American Academy of Actuaries

Applying a Principles-Based Approach to Valuation and Capital Requirements

Life Financial Soundness and Risk Management Committee
Definition of Principles-based Reserves and RBC

A principles-based approach:

- Uses risk analysis and risk management techniques to quantify Risk

- Captures all identifiable material risks, benefits and guarantees of the contract/Company

- Permits the use of company-specific experience based on the availability of relevant experience and its degree of credibility
In contrast, a “rules-based” approach:

- Relies on a static formula that may not capture all of the risks of the contract.

- Uses prescribed valuation assumptions that are the same across all companies, regardless of differences in the risk profile of companies.
Life Insurance Issues

Underlying Forces Driving Change

- Increased Complexity in Product Design
- Advances in Risk Measurement Theory
- Advances in Computer Processing
- Advances in Actuarial Modeling Software
- Limited Capital Resources
- Competition through Risk Management
- Consumer Demanded Asset Accumulation
Life Insurance Issues

Regulatory Impact of Underlying Forces

- Increased Regulations for Complex Products
- Law & Regulations do not address all the Risks
- As Regulations increase less State Uniformity
- Complex Regulations become Convoluted
- Statutory Law may inhibit Product Design
- Needed Regulations may not have a Statutory Basis
Key Observations of Moving to a Principles-based Approach

- “Right-sizes” reserves and capital
- Is consistent with the global trend toward Enterprise Risk Management
- Relies more on actuarial judgment
- Requires more sophisticated tools
- Requires that a strong governance process be in place
Goal – Integrate More With Management of Business

- Not just regulatory requirement
- Set reserves that are appropriate, considering actual company experience
- Greater discipline around the valuation and financial reporting process
- Increasing communication and education to management and outside audience
- Would be more relevant to company management and should lead to intelligent risk taking (better companies could have lower reserves)
NAIC Stakeholder Committees

- Plenary
- Executive
  - Principles Based Regulation WG
  - A-Committee
    - LHATF
    - SVL Sub-group
  - B-Committee
  - E-Committee
    - Accounting Practices & Procedures
    - Capital Adequacy
    - Examination Oversight
    - Receivership Insolvency
    - Reinsurance
    - Valuation of Securities
Academy Stakeholder Groups

Financial Soundness/Risk Management
WGs: Regulatory Interface, Consistency, Reinsurance, Communications, Website, Liaisons with ASB, International, Auditing, Industry, Tax, Legal, NAIC

- Life Practice Council
- Life Financial Reporting Committee
- Life Products Committee

Capital Adequacy
- C3 Phase 2
  - C3 Work Group (C3WG)
- C3 Phase 3
  - Life Capital Work Group (LCWG)
- C3 Phase 3
  - Annuity Capital Work Group (ACWG)

Valuation
- Variable Annuity Work Group (VARWG)
- Life Reserves Work Group (LRWG)
- Annuity Reserves Work Group (ARWG)

Experience
Evolution

- Asset Adequacy Testing
- Equity Indexed Annuity Regulation
  - RBC C-3 Phase I
  - RBC C-3 Phase II
- SVL2
Asset Adequacy Testing

- There were formula reserves, BUT...
- Companies also tested adequacy of reserves in light of assets
- About 25% increased reserves because of this testing
How PBA Is Different Than Asset Adequacy Testing

- PBA would have more requirements around assumptions used, e.g., certain premium patterns for Universal Life Insurance testing would be specified
- PBA would not have a minimum standard, but will likely have a “Deterministic Scenario” or “Standard Scenario” that would be required to be used
Application of PBA

- Expected to be applicable to all life and annuity products, and likely health products also
- Open question as to whether it would apply to new business only, or to in force also
Timing

- Certain aspects, like RBC C-3 Phase II, already in place
- Variable annuities may be in place by year-end
- Life Reserves - expect to have regulation available by this year-end
  - Goal is to roll out for state adoption in 2007
Current Reserve Valuation

- Prescribed Formulas (CRVM, CARVM)
- Prescribed Mortality
- Prescribed Interest Rate
- Prescribed CSV Floor (Aggregate)
- Prescribed Actuarial Guidelines
- Prescribed Asset Adequacy Testing
Principles-Based Reserve Valuation

- Process of Identifying all Risks
- Process of Generating Economic Scenarios
- Process of Determining PBE Assumptions
- Process of Determining Appropriate Margins
- Process of Modeling and Measuring Risks
- Process of Sensitivity Testing Material Risks
- Process of Documenting All Processes
Valuation Differences

- Process vs. Prescription Orientation
- Stochastic vs. Deterministic
- All Risks vs. Prescribed Risks View
- Company Expected vs. Industry Expected
- Aggregate vs. Seriatim
- Adequate vs. Minimum Reserve
- Audit of Process vs. Audit of Prescription
Audit / Examination Process

- Evaluation of Model and Model Dynamics
- Validation of Model Assumptions
- Evaluation of Margins
- Evaluation of Sensitivity Analysis
- Evaluation of Documentation
- Signoff of Acceptable Process
Model and Model Dynamics

- Selection and Calibration of Scenarios
- Variability of Results and Sample Size
- Model Robustness
- Granularity of Asset Classes
- Granularity of Liability Classes
Validation of Model Assumptions

- Evaluate Company Experience Studies
- Evaluate Experience Data Credibility
- Review Investment Policy and Hedging Strategy
- Evaluate Prudent Best Estimate Assumptions based on Experience Data, Data Credibility and Company Policies and Strategies
- Evaluate PBE Assumptions where no Credible Data is available
Evaluation of Margins

