pitch in Brussels, GIRO 2012
- Brief:
 - new methods: claims-level; stochastic reserving
 - identifying and commissioning research
- Activity:
 - hugely enjoyable and wide-ranging discussions
 - ‘**The Grizzled Actuary**’, story-telling and ‘The Ideal Actuarial Report’
 - **Survey** of Reserving Functions and their users
 - **Peril-based** framework for risk and claims manifestation
 - Quantifying the ‘Herd Effect’

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GIROC Survey 2013

- GRIT 2004 to 2006
 - Range of recommendations
 - producing a quantitative range of outcomes
 - understanding the business better
- Aim of 2013 study:
 - what has changed since GRIT survey?
 - are there any barriers (if any) that may have prevented the development or uptake of new techniques

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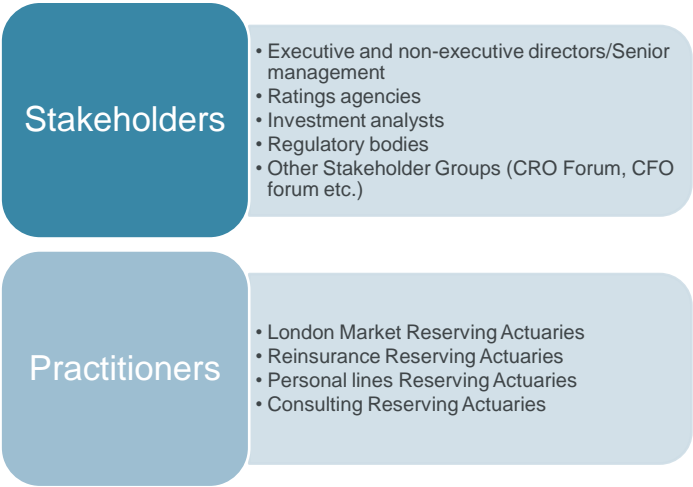
GRIT 2006

- Stakeholders too
 - company board members
 - ratings agencies
 - investment analysts
 - regulators
- GRIT stakeholder findings
 - communicating uncertainty
 - communicating key assumptions and reserve drivers and ...
 - ... communicating in general

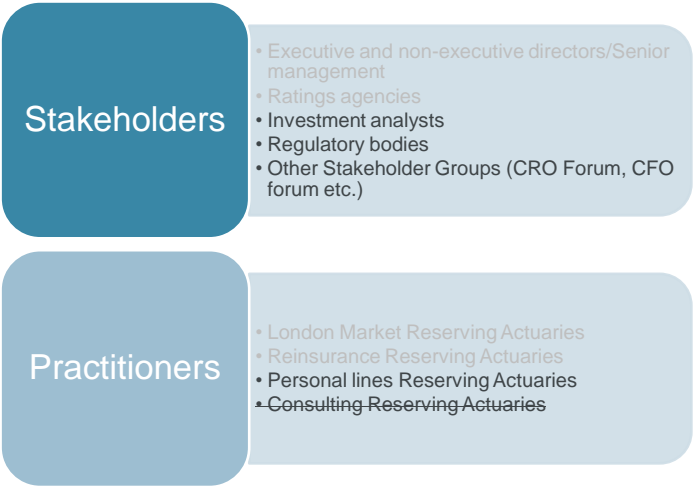
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So who did we talk to?



So who did we talk to?



Results

Personal Lines Reserving Actuaries

- Process
- Data
- Methods
- Communication

13 respondents

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Process

- Quarterly reviews
- Most time spent
 - analysis 😊
 - reporting ☹
- Key constraints
 - Time or resources
 - Granularity

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Data

- The key to actuarial happiness?
 - 5 get individual data
 - 2 said they could get whatever they need
- Room for improvement?
 - 6 said no improvement needed
 - claimant level
 - more granularity

