IAA MWG Presentation

Current US Mortality Studies, Research, etc.

Al Klein
Cape Town 2016
Society of Actuaries
2015 VBT

- Involved in development
- Best of three SOA VBT tables (level and slope), but not perfect
- Experience data from 2002-2009 plus MIMSA II and TOAMS III
- Ultimate mortality rate of 500 deaths per 1,000
- 10 NS and 4 SM RRTables for PBR
2017 CSO

- Developed from 2015 VBT
- Loading percentage varied by attained age and was designed to provide sufficient margin for most companies
- To be used for CVRM, net premium reserves, non-forfeiture, cap for UL COI
- Preferred tables to be used for CRVM and net premium reserves
RRTool

- RR stands for Relative Risk
- Designed to determine the industry table to be used for PBR
- Based on company credibility and underwriting criteria used for particular risk class
- Involved in development and can help you or clients with any questions on the tool

- Done by Milliman (Andrew Boyer, Charlie Linn, Karen Rudolph)
- Analysis using data from participating companies to evaluate the impact of the 2017 VBT on reserves
Impact of VM-20 on Life Insurance Product Development

- Being done by Milliman (Paul Fedchak, Jackie Keating, Karen Rudolph, Uri Sobel, Andrew Steenman, Rob Stone)
- Phase 1
- Provides iterations for moving from CRVM to reserve financing to VM-20 for term and ULSG products, 2001 CSO to 2017 CSO
Mortality & Other Implications of PBR (VM-20) Survey

- Done by SOA Mortality and Underwriting Survey Committee
- Survey conducted in 2014 and published in 2015
- Survey discusses resources, mortality assumption setting and modeling, and impact on product development
Predictive Analytics & Accelerated and Enhanced Underwriting Survey

- SOA Mortality and U/w Survey Committee
- For PA, asked about marketing (8 questions), underwriting (6), and post-issue (7)
- Implemented? Working on and considering? Not working on and considering? Decided no?
- Survey conducted in 2016 and will be published in 2017
Mortality Improvement Rates for AG-38 for Year-End 2016

- Just released in September
- Completed by Mortality Improvement Life Working Group
- Developed as average of:
  - General population mortality improvement from last 10 years (2003-2012 for 2016) from Social Security Administration (SSA) and
  - Mortality improvement from SSA Trustee’s Report intermediate assumption over 20 year period (2014-2034)
Mortality Improvement Scale MP-2016

• Just released in October
• Developed by Mortality Improvement Subcomm. of RPEC (Ret. Plans Exper. Comm.)
• Based on 2012-2014 SSA mortality data plus a slight modification to two input values to improve year over year stability
• Slight decrease in LE due to slower rate of improvement
Longevity Advisory Group

• Formed in 2014 based on recommendation from task force to better educate actuaries and the public on longevity issues
• Held invitee only seminar in Chicago early 2015 with experts from around the world
• Longevity webcast series
• Begun work to develop consistent framework for developing mortality improvement assumptions
Components of Historical Mortality Improvement

• Research project that has begun, the findings of which will be used to help develop the consistent framework for developing mortality improvement
• Results of findings will be published in 2017
Younger Issue Age Mortality Analysis Report

- ILES (Individual Life Experience Studies) and MIB (Medical Information Bureau), oversight by group from 2015 VBT
- Based on 2000-2013 experience
- Focused on issue ages 0-17
- Experience was studied by issue age, duration, attained age, gender, select period, policy size, product, preferred class and smoking status
Older Age Analysis Report

• Part of 2015 VBT development
• Discusses considerations, including:
  • Mortality patterns in 2002-2009 data
  • Policy size
  • Widow effect
  • STOLI
1900 Birth Year Cohort

- Research project
- Goal is to help determine pattern of older age mortality
- Will actually look at five birth year cohorts
US Population Mortality Trends