- Evaluate Margins in light of Uncertainty of Risk
- Evaluate Conservative End of Actuary’s Confidence Interval
- Evaluate any Considerations for Adverse Deviations
Evaluation of Sensitivity Analysis

- Evaluate Sensitivity Runs
- Identify Key Risks that Drive Results
- Second Look at PBE Assumptions and Margins for Key Risks
- Confirm Adequate Reserve/Capital Level
Evaluation of Documentation

- All Processes Documented
- All Risks Documented
- All Policies and Strategies Documented
- All Assumptions Documented
- All Margins Documented
- All Results and Sensitivity Analysis Documented
Regulatory Signoff

- Regulatory Report Issued
- Acceptable Process Completed
- Statement of Compliance with Law / Regulation
Current Risk Based Capital (RBC)

- **Purpose**
  - Minimum amount of Surplus to support the overall business operations considering the size of risk and the risk profile of a company.

- Measure of Financial Solvency
- Formula Based
- Industry Modeled Parameters
Current Risk Based Capital (RBC)

Regulatory Financial Solvency Measure

- Total Adjusted Capital (TAC) compared to Authorized Control Level (ACL) risk based capital (RBC)
Principles-Based Risk Based Capital

- C3 Phase 1 – Interest Rate Risk

- C3 Phase 2 – Market Risk (Equity Risk, Interest Rate Risk & Expense Recovery Risk)

- C3 Phase 3 – Market Risk (Equity Risk and Interest Rate Risk)
Principles-Based Risk Based Capital

C3 Phase 1 – Interest Rate Risk

- Phase I Implemented December 31, 2000 by NAIC
- Fixed Deferred Annuities and Single Premium Life
- Immediate Annuities, Structured Settlements, Guaranteed Separate Accounts, Guaranteed Investment Contracts and Funding Agreements and Products that Guarantee an Interest Rate Index
- Exemption Test
Principles-Based Risk Based Capital

C3 Phase 2 – Market & Interest Rate Risk

- Phase II Implemented December 31, 2005 by NAIC

- Variable Annuities, Group Annuities with Death or Living Benefit Guarantees and Insurance Contracts with Death Benefit Floors for Equity Fund Performance
Principles-Based Risk Based Capital

- C3 Phase 3 – Market & Interest Rate Risk
- Not Yet Implemented - Possible Date December 31, 2007?
- Equity Indexed Annuities, Equity Indexed Life Insurance, Other Interest Sensitive Life Insurance
PBA Review by Independent Third Party Actuary

- Review the “subjectivity” in PBA valuations
- Promote commonly accepted practices
- Promote consistency among companies
- Supplement and facilitate state exams
- Complement review between state exams
- Allow review on a pre-release basis
- Provide comfort to regulators, management and other users
PBA Reviewer

PBA reviewer needs to satisfy himself or herself that the valuation was done properly

- To the extent the valuation actuary’s documentation is sufficient, that may be all that needs to be reviewed
- Where the documentation is insufficient, PBA reviewer will have to go deeper
  - More documentation (product descriptions, studies documentation, etc.)
  - Discuss with contributors (asset cash flows, studies, etc.)
- To the extent the valuation actuary relies on others, either state exam or external audit may pursue further
Valuation Environment

PBA reviewer may operate in this environment:

**Valuation Actuary:**
- Guided by ASOPs, etc. (augmented for PBA)
- Considers all relevant issues
- Provides adequate documentation

**External Audit:**
- Will focus on auditing

**State Examination Process:**
- Can (likely) go beyond what valuation actuary does
- Guided by Financial Condition Examiners Handbook (augmented for PBA)
Principles of PBA Review

- PBA review will evaluate the valuation actuary’s work
- PBA review will focus on actuarial judgment (subjectivity) rather than auditing
- PBA review will include processes (e.g., how assumptions are derived from the experience study, modeling construction process)
Governance

Roles and responsibilities of Company Management

- PBA actuary
- Appointed Actuary
- Board
- Other company management

- Roles and responsibilities of Regulators
- Conflict resolution
Current Legal Framework

• Standard Valuation Law
  - Statute, Regulations, Actuarial Guidelines

• Risk Based Capital
  - Statute: References NAIC Risk Based Capital Instructions with effective date
  - Regulations

• Financial Statement Filing
  - Statute: References Accounting Practices and Procedures & NAIC Blanks
  - Regulations

• Examination of Financial Condition
  - Statute: References NAIC Examiners Handbook
  - Regulations: Annual Examination by Independent Certified Public Accountant of Financial Statements
Principles-Based Legal Framework

- Framework Goals / Objectives
  - Maintain Solvency
  - Consistent Risk Measurement Process for Capital and Reserves
  - Flexibility to address Evolving Risks
  - Auditable and Examinable
  - Consistency and Uniformity
  - Effective Resource Utilization
Principles-Based Legal Framework

- Legal Framework Options?
  - Each State Filing, Certification and Examination
  - State of Domicile Filing, Certification and Examination
  - Centralized Filing, Certification and Examination (RVO or Inter-state)
  - Other?
Principles-Based Legal Framework

- Single Statute to Address both Capital and Reserves?
- Application to In Force or New Business?
- How do you determine compliance under a principles-based system?
- Allow Small Company Exemptions?
How To Find Out What’s Going On

- Website: www.actuary.org/risk.asp
  - Updates on all work
  - Has links to reports, including C-3 Phase II
- Periodic webcasts