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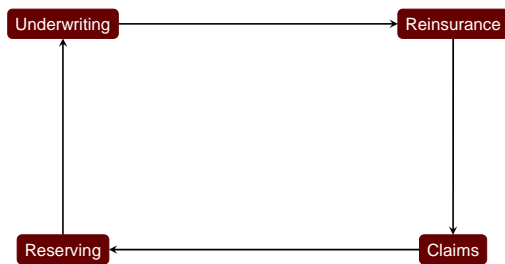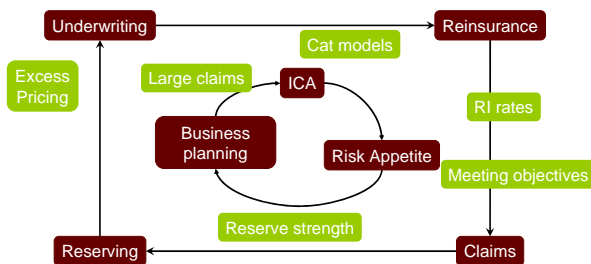making financial sense of the future

Uncertainty in an Underwriting Environment Pricing, Capital and Reinsurance

David Hughes, James Toller and Mary Casebourne

Uncertainty in an Underwriting Environment

Underwriting → Reinsurance

Reserving ← Claims

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Uncertainty in an Underwriting Environment

Underwriting → Reinsurance

Excess Pricing

Large claims

Cat models

ICA

Business planning

Risk Appetite

RI rates

Meeting objectives

Reserve strength

Reserving ← Claims

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Beazley Specialty Lines

- Pricing support
  - Professional Indemnity
    - Medical Malpractice – Hospital
    - Treaty
    - Large Lawyers / specialists
  - Self insured retentions
    - Excess
    - Large dollar deductibles

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Pricing for Uncertainty in Excess Layers

- Lack of data in excess layer
  - Alternative data sources
  - Credibility
- Increased Limit Factors (ILFs)
  - Lack of large claims
  - Selection of appropriate ILF
  - Calculation

Link to ILF paper

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What is an ILF?

- Price of $1m limited policy $2,000
- Price of $2m limited policy $3,200
- ILF = $3,200 ÷ $2,000 = 1.6

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Excess pricing – A Case Study

- A Healthcare Professional Liability insurer
  - 20,000 Occupied Bed Equivalents
  - 15 years of loss history (5000 claims, Max $8m)
  - Recent actuarial report on Loss & LAE reserves
  - 90 individual healthcare providers insured
  - Single state domicile
- Excess requirement
  - $20m xs $10m

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Excess Pricing –An Approach

- Estimate Basic Limits Price per OBE e.g. $100k
- Determine appropriate ILF / Loss Distribution
- Estimate Excess Loss Cost

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Excess Pricing – Basic Limits Costs

- Limited fluctuation
- Stable LDFs
- Responds to frequency more than severity
- Listed in most Healthcare actuarial reports
- Underwriters understand this cost

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Excess Pricing – Understanding the risk

- Loss history credible
  - 5,000 claims
  - 98 healthcare providers
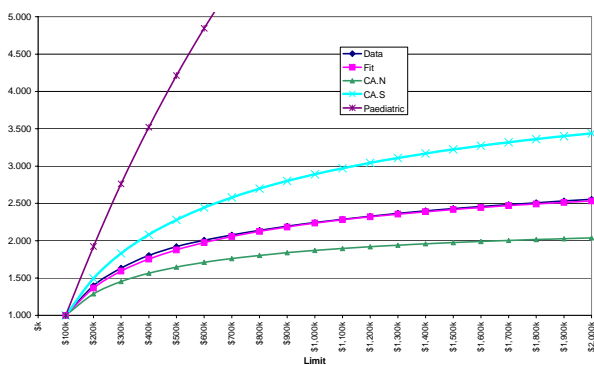- BUT
  - 3 healthcare providers are Paediatric hospitals

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Excess Pricing - Paediatrics

- Paediatrics
  - 8.5% of OBE but only 1.7% of count claims
  - Lower frequency – larger severity

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Excess Pricing - ILFs

Excess Pricing – The calculation

		Non Paed	Paed
(a)	Basic Limits Loss Cost	$8.0m	$0.9m
(b)	ILF	0.10	1.67
(a) x (b)	Total	$0.8m	$1.5m

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Excess Pricing – End Result

- Ignoring Paediatrics
  - $0.9m loss cost
- Including Paediatric assumptions
  - $2.3m loss cost

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Excess Pricing - Uncertainty

Summary
- Homogenous data required
- Understand the risk
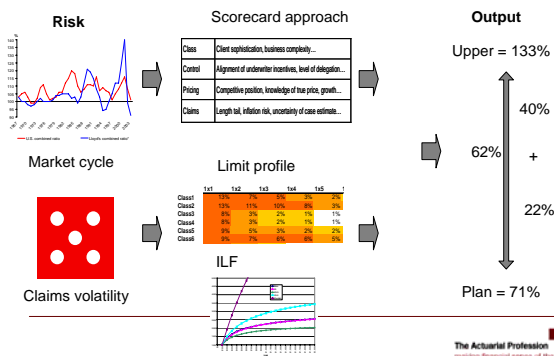- Get complimentary data

