
The Actuarial Profession
 making financial sense of the future


Sharpening up an Insurer's Balance Sheet

How the Actuary can help

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 Gavin Hill
 Rob Collinson


Sharpening up the balance sheet

1. The optimisation problem
2. Case study 1 – Who calls the shots?
3. Case study 2 – The secret of a long life (is knowing when it's time to go)
4. Case study 3 – Mixing it up...
5. Conclusion - Getting more useful?


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But first...

- ICA regime
 - Lots of good work done
 - Lots of approaches taken
 - Many companies have modelled/considered standalone risks and aggregated them
 - FSA requirement to 'pass the Use test' and 'embed in the business'
- How to leverage what has been done so far

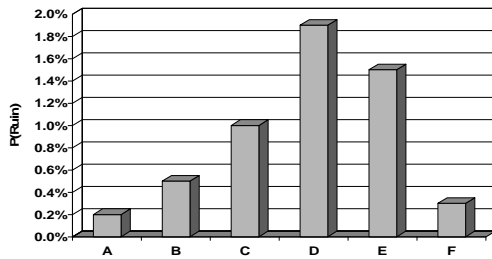
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So...

- We need to demonstrate to the FSA that the model is 'in use'
- Make the model pay for itself!
- Actuarial involvement in strategic decisions

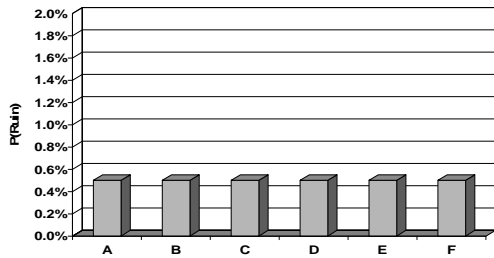
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The optimisation problem Step 1 – Probability of ruin



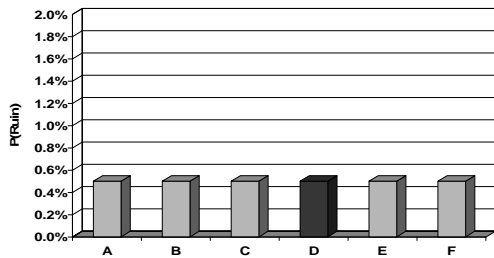
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The optimisation problem
Step 2 – Equalise



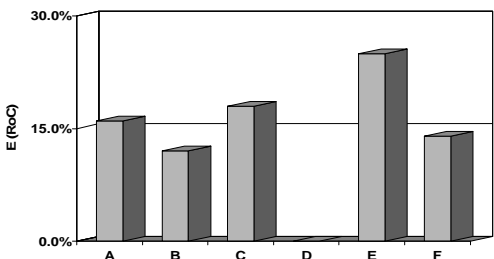
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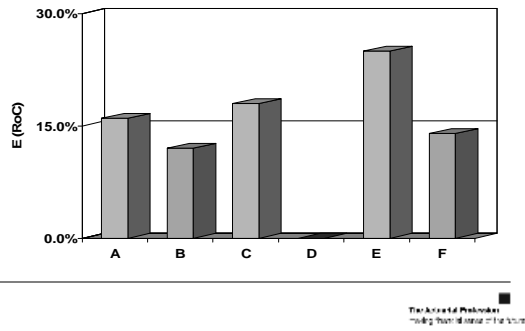
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The optimisation problem
Step 3 – Compare performance

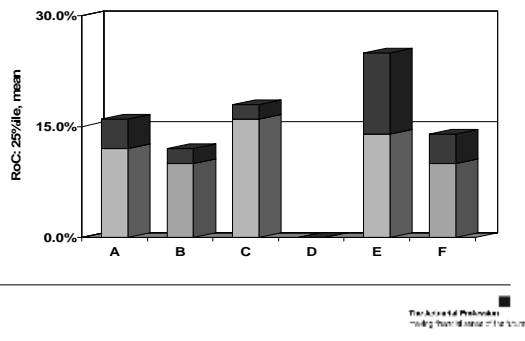


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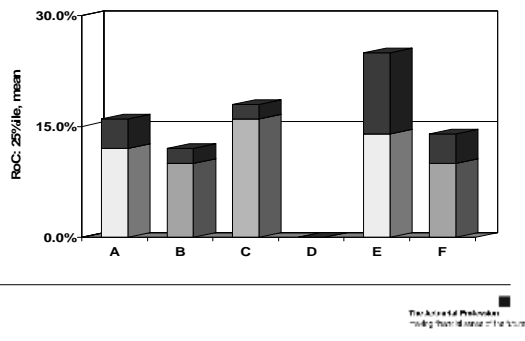
The optimisation problem
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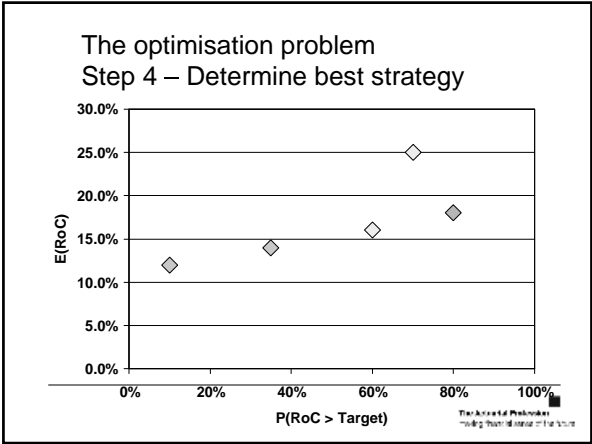


