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THE IMPLICATIONS OF THE RESERVING AND UNDERWRITING CYCLES FOR RESERVING

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WP Terms of Reference

- Review of previous work
- Investigate effects of cycle on traditional methods
- Undertake research to
  - Enhance understanding of the drivers of reserving cycle
  - Develop methods for dealing with the cycle
- Consider need for guidance

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Review of Previous Work

- Many papers discussed UW cycle
- Consensus that Reserving Cycle exists
  - GRIT, Cycle Survival Kit (GIRO 2003)
- Others discussed consequences of Reserving Cycle
  - CAS (1999!)
- None presented solutions
  - Tom Wright CAS 2008??

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Agenda

- Shortcomings in existing methods
- Mitigating shortcomings:
  - A framework for subjective adjustments
  - Alternative modelling approaches
    - Rate indices
    - Tail length
- Real World issues

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Shortcomings in Existing Reserving Methods

- Rate monitoring
- Cyclical changes in underlying risk
- Tail length

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Shortcomings: Rate Monitoring & Cyclical Changes in Risk

Characteristics of a softening market

(Apart from reducing prices!)

- Increased limits
- Reduced deductibles
- Loosening of terms and conditions
- New business cheaper than renewal business
- New business is someone else's lapsed business
- Increase in competition
- Increase in propensity to claim

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Shortcomings: Rate Monitoring

Issues exacerbated by:

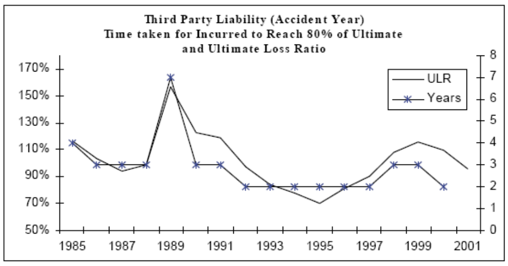
- Under-estimation of impact of changes in terms and conditions
- Rate monitoring based on renewals only
- Unmodelled impact from winner's curse
- Oversight bias
- Management intervention
- Compounding of effects year-on-year

Shortcomings: Rate Monitoring & Cyclical Changes in Risk

Impact on Reserving:

- Dynamics of underwriting cycle not fully reflected in many rate monitoring exercises
- Prior loss ratios rely on rate monitoring conclusions
- Early stages of reserving often relies on the prior loss ratio or a blended approach (e.g. Bornhuetter-Ferguson)… especially for longer-tailed classes

Shortcomings: Tail Length



Source: Cycle Survival Kit Paper, GIRO 2003

Shortcomings: Tail Length

Potential Reasons for Tail Lengthening in a Soft Market:

- Change to policy structure, e.g.:
  - Reductions in deductibles leading to more attritional losses
  - Reductions in aggregate deductibles leading to more aggregate breaches
- Weakening of claim reporting requirements
- More multi-year policies
- Financial considerations:
  - Increased tendency for disputing claims
  - Changes in case reserving philosophy

Shortcomings: Tail Length Model

Year	Actual	Existing Naive	Existing Naive	Hard/Soft	
1	9,469	9,469	-	Soft	Chain Ladder
2	9,668	9,668	-	Soft	Chain Ladder
3	10,723	10,735	12	Soft	Chain Ladder
4	11,110	11,179	69	Hard	Chain Ladder
5	11,388	11,524	136	Hard	Chain Ladder
6	11,058	11,193	135	Hard	Chain Ladder
7	12,425	12,479	54	Soft	Chain Ladder
8	13,198	13,152	- 47	Soft	Chain Ladder
9	13,856	13,742	- 113	Soft	Chain Ladder
10	12,689	12,688	- 1	Soft	Chain Ladder
11	14,523	14,815	291	Hard	Chain Ladder
12	13,358	14,095	737	Hard	Chain Ladder
13	14,167	15,087	920	Hard	Chain Ladder
14	14,752	14,884	132	Soft	Chain Ladder
15	15,108	13,861	- 1,247	Soft	Chain Ladder
16	15,676	13,575	- 2,101	Soft	Chain Ladder
17	15,425	15,789	364	Soft	Bornhuetter-Ferguson
18	16,847	17,008	161	Hard	Bornhuetter-Ferguson
19	15,572	17,301	1,728	Hard	Bornhuetter-Ferguson
20	19,117	18,509	- 607	Hard	Bornhuetter-Ferguson
Hard Years	127,141	130,711	3,570		
Soft Years	142,991	140,043	- 2,948		
All Years	270,132	270,754	622		

Framework for subjective adjustments: Overview

- Portfolios will change as the cycle softens
  - Change → selection and survivorship bias
- There will be plausible reasons for changes
- There will not be compelling evidence of under-pricing

Portfolio change increases the risk of underperformance

Framework: Mix of business

- Increasing levels of delegation
- Increasing cat / large loss risk
- Increasing large limit + large premium policies
  - $ swap or attrition
  - Large policies are competitive
- Segment and target profitable sectors
- Policy innovation
  - New? Products – technical price unknown – selection

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Framework: Increasing limit

- Reasons to increase limit
  - Increased confidence in performance of hard years
  - Increased confidence in underwriters
  - Commodity price increases
  - Write against reinsurance
  - Brokers slicing and layering
- Impact on profitability difficult to quantify
  - Changes in sub-limits and aggregates deductibles
  - Obscured by signing down
  - Uncertainty over correct excess ILF

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Framework: Policy length

- Binder inception date
- Underlying policy length
- Multi-year deals / resigning

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Framework: Rate recording

- The tendency is to underestimate the true drop in premiums rates in a “soft” market
- Robust rate recording can help avoiding underestimation of reserves
- Good practice to understand:
  - Risk by risk analysis
  - Rates changes split by components?
  - New Business/renewals/lapse business
  - Frequent/reliable process?

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Framework: Price adequacy

- How is the target price derived?
- How does this affect the reserving?
- What types of adjustments should be made?

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Framework: Soft Information

- Some soft factors can also affect profitability and tail lengthening.
- Good practice to try and understand:
  - Economic conditions
  - Terms and conditions
  - Changes in underwriting

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Mitigating Issues Arising from Rate Indices

- Use alternative exposure measures
- Allow for rate differentials between new, renewed and lapsed business
- Adjust for changing limits and deductibles
- Adjust for changing terms and conditions

Mitigating Issues Affecting Tail Length

- Derive separate development patterns for hard and soft market conditions
- Use curve fitting and vary parameters

Booked Reserves not Equal to Best Estimates

Two reasons:

- Actuarial estimate contains margin
- The Board books a reserve that is different from the actuarial estimate

Actuarial Estimate Contains Margin

- Estimates often include elements of prudence
- Best estimate may not even be calculated
- Prudent reserves calculated using same projection techniques as best estimate reserves - so distorted by the same issues
- May be driven by management's wishes

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Booked Reserves Differ from Actuarial Estimate

- May differ from initial actuarial estimate
- … or from final actuarial estimate
- Tendency to be more prudent in hard market conditions than in soft market conditions
- Impossible to tell what is causing an observed reserving cycle without inside knowledge
- Eliminating the actuarial reserving cycle may not eliminate the cycle in booked reserves

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Summary

- Reserving Cycle exists
  - Empirical evidence
  - Shortcomings of existing methods
- There are ways to deal with it
  - Within existing reserving framework
    - Modified models
    - Structured application of judgement
  - Data issues
  - New approaches…?

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