

34TH ANNUAL GIRO CONVENTION

CELTIC MANOR RESORT, NEWPORT, WALES

ROC

The implications of the underwriting
and reserving cycles for reserving

Presented by:

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Mark Rothwell
James Toller

Agenda

- Introduction
- Rate Monitoring
- Tail Length
- Management Pressures
- Dealing with the Issues
- The Next Steps

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Introduction

Participants:

- Ian Hilder (Chair)
- Tom Rivers
- Mark Rothwell
- Simon Sheaf
- James Toller

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Introduction

PROBLEM

The underwriting cycle gives rise to features which may not be sufficiently recognised by standard approaches:

- Lengthening of claim development pattern in soft markets
- Rate indices failing to capture degree of rate softening

This can result in the "perfect storm" of a disaster:

- Worsening experience hidden by longer tail
- Initial expected loss ratios inadequate
- Expected ultimate loss ratios deteriorate over time as actual experience emerges
- Reserving process fails to detect underlying trend

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Introduction

Terms of Reference

- Review previous work on this topic and identify areas for further research
- Investigate further the effect of the underwriting cycle on traditional reserving methods and how to compensate for this
- Undertake/commission research to:
 - Enhance understanding of drivers of the reserving cycle
 - Develop actuarial methods for dealing with the underwriting cycle (e.g. cycle invariant curve fitting)
- Consider whether actuarial guidance on this topic would be beneficial

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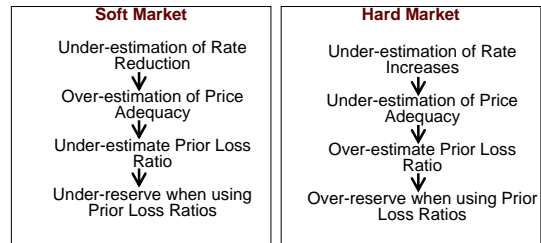
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Rate Monitoring

- Limits and Deductibles
- Terms and Conditions
- Renewal v New Business
- New Business v Lapsed Business
- Compounding of Estimation
- Winner's Curse
- Oversight Bias
- Risk Management within Insureds
- Ostriches

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Consequences for Prior Loss Ratios



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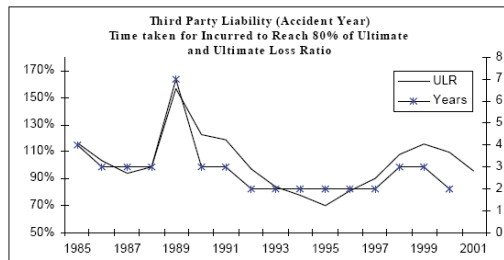
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Tail Length

- Reliance in reserving on consistent development profiles across different origin years
- Reasons for differences:
 - Change to policy structure in hard/soft markets...
 - Financial situation may change attitude to settlement/dispute and case reserving policies

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Tail Length



Source: Cycle Survival Kit Paper, GIRO 2003

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Management Pressures

- Management decisions may lead to booked reserves differing from actuarial estimates
- Two scenarios
 - Differ from initial actuarial estimates
 - Differ from final actuarial estimates
- Tendency to be more prudent in hard market conditions than in soft market conditions

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Management Pressures

- Complicates analysis of an observed reserving cycle
 - due to actuarial reserving process?
 - due to management decisions?
 - due to a combination of the two?
- Impossible to tell without inside knowledge
- Use of alternative methodologies to eliminate actuarial reserving cycle may not eliminate cycle in booked reserves

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Dealing with the Issues

- Dealing with Rate Monitoring Issues
- Dealing with Tail Length

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Dealing with the Issues

Components of Solutions:

- Awareness of issues is first step
 - At least this will lead the actuary to think harder
- Possible changes to existing methodologies
- Alternative approaches
- Getting buy-in; whatever you do, you'll need it

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Dealing with Rate Monitoring Issues

Long Term Improvements to Rate Monitoring

- Capture impact of changes in terms & conditions and limits & deductibles
 - Explicit rating adjustments
 - Application of appropriate
 - Logging changes
- Explicit capture of rate differentials between new, renewal and lapse
 - Benchmark rates, etc...
- Reducing oversight bias by increasing scope of rate monitoring exercises

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Dealing with Rate Monitoring Issues

Short Term Improvements

- Explicit assumptions on impact of each issue associated with rate monitoring.

Avoiding the Issues

- Test reserves against alternative benchmarks that use alternative exposure measures (e.g. frequency/severity models)

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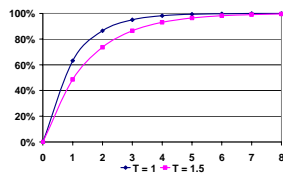
Dealing with Tail Length

- Considered alternative approaches to allowing for varying tail length in the reserving method
 - Detailed models
 - E.g. If due to longer term policies, build underwriting year development patterns from accident year patterns and assumed exposure profile.
 - High level models.
 - Build patterns from observed differences in past patterns as the cycle has varied
- Modelled the impact of using the high level methods on the held reserves

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Varying the tail length method

- Subjective. Either
 - Select hard and soft curves individually
 - Fit a single curve (e.g. Craighead shown below) and then shift the Time parameter



$$y(t) = A(1 - e^{-(t/b)^c})$$

T = Time
C = Slope

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Example of Varying Tail Length

- Modelled random triangles with varying tail lengths through the cycle
- Modelled three different approaches to each of the chain ladder and BF methods:
 - Standard approach with no recognition of the varying tail length
 - Defining two separate development patterns for hard/soft market conditions
 - Interpolating different patterns for each year depending on position in cycle

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Example of Varying Tail Length

	No allowance for varying tail	Two separate patterns	Interpolated pattern
Knowledge of cycle	None required	Need to allocate each cohort as hard or soft	Need to estimate exact point in cycle
Volume of data required	Less	More	More
Accuracy: Soft Years	Tend to under-reserve	Depends on how soft	Most accurate
Accuracy: Hard Years	Tend to over-reserve	Depends on how hard	Most accurate
Accuracy: Overall	Depends on position in cycle, number of historic years available and mix of hard/soft years in reserves		

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The Next Steps

- Obtain initial feedback
- Complete Investigations, for example:
 - More detailed survey of literature
 - Impact of other cycles such as economic cycle effects on claim frequency
- Discuss whether guidance needed

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Questions/Discussion/Feedback

?

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Close

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