The optimisation problem
Step 4 – Determine best strategy



The optimisation problem
Step 4 – Determine best strategy





- ### The optimisation problem
- Constraints:
 - Regulatory capital or other target?
 - Defining / allocating target RoE?
 - Objective function
 - What is definition of "best"?
 - Best for whom?
- _____
- The Annual of Probabilities
Making Them All About the Future

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Making Them All About the Future

Who calls the shots?

- Exercise for all
- Three groups (Shareholders, senior management, underwriters)
- Question: What reinsurance retention to hold?
- Fairly simple deterministic example needed
- Shows that all will rationally choose differing level of RI

The Act of Providence
Making Your Insurance Work for You

Who calls the shots?

- Company ABC
- 3 line – all £100m premium income
- Motor, Property, Energy
- Exposed to the usual perils
- What reinsurance program to purchase

The Act of Providence
Making Your Insurance Work for You

Who calls the shots?

- Available cover
- Motor –
 - 4m xs 1m
 - 5m xs 5m
 - Unlimited xs 10m
- Property XL
 - 5m xs 5m
 - 10m xs 10m
- Energy
 - 10m xs 10m
 - 20m xs 20m

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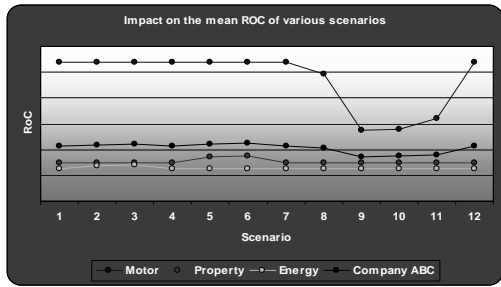
- Cat
 - 5m xs 5m
 - 15m xs 10m
 - 25m xs 25m

The Annual Performance Review
Making Your Organization a Better Place

Likely program?

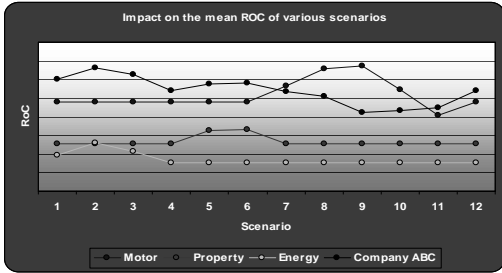
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Making Your Organization a Better Place

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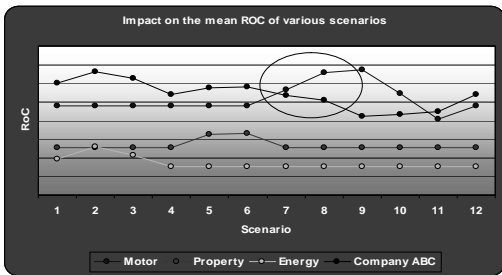
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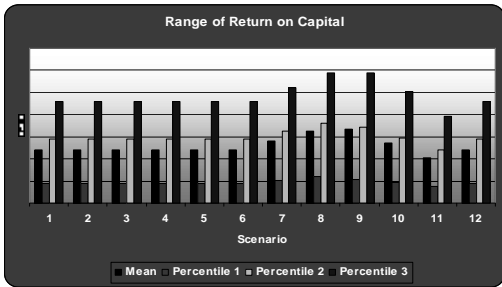
The Annual Performance Review
Building Your Future

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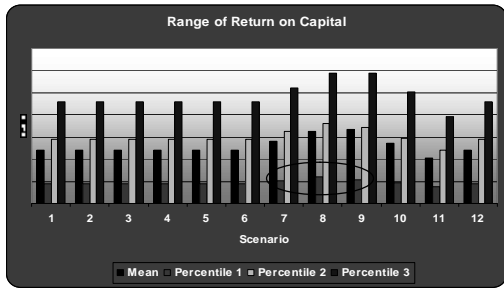
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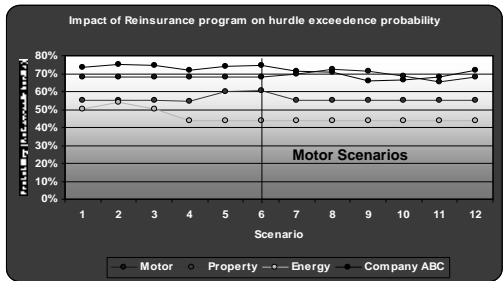
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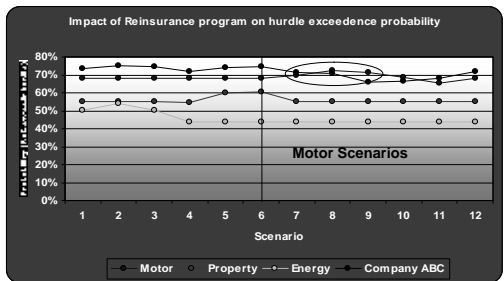
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Making Your Insurance the Future

Who calls the shots?



