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Financial

# Principles-based Valuation of Life Insurance Products

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## Objectives of Session

- **Define “Principles-based” vs. “Rules-based”**
- **Summarize LRWG Guiding Principles**
- **Describe Basic Methodology**
- **Discuss Challenges**
- **Summarize Timeline and Deliverables**
- **Discuss Possible Impact on The Industry**

## Definition of Principles-based

### A Principles-based Approach:

- **Uses Risk Analysis and Risk Management Techniques To Quantify Risk**
- **Captures All of The Material Risks, Benefits and Guarantees of The Contract**
- **Permits The Use of Company-specific Experience (if Credible) To Properly Reflect The Specific Risk Profile of Each Company**

## Definition of Principles-based

### In Contrast, a “Rules-based” Approach:

- **Relies on a Static Formula that May Not Capture All 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 (One Obvious Exception Is X-factors)**

## Key Observations of Moving To a “Principles-based” Approach

- **Is Consistent with The Global Trend Toward Enterprise Risk Management**
- **Relies More on Actuarial Judgment**
- **Requires More Sophisticated Tools**
- **Requires that a Strong Regulatory Governance Process Be in Place**

## LRWG Charge and Scope

### Charge:

- **Develop a Proposal for a New Principles-based Statutory Reserve Method for Life Products**
- **Coordinate with C3 Phase III Work Group (Which Is Working on RBC Requirements for Life Products)**

### Scope:

- **Initially, Scope Was Limited To UL**
- **Now, Scope Is All Life Products**

## LRWG Guiding Principles

**Principle 1: Methodology Will Appropriately Capture The Nature and Magnitude of Risk Underlying The Product Being Valued, Including The Magnitude of “Tail Risk”**

**Principle 2: Methodology Will Provide a Framework that Can Be Applied To All Individual Life Insurance Products**

**Principle 3: A Deterministic Reserve Approach May Be Appropriate for Certain Products, Depending on The Nature and Level of Risk, and Stochastic Approaches May Be Necessary for Other Products**

## LRWG Guiding Principles *continued...*

**Principle 4: For Risks that The Company Has Some Degree of Control Over (e.g., Mortality), Assumptions Should Reflect a Blend of Company Experience (if Credible Data Is Available) and Prescribed Assumptions**

**For Risks that The Company Has No Control Over (e.g., Interest Rate Movements), Prescribed Assumptions or Methods for Setting The Assumption Should Be Used that Are The Same for All Companies**

**Principle 5: For Risks that Are Not Stochastically Modeled, Assumptions Should Be Based on “Prudent Best Estimates” Incorporating Appropriate Margins for Uncertainty**

## LRWG Guiding Principles continued...

**Principle 6: Assumptions Will Not Be Locked In at Issue, But Will Be Allowed To Change as Expectations as To Future Experience and Economic Conditions Change**

**Principle 7: While a Stochastic Cash Flow Model Attempts To Include All Real World Risks, It Will Still Contain Limitations Because It Is Only a Model**

- **The Actuary Must Take The Model's Limitations into Consideration When Setting Assumptions and Applying The Methodology**
- **The Use of Assumptions and Risk Management Strategies Should Be Appropriate To The Business and Not Merely Constructed To Exploit "Foreknowledge" of The Components of The Methodology**

## Basic Framework

- **Based on Gross Premium Reserve (GPR)**
- **Reserve = PV of Future Benefits and Expense (Excluding FIT) Less PV of Future Gross Premiums**
- **Reserve Assumptions Will Be Determined for All Material Risks (Mortality, Interest, Expenses, Lapse, Premium Levels, etc.)**
- **Reserve Assumptions Will Include a Margin for Adverse Deviation (Not Best Estimates)**
- **Discount Rates Will Be Pre-tax**

## **Basic Framework** continued...

**Reserve Is The Greater of:**

- 1. A Deterministic, Seriatim, Single Scenario Reserve Calculation**
- 2. A Stochastically Derived Reserve (if Needed) Using a Prescribed CTE Level**

