

Capital And Risk Management Some Thoughts on Risk Capital for CI Business

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Critical Illness – MOT or Cosmetic Surgery ?
One-Day Seminar
06 December 2006

CI Risk Based Capital Working Party Aims

- Formed February 2005; dormant lately but plan to re-start early 2007
- Established to address a Key Question :
 - **How much capital is needed to support CI business ?**
- The aim is to develop information and models, and possibly formal guidance, to assist with ICAs, reserving and pricing for CI business, especially where long-term premium guarantees are given.
- Focus on modelling cashflows, independent of any specific capital regime.
- Focus primarily on CI Claims Risks, using mortality as a benchmark

CI Risk Based Capital Working Party Focus on Level and Trend Risks

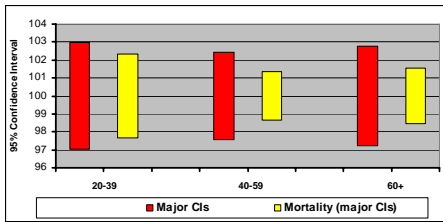
- Risk in Mis-Estimating Current / Initial Level
 - Credibility
 - Appropriateness
 - Interpretation
- Risk in Future Trends differing from expected
 - Underlying Trend
 - Demographic; Accumulations; Volatility
 - Compare to mortality trends and trend volatility (CI risk > Mort?)
 - Step Changes & Waves
 - Medical advances; changes of lifestyle, law or practice
 - Cohort effects
- But for today, just some thoughts on level risk (mine to provoke yours !)

CI Risk Based Capital Level Risk Framework - for evaluation

- Size of data sets - sampling error risk, by lives & by amounts
- Volatility in underlying (population) rate
- Understanding issues in the data
- Calculating experience - IBNS, etc
- Model error - short-term projection risk
- Estimating ultimate experience for early duration data
- Model error - choice of model to fit to the data
- Appropriateness / Change in market or business model or mix
- Combining multiple data sources

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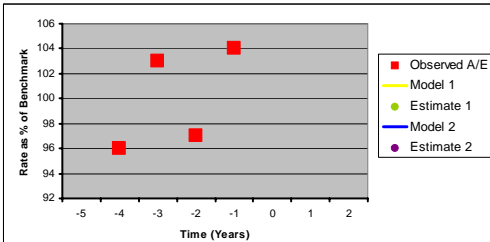
CI Risk Based Capital Level Risk Framework - Underlying Volatility



Population rates vary significantly year to year (even after removing 'sampling error'); CI rates more volatile than mortality.

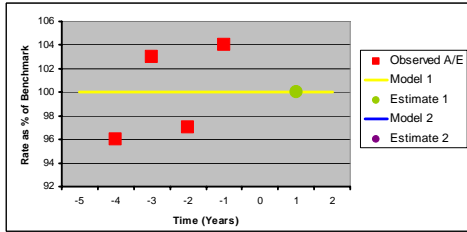
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CI Risk Based Capital Level Risk Framework - Model Error (Short Projection)



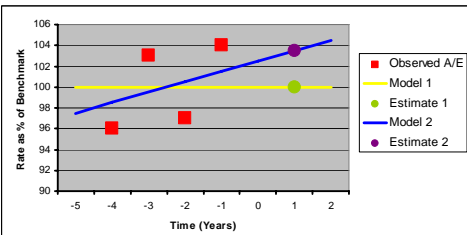
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**CI Risk Based Capital
Level Risk Framework - Model Error (Short Projection)**



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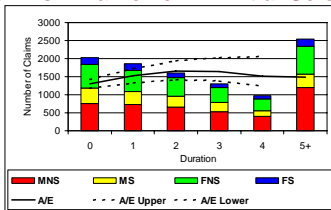
**CI Risk Based Capital
Level Risk Framework - Model Error (Short Projection)**



Even extrapolating from recent past to applicability date of basis involves critical implicit model assumptions and associated risk / uncertainty

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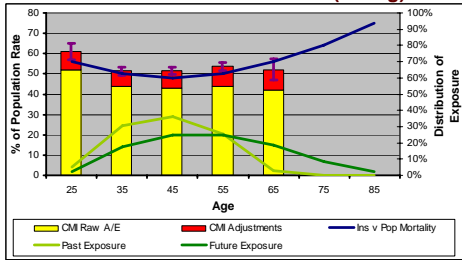
**CI Risk Based Capital
Level Risk Framework – Initial Selection**



- CMI / most own-office data is still heavily weighted to early durations
- We have no prior knowledge of shape of initial selection for CI
- Wide range of 'ultimate' experience still fits the data
- Particular issues around TPD and 'declined' / postponed claims

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CI Risk Based Capital Working Party Level Risk Framework - Model Error (Fitting)



Past exposure/experience may not adequately cover the range of expected future exposure; extrapolating even top sage 60 has significant risk

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CI Risk Based Capital Level Risk Framework - for evaluation

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Thank you very much for your attention

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