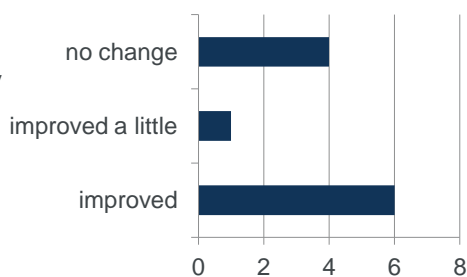


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Data

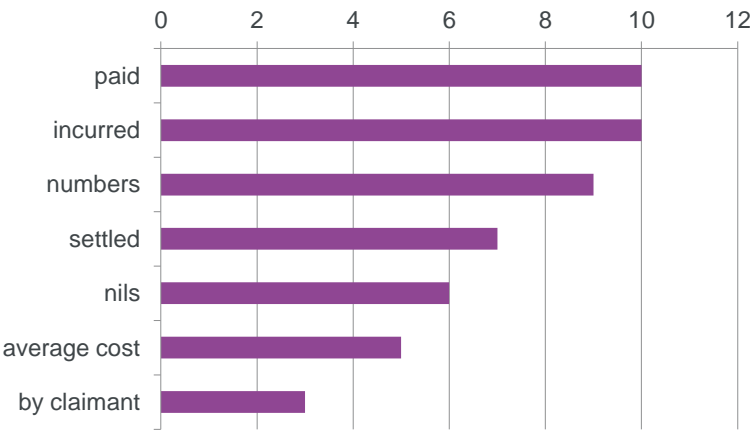
- Have things got better?
 - 3 of the 4 who cited no change were already happy with the data they had previously
 - responses as to what has improved varied
 - more diagnostics
 - better splits (peril)



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Data

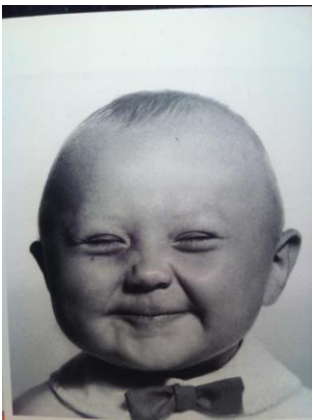


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Qualitative Data

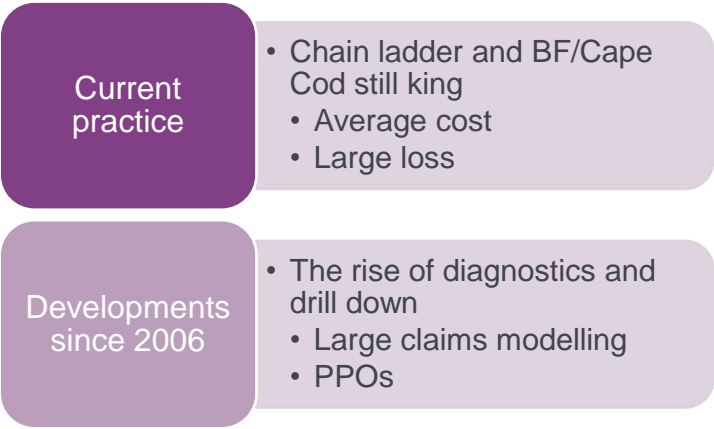
- Virtually all said good or very good
- Issue driven
 - Demand from business



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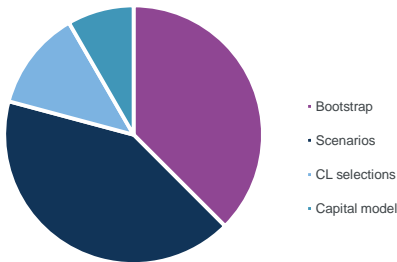
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Methods



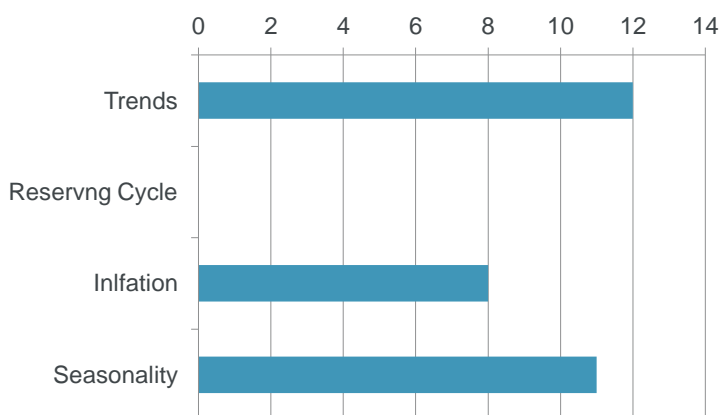
Uncertainty

- Bootstrap and scenarios rule (8 and 10 respectively)