- Task Force looking for ways to quickly publish mortality findings/trends based on quick research of recently released mortality data from various sources.
- Considering reporting on flu and influenza first, sometime next year after the flu season and after the data comes in.
Preferred Class Structure Report – Part 2

- SOA/MIB Report
- Purpose:
  - How are companies changing preferred structures?
  - How does mortality vary by company?
- Study years 2009-2013, issue years 1990+
- Studied results by issue year, issue age, duration, gender, plan, and policy size
- Also looked at preferred class wear off
Level Premium Term Conversion Experience

- Research project completed by RGA
- Report on policyholder behavior and potential mortality implications
Group Term Life Mortality Study

- Study period 2010-2013
- Covers individually billed group basic life, supplemental and voluntary group life, ported group life; basic group AD&D, and supplemental and voluntary AD&D
Structured Settlement Mortality Experience Report

- Study period 2000-2008
- Covers experience on workers compensation, individual long term disability, and lawsuit settlements
- Includes standard and substandard annuities
HMD Mortality by State

- HMD is the Human Mortality Database
- One of two projects HMD is completing in return for funding from SOA
- One issue in this project is how to deal with inter-state movement
HMD Cause of Death

- Second project HMD is completing in return for funding
- Looking at COD data for eight countries (Canada, Czech Republic, England and Wales, France, Japan, Norway, Sweden, US)
- Two issues in this project deal with changes in ICD definitions over time and country specific cause of death nuances
Mortality: A Quest for the Ultimate

- Long Term Care News Article by Milliman (Missy Gordon and Shawn Stender)
- Trends in mortality on long term care business
SOA Annual Meeting Presentations

- Mortality Trends: A Discussion of Disparate Views
- Population Mortality Analysis and Methods
- Older Age and Juvenile Mortality Patterns
- One Thing Leads to Another, the Role of Chronic Disease in Higher Mortality Rates
- Longevity Reinsurance
- PBR – Credibility and Uw Criteria Scoring
SOA Life and Annuity Symposium Presentations

• Predictive Analytics for Mortality, Quality, and Fraud
• Older Age Mortality Analysis Using Modern Statistical Methods
• Mortality – What do Non-actuaries Focus on and Why Should Actuaries Care?
Other SOA 2016 Meetings with Mortality Topics

- Valuation Actuaries Symposium (August)
- Longevity 12 (September)
Living to 100 – Insights on the Challenges and Opportunities of Longevity

- Literature review 2002-2014
- Highlight areas of consensus and disagreement
- Present techniques for modeling mortality and forecasting future mortality
- Commentary from actuarial interviews
- Facilitate content for broader audience
Other US Activities
Actuaries Longevity Illustrator

- Joint SOA/Academy project
- Simple inputs – age, smoking status, general health
- Shows joint lives information on:
  - Probability of living to certain age
  - Probability of living a certain number of years
  - Number of years one or both will live based on certain probabilities
SSA OCACT

- Mortality data and projections from the Office of the Chief Actuary, SSA
Johns Hopkins and AIG

• AIG funded research project with Johns Hopkins
• Organized interviews by expertise (e.g., cardio, cancer, etc.)
• Asked each group for future projections of mortality based on their area of expertise
• Results varied by area, but were generally consistent with SSA mortality projections
The Drivers of Future Mortality: An Underwriter’s Perspective

• Research report by SCOR
• Covers past and future drivers
• Future drivers discussed focused on:
  • Medical advances
  • Behavioral and lifestyle changes
  • Infectious diseases
• Same title – Article in On the Risk (9/2015)
New Mexico Conference on Aging

- Sessions on wellness
- Support and ideas for active aging
AAA Longevity Risk Task Force

• **Goals**
  
  • Evaluate US and international practices for considering longevity risk in reserves and capital requirements for life and annuity products
  
  • Create recommendation on explicit longevity risk margin

• **Presented recommendation to Federal Reserve 9/2016, link:**
  
Questions?