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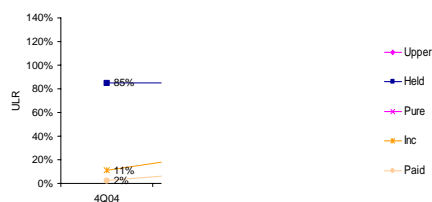
Excess Pricing - Conclusion

- Actuarial techniques powerful,

 BUT

- One must know where the areas of uncertainty are and how best to sail through them

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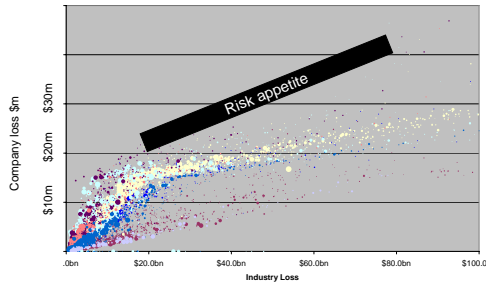making financial sense of the future

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Underwriting link to capital

Risk

Scorecard approach

Class	Client sophistication, business complexity...
Control	Alignment of underwriter incentives, level of delegation...
Pricing	Competitive position, knowledge of true price, growth...
Claims	Length tail, inflation risk, uncertainty of case estimate...

Output

Upper = 133%

40%

62%   +

22%

Market cycle

Limit profile

	1x1	1x2	1x3	1x4	1x5	1
Class1	13%	7%	5%	3%	2%
Class2	13%	11%	10%	8%	5%
Class3	8%	3%	2%	1%	1%
Class4	8%	3%	2%	1%	1%
Class5	9%	5%	3%	2%	2%
Class6	9%	7%	6%	8%	5%

ILF

Claims volatility

Plan = 71%

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Reserve strength

- Upper
- Held
- Pure
- Inc
- Paid

85%

11%
2%

4Q04

Reserve strength Risk appetite = X% to Y%

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Catastrophe risk appetite


http://www.iso.com

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Where does the uncertainty in reinsurance purchase exist?

1. In the claims the reinsurance is being bought to cover
2. Possibly in the reasons behind the reinsurance purchase
3. Possibly in whose objectives it's being bought to cover – Group v Business units
4. In the pricing achievable/availability in the reinsurance market

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Uncertainty in the claims being covered

Is it more likely that you'll have at least 2 claims or that you'll have less than 2 claims?
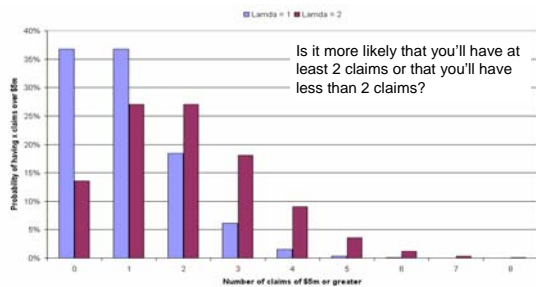
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2. Uncertainty in reason for purchase
Likely to be trying to satisfy many objectives which can conflict

It keeps losses in check

Improves return on capital

Required to meet RDS requirement of 20% stamp

Rating

Keeps me in line with peers
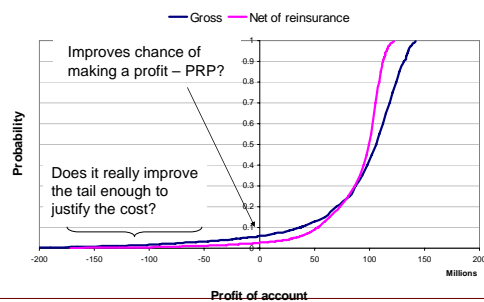
If I've got it all wrong it'll save me

It seems good value for money

More likely to meet my PRP

Garage Sale

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2. Measuring Objectives

Gross — Net of reinsurance

Improves chance of making a profit – PRP?

Does it really improve the tail enough to justify the cost?

Probability

Profit of account

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2. Objectives need to be prioritised id there is conflict

4 It keeps losses in check

Improves return on capital **5**

1 Required to meet RDS requirement of 20% stamp

Rating

Inertia

Keeps me in line with peers **6**

If I've got it all wrong it'll save me

It seems good value for money **3**

More likely to meet my PRP **2**

Garage Sale

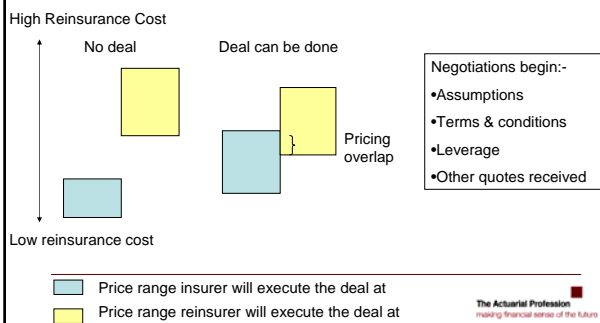The Actuarial Profession
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3. Uncertainty in Group v Business Unit
Both have objectives to meet but these objectives conflict:-

- 3 courses of action

1. Satisfy the Group requirements only
2. Satisfy the business unit only
3. Set up a framework to satisfy them both

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4. Uncertainty in achievable price of reinsurance

High Reinsurance Cost

No deal   Deal can be done

Pricing overlap

Negotiations begin:-
- Assumptions
- Terms & conditions
- Leverage
- Other quotes received

Low reinsurance cost

Price range insurer will execute the deal at
Price range reinsurer will execute the deal at

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Summary

- Simple linked processes
- Evolving
- …

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