- Scenarios linked to specific or unusual cases, eg. PPOs, latent or large claims and Ogden changes
- Also large loss distributions

Do you allow for the following in your reserve analyses?



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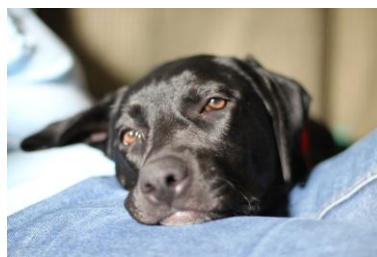
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Methods

- What new methods have you come across that you would recommend to a fellow actuary?

— 9 said none

- Diagnostics
- Large claims modelling
- Granular reserving



Want proven and pragmatic methods
- no use sitting in a theoretical box

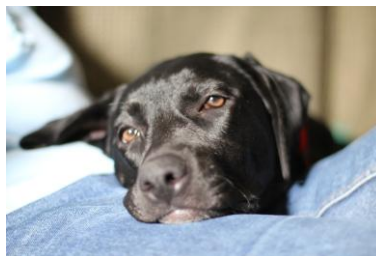
Question of resources to try out - balance with how much value is it going to add

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Methods

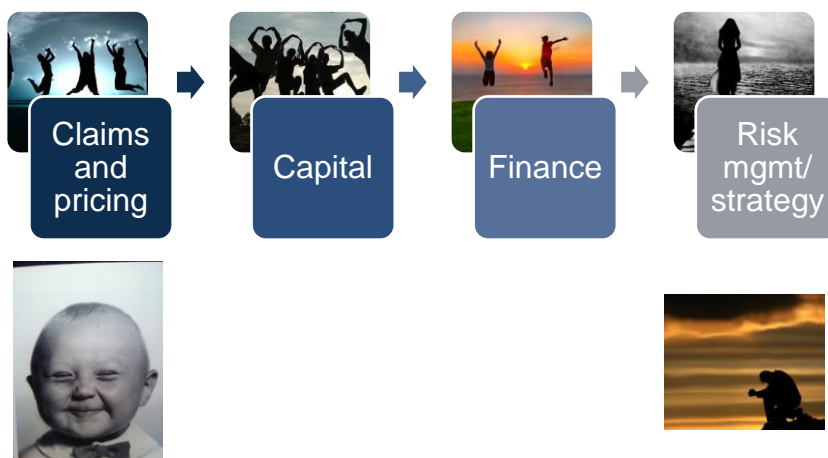
- Are there any methods you have seen that would like to learn more about/see adopted/developed by the industry?
 - “No” - 8
 - Granular reserving



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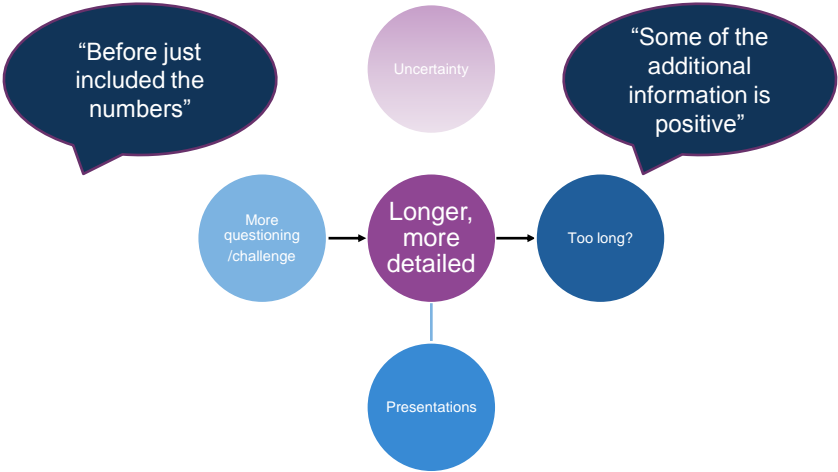
Communication



