

# Implementation Issues: RBC C-3 Phase 2

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# Academy Approach

- “Principles Based” - Reserves and capital requirements using stochastic methods, with assumptions set by the actuary
- RBC C-3 Phase 2 is the first to be adopted by the NAIC which is “Principles Based” - the same kinds of things that arose for variable annuities will arise again

# Insurance Department Reactions

- State regulators appear to be very nervous
- Concerns with:
  - Corporate pressures placed on actuaries
  - Conservatism of assumptions
  - Conservatism of results
  - Capacity of the insurance departments to audit

# Insurance Department Reactions

- Concerns led to
  - Imposition of a plethora of rules
  - Imposition of “a” Standard Scenario

# Reserves for Variable Annuities

- NAIC adopted Phase 2 for RBC for 2005, but hasn't adopted the corresponding reserve rule (“VA CARVM”)
- One insurance department proposes that the reserve should be the largest of four methods of calculation (three prospective and one retrospective)

# Phase 2 Requirements

- Multi-scenario Stochastic Model (A)
- Alternative Methodology (B)
  - Can not use for living benefits
- Standard Scenario (C)
- RBC is max [ (C), either (A) or (B)], unless used (B) with 100% GMDB mortality
- (B) and (C) measure equity risk only

# Implementation Issue: Integration with Phase 1

- Phase 1 deals with the RBC for liabilities of the general account
- Phase 2 deals with the RBC for guaranteed benefits (GMDBs and GLBs) and is more concerned with effects of separate account performance

# Implementation Issue: Integration with Phase 1

- RBC for equity risk is C1-cs; that for interest rate (disintermediation) is C-3
- Covariance adjustment between C1-cs and C-3
- Integrated model v. other approaches
  - Results of integrated model need to be allocated between C1-cs and C-3



# Implementation Issue: Scenario Sets (Equity and Yield)

- Company developed v. pre-packaged
- Calibration rules

# Implementation Issue: Mapping Funds to Proxies

- Each available investment option needs to be mapped to an appropriate proxy
- Different sets of proxies for home-grown scenarios, pre-packaged scenarios, alternative methodology, and standard scenario

# Implementation Issue: Assumption Setting

Prudent Best Estimate - ‘The deterministic assumptions to be used for modeling are to be the actuary's "prudent best estimate". This means that they are to be set at the conservative end of the actuary's confidence interval as to the true underlying probabilities for the parameter(s) in question, based on the availability of relevant experience and its degree of credibility.

# Implementation Issue: Assumption Setting

- ‘A "prudent best estimate" assumption would normally be defined by applying a margin for estimation error to the "best estimate" assumption. "Best estimate" would typically be the actuary's most reasonable estimate of future experience for a risk factor given all available, relevant information pertaining to the contingencies being valued. Recognizing that assumptions

# Implementation Issue: Assumption Setting

- ‘are simply assertions of future unknown experience, the margin for error should be directly related to uncertainty in the underlying risk factor. The greater the uncertainty, the larger the margin. Each margin should serve to increase the liability or provision that would otherwise be held in its absence (i.e., using only the best estimate assumption).’

# Implementation Issue: Revenue Sharing

- Annuitant pays fees to both the insurance company and the fund provider
- Revenue sharing is certain payments of the fund company to the insurance company
  - 12b-1 fees for marketing services
  - Administrative fees
- Explicit rules for application of Prudent Best Estimate

# Implementation Issue: Risk Mitigation Techniques

- Hedging
  - Clearly Defined Hedging Strategy
- Proportional Reinsurance
- Non-proportional Reinsurance
  - Different rules depending on which type of model you are working with

# Implementation Issue: Timing Issue

- How do we get it all done in the time available?
  - Full models or Alternative Methodology
  - Standard Scenario (Multiple versions)
  - Sensitivity Tests
- Distributed processing
- Use prior quarter data, rolled forward



# Implementation Issue: Documentation

- Many pages of rules for what documentation must be created and maintained - and it isn't all in one place in the Academy document
- Many certifications required

# Implementation Issue: Peer Review

- Rules to be established
- Likely that some kind of peer review will ultimately be required.
  - As part of the assumption setting process?
  - After the numbers are generated?
  - Two peer reviewers needed?
    - One to help establish the processes and assumptions
    - One to bless the result
    - A question of independence

# Bibliography

- The Academy web-site ([actuary.org/life/phase2.asp](http://actuary.org/life/phase2.asp)) has much that will be useful:
  - Academy report to the NAIC (LCAS report, June 2005)
  - Prepackaged scenarios
  - Practice Notes
- The standard scenario will be in the RBC instructions published by the NAIC