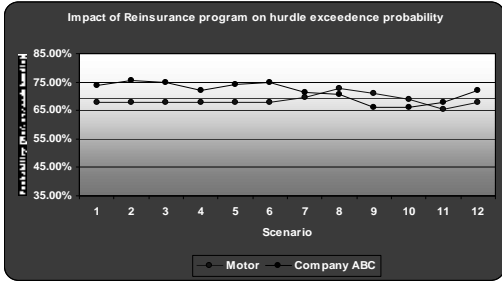
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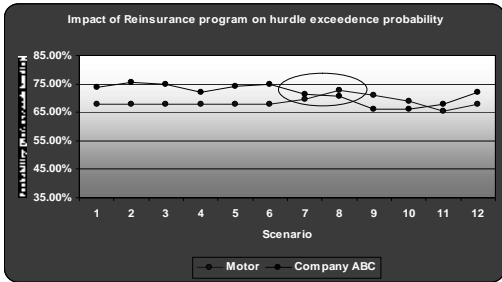
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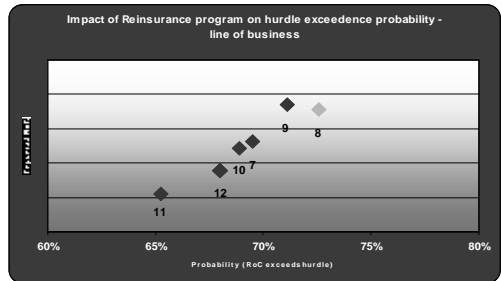
The Act of Parliament
making provision for the future

Who calls the shots?



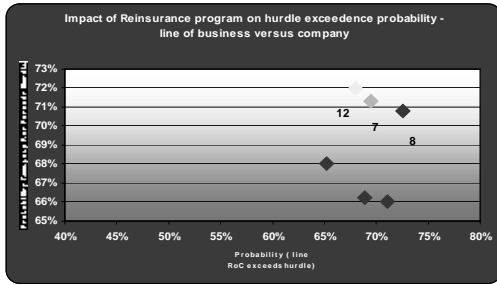
The Act of Parliament
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Who calls the shots?



The Act of Parliament
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Who calls the shots?



The Act of Penalties
Making Them of Interest in the Future

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The Act of Penalties
Making Them of Interest in the Future

Knowing when it's time to go...

- Problem: When should you exit a run-off line of business?
- Issue: It's a dead-weight on capital resources. Suppresses RoE compared to peers without run-off exposure.
- But shedding it incurs significant capital cost...
- While waiting for certainty runs risk of deterioration

- Some forms of finality are better than others, but not all will be available
- Can the actuary use their DFA model to enhance this decision?

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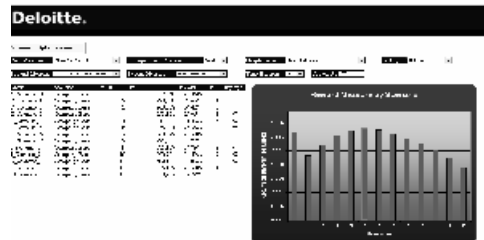
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Making Your Balance Sheet More Useful

Mixing it up

- Optimisation Techniques
- Ranking Scenarios
- Case Study – Asset Mix

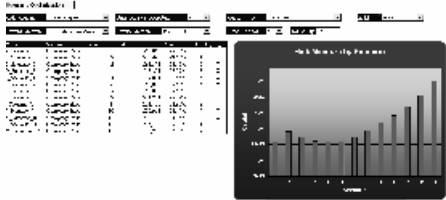
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Making Your Balance Sheet More Useful

Case Study 3 – Optimisation -Reward



Case Study 3 – Optimisation -Risk

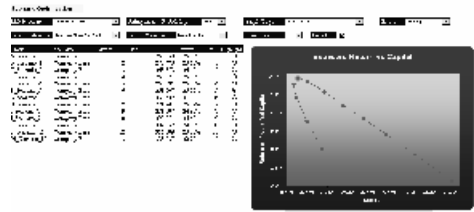
Deloitte.



The Art of Problem Solving
Making Your Mind Work for You

Case Study 3 – Optimisation –Risk/Reward

Deloitte.



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Getting more useful?

- Key test for current generation of DFA models is whether they actually help with business decisions
- ICA regime has provided useful impetus to companies to invest time building models...
- ... but has focus been too much on regulatory needs, not on building models that help run the business
- For models to be taken seriously by investors and regulators, companies need to crack the problem of getting them to pass the "in-use" test
- To get there, the models need to be at the heart of key business decisions – eg those outlined today

The Act of Parliament
Making Technical Assistance a Priority