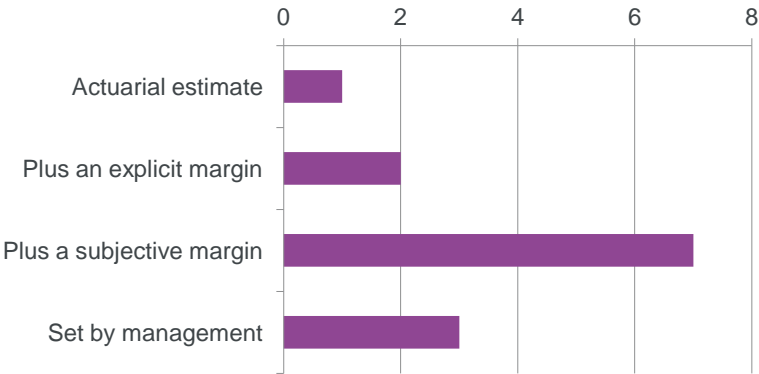
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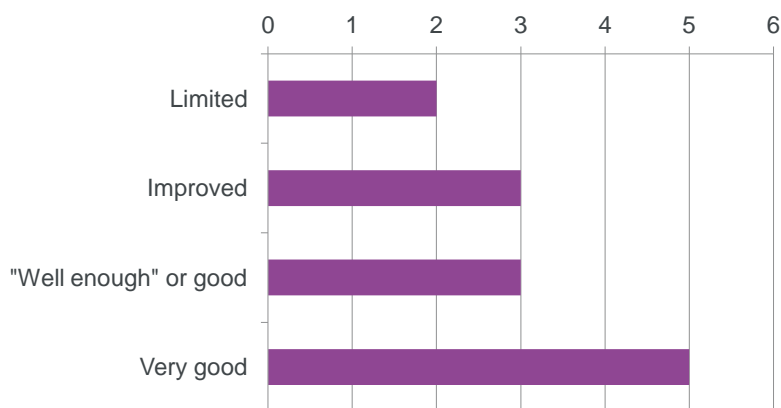
Reports



Booking reserves



Understanding reserves



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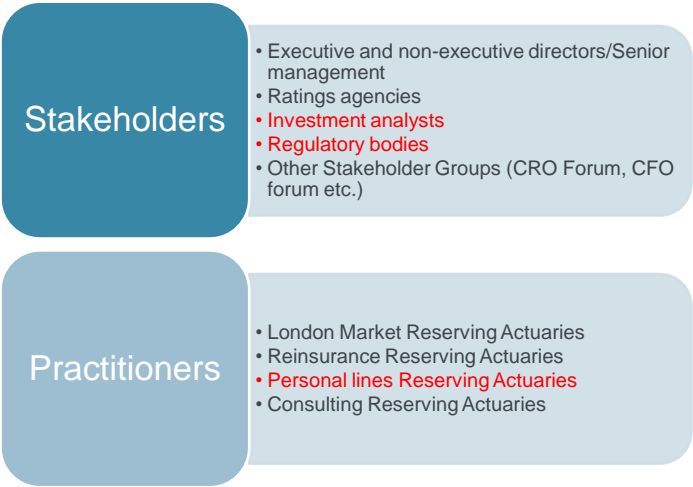
Personal lines reserving actuaries 2013

- Relatively contented bunch (yet to hear from stakeholders!)
- Positive developments in data and communication
- More limited developments in methodology
- GRIT recommendations appear to have been taken on board
 - Understanding the business
 - Producing a quantitative range of outcomes
 - GRIT actually recommended not replacing chain ladder
- Will be interesting to contrast with actuaries working in Reinsurance and the London Market
 - ...and stakeholders!