**Since The Stochastic Reserve Is Done in The Aggregate, Risk Offsets Between Contracts Are Recognized (but Limited)**

## **Basic Framework** continued ...

**Deterministic Reserve:**

- Uses a Single Set of Assumptions that Is Aligned with Economic Reality, Yet Still Provides an Appropriate Level of Conservatism**
- Is Not Designed To Capture “Tail Risk”**
- Is Subject To a Cash Surrender Value Floor on a Contract-by-contract Basis**

## Basic Framework continued ...

### Stochastic Reserve:

- **Multiple Scenarios Will Be Defined To Properly Capture The “Tail Risk” of The Contract (Risks that Have High Impact, but Low Probability)**
- **Will Use a CTE (Conditional Tail Expectation) Level that Is Set By Regulators, Such as 65 CTE**
- **Current Thinking Is that Only Interest Rate Movements Will Be Modeled Stochastically**

## Basic Framework continued ...

### “Prudent Best Estimate” Assumptions

- **Assumptions Will Be Based on “Prudent Best Estimates” that Include a Provision for Adverse Deviation**
- **Definition: Conservative End of Actuary’s Best Estimate Confidence Interval**
- **Since Actuarial Judgment Is Involved, Regulators Will Need To Set Limits and Controls on Setting Assumptions**

## **Basic Framework** continued ...

### **Asset Model Needed To Project Cash Flows**

- **Needed for Both Deterministic and Stochastic Reserve**
- **Asset Model Is Used To Determine:**
  - **Discount Rates for GPR**
  - **Earned Rates for Surrender Benefits**

## **Challenges**

- **Establishing Assumption Margins  
(on Each Assumption and in The Aggregate)**
- **Difficulty of Projecting Future Premium Levels for UL**
- **Volatility Due To Updating Valuation Assumptions**
- **Criteria To Require Stochastic Reserve**
- **Impact on Taxes (Tax Deductibility & 7702 Issues)**



## Key Issues Needing Regulatory Attention

- **Development and Implementation of an Acceptable Governance Process**
- **Changes To SVL To Enable The Principles-based Approach To Be Implemented by Model Regulation and/or Actuarial Guidelines**
- **Determination of Specific Limits and Controls on Reserve Assumptions and Margins**
- **Decide if New Approach Will Be Applied To In Force Contracts, or Only Applied Prospectively**

## Governance Issues

- **Not The Focus of The LRWG**
- **However, The LRWG Proposal Will Address Governance Concerns in Two Ways:**
  1. **Controls and Limits Will Be Incorporated Throughout The Methodology To Establish Boundaries on The Degree of Actuarial Judgment that Can Be Exercised**
  2. **Strong Disclosure and Documentation Requirements To Provide Regulators with Sufficient Information To Evaluate The Appropriateness of The Reserve Level**

## Timeline and Deliverables

- **LHATF Exposes The Proposal for Comment at The December 1, 2005, LHATF Winter Meeting**
- **During 2006, LRWG Assists LHATF in Finalizing The Details of The Proposal (and Assists The C3 Phase III Work Group To Finalize The RBC Proposal)**
- **LHATF Approves Final Draft of Reserve Proposal at December 2006 LHATF Meeting and Sends To a Committee for Approval**
- **Begin State-by-state Adoption in 2007**

## Application to Pricing

### Two Significant Added Complexities:

- **The Reserve Calculation Itself Will Require Stochastic Modeling for Many Products, Increasing Run Time**
- **Principles-based Reserves Subject Statutory Reserves To “Unlocking” as Assumptions Change Over Time, Which May Require Modeling of “Stochastics on Stochastics”**

## Effect on Competitiveness

- **Larger Companies With More Credible Experience Will Have More Options**
- **Different Actuaries Will Have Different Levels of Conservatism, and Added Discretion of The Actuary May Tempt Some To Test The Limits**

## Questions?