

# Annuity Capital Risk Management

“At its most basic, the principle-based approach says ‘Do the right thing and explain it’.”

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Tuesday, November 15, 2012, 1:30–2:30 P.M.

# Disclaimer

- These comments are my personal views and should not be construed to represent the views of the MassMutual Financial Group



# A Regulator's Viewpoint

“There should be discussion of the consistency of the models between reserve calculations and company decision making models. I believe this is one of the most important aspects of the project. If we wind up at the end of this process with companies setting up a separate model that is only used for valuations, then principle-based valuations will never be fully accepted (without conditions like the standard scenario).”

- Quote from an unnamed regulator  
Larry Gorski, ValAct 2005

# Overview

- History
- Deadlines – challenges and responses
- Documentation
- Pricing Considerations
- Uses for ERM
- Managing the process
- Thanks to Chris Karparis for reviewing



# History of PBA for Risk Based Capital

- Mid-1990's: NAIC asked the Academy to refine the methodology behind the C-3 risk.
- October 1999: C-3 Phase 1 (Interest rate risk for annuities and SPWL) report was released
- Year-end 2000: C-3 Phase 1 effective
- Year-end 2005: C-3 Phase 2 (VA risks) effective

# Deadlines

- Regulatory deadlines are later than internal company deadlines
  - Estimated RBC as part of Blue Book filing by March 1
  - Actual RBC electronic filing by May 1
- Two major means of addressing deadlines
  - Perform calculations based on an earlier date
  - Perform calculations more quickly
- Key aspect is disclosure of means used and any testing that has been done

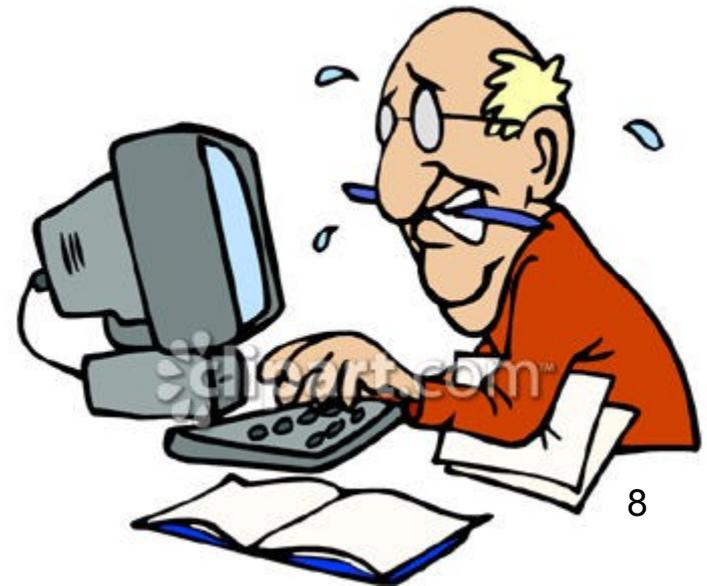
# Deadlines – earlier inforce date

- Based on CFT, C-3 Phase 1 uses this approach
- Should reflect significant changes between inforce date & year end
- VA practice note for C-3 Phase 2 had two methods
  - Interpolation Method
  - Informed Projection Method



# Deadlines – Process faster

- C-3 Phase 2 generally uses this approach
- Some ways to address
  - More powerful computer(s)
  - More compressed model points
  - Scenario reduction
  - Replicating portfolios
- Considerations:
  - Skill level to implement
  - Impact on accuracy



# Documentation

- Regulatory Requirements
  - C3 Phase 1
    - C-3 Assumption Statement – RBC Instructions
    - Potential required disclosures – RBC Instructions
  - C3 Phase 2
    - Required by RBC Instructions
    - Outlined in Appendices 10 & 11
- Build upon asset adequacy memo process
  - Well established process
  - Efficiencies from aligned processes



# Pricing Considerations

- Stochastic impacts on reserves need to be considered in pricing. Early market spikes or falls need to be considered.
- Difference in valuation rates through time as stochastic methods may not use issue year valuation rates.
- Return on capital calculations need to consider volatility of TAR.

# ERM uses of Capital PBA

- Capital PBA's - a starting point to modeling company risks
  - C-3 Phases 1 & 2 provide excellent information on a narrow portion of a companies business
  - They do not reflect diversification
- ERM use builds on the concept that this is NOT a statutory only model.

# Managing the process

- RBC results under PBA can be quite volatile
  - Controls – to ensure accuracy
  - Projection – to provide some level of early warning
- PBA requires learning on management's part; communication is critical
  - Repeated communication drives points home
  - Staying on message is important
  - Clear and consistent communication is essential

# Controls

- Baseline the model
  - Comfort with model at a point in time
  - Starting point even if not 100%
  - Communicate what has & has not been done
- Change control
  - Ensure that only **PLANNED** changes happens
  - Communication of impact
  - Includes baseline corrections
  - Process should be **FORMAL**



# Projection

- Ideal –
  - Model using full economic assumptions
  - Substantive effort – will it be timely?
  - Availability of economic assumptions
- More Realistic –
  - Linear regression model based on key parameters
  - Recognize limitations
  - ‘Misses’ explainable
  - Model changes can botch projection



# Conclusions

- PBA is an opportunity for actuaries to bring their skills to the table – for all parties
- Communication is the most critical
- Let's grab it