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So who did we talk to?



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The Life Cycle of the Peril

Alex Marcuson

- First thoughts
- Thinking in 3 dimensions
- The changing role of the actuary
- Our plan for next year

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The Life Cycle of the Peril

First thoughts

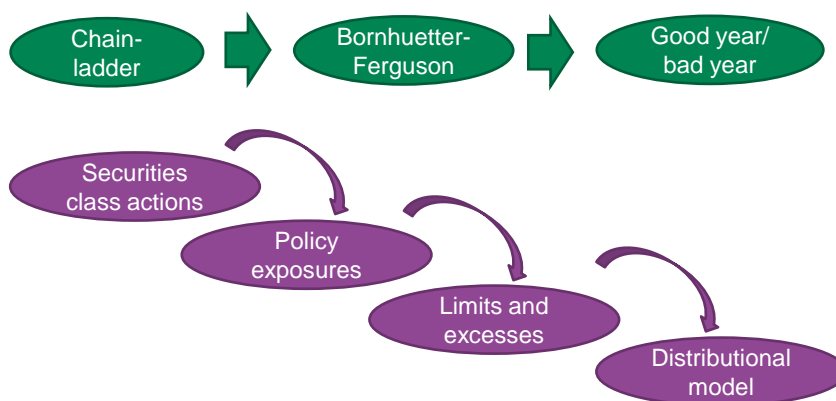
- The Life Cycle of the Peril
- D&O: a brief discussion
- Perils and exposures

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The Life Cycle of the Peril

D&O: a brief discussion



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The Life Cycle of the Peril

First thoughts

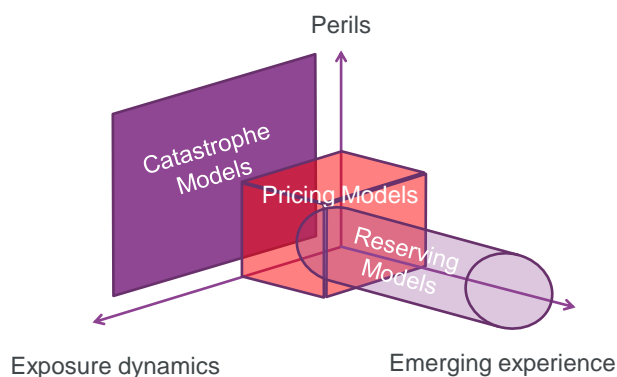
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The Life Cycle of the Peril

Thinking in 3 dimensions



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The Life Cycle of the Peril

The changing role of the actuary

A digression

- Pricing and reserving
 - Together or apart?
 - Feedback to planning and capital
- Reporting timetables
- Portfolio segmentation

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The Life Cycle of the Peril

Our plan for next year

- Develop and document our framework to help an actuary to reach better expert judgements
- Develop a quantitative approach that take perils and exposures into account
- Testing on real and pseudo-data

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Storytelling and Lucy

Chris Smerald & Richard Kelsey

- A. Good Actuarial Report
- B. Just a little bit More Wicked?
- C. How Storytelling can Help
- D. Quality of the Story
- E. Tragic Perils of Lucy Austral-O'Pithecus.
- F. Able - Revealer of Deeper Insights

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A) Good Actuarial Report

I know actuarial reports are never going to make it to the best seller list, but let's face it when did you last read a page turner?

- Long winded because all '*should normally*' aspects of guidance are included at a superficial level.
- Statement of the results at many levels of detail
- High level description of the results which could be worked out from reading the tables.
- Vague description of methodology. Difficult to understand what was actually used. The values, context and reasonableness of key assumptions. Whether other plausible approaches or values were considered or ruled out.

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B) Is the Reserving Process now so Complex that it Truly is Wicked?

