

# Mortality Margins

## **Mortality Development and Margins Update**

Society of Actuaries & American Academy of  
Actuaries Joint Project Oversight Group

Mary Bahna-Nolan, FSA, CERA, MAAA

Chair of Life Experience Subcommittee

**March 24, 2010**



# Proposing amendments to VM-20

- Clarify language to allow use of supplementing own company data with additional data, such as reinsurer data, where applicable
  - Current draft requires supplementation of data; recommending this not be mandated
- For companies that do not meet simplified approach, anticipated experience assumption requires use of credibility theory
  - Looking at how to incorporate considerations from Credibility Theory Practices note
- Allow judgment in determination of applicable industry/VBT table
  - + / - one table from results of underwriting criteria scoring procedures, based on judgment with appropriate disclosure
  - Takes into account factors that are not recognized in the underwriting scoring algorithm
  - Further adjustments to reflect risk characteristics not captured within the underwriting criteria scoring tool may be allowed upon approval by the Commissioner.



# Proposing amendments to VM-20

- Modified approach for determining prudent estimate assumptions
  - Remove references to industry prudent estimate tables
  - Apply margin following recommendations made by Valuation Table Team at December LHATF meeting
- Clarification to determine anticipated experience assumptions
- Clarification to determine prudent estimate assumptions



# Valuation Table Team's December 2009 Margin Recommendations

- A loading method to be applied to anticipated experience assumption which blends two different loads
- Uses a blending factor that is determined by the credibility of mortality experience when compared to mortality assumptions
- Designed to cover the following risks:
  - *Random Fluctuation* risk
    - deviation resulting from periodic variations of results from the mean
  - *Company Variation* risk
    - variations in experience due to small sample size as well as deviations from a selected industry mortality due to differences in underwriting practices and the demographics of the underlying insured lives
  - *Mis-estimation of the mean*
    - refers to the company specific risk of mis-estimating the mortality assumptions due to sampling errors. This may result from issues with the underlying experience data such as low credibility (i.e. a small volume of data) or heterogeneity within the data



# Considerations with Current Recommendations

- Level of margins should vary between companies with and without credible data
- For companies with no credible data (i.e., anticipated experience assumption defaults to VBT tables)
  - Level of margin should be the same for all companies with no credible data
  - Under current approach, this may not result without further prescription
  - Prescription of a specified margin may potentially lead to tax and non-forfeiture issues
  - Seeking guidance from LHATF regarding how to resolve this issue
- Considerations:
  - It is not practical to have a loading formula that varies by the size of the block of business
  - RBC factors for mortality are larger for smaller volumes
  - Prescribed margins to cover 85% of underlying company experience may be too conservative for gross premium valuation
  - Margins theoretically reset at each valuation date; however, VBT tables not reset each year – may lead to a disadvantage for companies with lack of experience if VBT tables not updated annually with mortality improvement



## Next Steps

- Guidance from LHATF regarding margins for companies with lack of credible experience
- Incorporating concepts from Credibility Theory Practices paper as well as SOA research paper, Analysis of Methods for Determining Margins for Uncertainty under a Principle-Based Framework for Life Insurance and Annuity Products, published in 2009
- Survey to reinsurers
  - Survey to determine availability of detailed information companies supplementing data with reinsurer data
  - Survey being sent out this week
- Submit amendment with above recommendations



# Additional Individual Life Mortality Work

- Valuation table development for 5-year study (2002-2007) work beginning
  - First steps toward 2012 CSO development/recommendation
  - Expect revised tables to 2008 VBT – underlying experience shows significant improvement from 2002-2004 experience
- Guaranteed Issue / Simplified Issue
  - Survey results expected April 1
  - Purpose of survey is to understand the stratification of the market by type of underwriting and distribution, including predictive analytics
  - Analyze results and recommend how to proceed with mortality study for GI/SI experience