- By implication this means uniquely non-unique, non-linear, non-scriptable, & arguably imperfect -more like a cooperative game theory outcome: optimal only in the sense that all can live with it.
- Example: Even a simple motor class may be split into 3 levels (AD,TPD and BI). The first level AD, may be split 4 ways Wind-screen, Fire&Theft, Other AD and Non-RI Recoveries. The last level may be further split into 2 or more (attritional/large). That is 7 splits for frequency, severity for each accident year and don't forget the trends and that bad winter and.....
- But with growing stakeholder requirements, methods innovations, data sophistication, and risk requirements *has reserving been pushed deeper into the wicked problem space?*
- This may be too much ! *how can we develop or explain best practice or even write a good report about what we managed to complete?*

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C) How Stories can Help

- A good story can be read more than once and entertains each time.
- Likewise, should the test of a good actuarial report be that it can inform 2-3 years after it was written.
- To pass this test, it needs
 - to still inform;
 - for the stories and alternate endings presented to be still be plausible with the benefit of hindsight;
 - if the world has changed, to educate that the change could not have reasonably been foreseen ?
 - bold enough to complete the feedback loop showing success and failure of past predictions.

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D) Quality of the Story Reveals More

- Distance becomes a leveller. In devising the tale the author sees more clearly how perils are intertwined and has a deeper sense of the building blocks that underlay resolving problems.

So If experience and wisdom can be deepened by shared stories how do we evaluate and build on this?

- “Flow” writing combined with checklists was an interesting experience, rather than creeping attempts at perfection. A sprint followed by more sprints until the end is reached, then repeated sprints redrafting and adapting as missed bits are added and logic improved. Often we only find out something obvious at the end that makes us revisit and retake our painstaking journey – something that with a sprint could have been obvious sooner.

We don't think this can be TASed. Goodbye TAS, Hello Lucy.

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‘There was a lone Grizzled Actuary’

- She was lone, but not lonely, rather she didn't follow the herd, but followed her roving eye.
- She had been ‘around the block a bit’ in so far as she had made mistakes, seen others make mistakes and learned from them.
- She is not surprised when unexpected events happen which affect results. They happen. Some could have been reasonably predicted, some not. Experience has provided a toolkit of how to approach, investigate and run with surprises.
- Actually she quite likes the surprises. This is when Grizzled Actuary comes into her own. Without these she was sidelined.
- This is Lucy.

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E) Perils of Lucy: Imparting Intermediate Experience & Wisdom needed to cut through the Wickedest Snares.

- The value of experience.
- The power of agency risk,
- The role of conversations.
- The importance of governance and controls – what is independence and objectivity.
- The hypothesis structure: current, alternative, and monitoring for deviations.
- Risk for less experienced actuaries using black box models.
- How to choose an effective method.
- **What else?**

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What Else...

- Lucy was asked what she thought of ‘peril life cycle’ or other potential new methods of reserving
 - “They are all well and good, but...”.
 - Don’t throw away the triangle. The triangle is a very good communication device which people are used to and can be used to reference development with time lines that people are familiar with (actual years!)
 - Actually, the more interesting triangle is the undeveloped half of the run-off rectangle which others call the future flight path.
 - I call the next “diagonal of the triangle” the next chapter of the story. If the story which emerges ties in with your draft then the ending will be plausible, but don’t get complacent because if the actual storyline drifts away from your script there could be a different ending.
 - Don’t rush to rule out or ignore other plausible stories.

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F) Able to Glimpse Deeper Insights

Seeing and thinking through examples with Lucy of the more tricky building blocks and realizing these may be key to unravelling the wickedness of actuarial work.

Can we create a more structured framework that helps us with reserving and reporting?

- Ontologies
- A library of “wisdom” tales
- Easily referable rules and constraints
- Reference Data
- Sample reports for specific stakeholder requirements?
- Address and include objections/comments received en-route

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Next Steps

James Orr

- Reserving Survey
 - write-up the initial survey
 - extend the survey to the London Market and Boards
- Life Cycle of the Peril
 - complete development of the peril-based framework
 - move to implementation and assessment of quantitative techniques
 - making use of simulated and possibly real data
- Story-telling
 - should we commission more stories on key issues?
 - writing 'The Ideal Actuarial Report'...
- The 'Herd Effect'
 - designing an experiment to quantify the impact of social and professional norms

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Questions



Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

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Footnotes and Appendices