


# Current Status and Implications of Principle-Based Approach (PBA)

Hartford Actuaries' Club  
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## Agenda

- **Current Status of PBA**
- Implications of PBA



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## Background:

### Key focus of the principles-based approach (PBA) in US

- Captures all of the material risks, benefits and guarantees associated with the contracts, including “tail risk”
- Utilizes risk analysis and risk management techniques to quantify the risks; may include stochastic models
- Incorporates assumptions and methods that are consistent with those used in the overall risk management process
- Permits the use of company experience to establish company-specific assumptions
- Provides for the use of assumptions set on a prudent estimate basis

**Within the next few years, PBA may apply to risk-based capital (RBC) and statutory reserves for all life and annuity products sold in the US**



## Recent developments

- Adoption effort is at full steam
  - No significant changes to VA RBC (C-3 Phase II)
  - VA CARVM still expected to be adopted for year-end 2008 (retrospective), but may be deferred to year-end 2009
  - Life (C-3 Phase III) and Fixed Annuity (C-3 Phase IV) Capital Models expected to become effective at year-end 2009 (retrospective)
  - Life and Fixed Annuity Reserve Models expected to be adopted during 2009 or 2010, with start of full implementation expected for January 1, 2010 or 2011 (prospective only)
- Current discussions continue between NAIC, ACLI, American Academy of Actuaries and tax authorities – key topics include:
  - Updates to SVL2/Valuation Manual (VM)
  - Consistency of assumptions
  - Hedging requirements
  - Conditions for tax treatment of reserves



## Agenda for Webcast #10 held April 17, 2008

- Focus of Webcast was on PBA
- LHATF Update (March 2008):
  - Leslie Jones, Vice Chair LHATF and Chair Financial Reporting Subgroup
  - PBR Life Subgroup (Chair: Pete Weber, OH): VM-20
  - PBR Reinsurance Subgroup (Chair: Sheldon Summers, CA): VM-20 for Reinsurance
  - PBR Health Subgroup (Chair: Julia Philips, MN): VM-25, 26, 30
  - PBR Experience Reporting Subgroup (Chair: Fred Anderson, NY): VM-50, 51
  - PBR Process & Coordination Subgroup (Chair – Mike Boerner, TX): VM-0, 1, 2, 3
- Governance Issues: Kalman Ketzlach (Vice Chair, Academy's Life Governance Team)
- Upcoming PBA seminars



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## Standard Valuation Law (SVL) - Revisions

- Operative Date Criteria
  - "Written Premium" Standard
  - "Substantially Similar"
  - "Lead" Time
- Minimum Reserve & Interest Rate
- Coordination with Risk-Based Capital
- Penalty Reserves
- Ability for the Commissioner to Modify the Valuation Manual
- Next Steps
  - Revised SVL exposed for comment on May 9, 2008. Tabled amendments and amendments not yet discussed will be carried forward for future discussion.



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## LHATF Reporting and Review Subgroup

- VM – 30 – Actuarial Opinion & Memorandum (AOMR)
  - On an interim conference call the subgroup voted to recommend to LHATF that VM – 30 not be included in the Valuation Manual but that work continue on updates to the AOM as a separate project to update the regulation.
  - LHATF decided to include VM-30 in the Valuation Manual, not establish a separate project to update the AOMR.
  - VM-30 was exposed for comment along with the rest of the Valuation manual until May 6th.
- VM – 31 – PBR Reporting Requirements
  - Due to time limitations, VM-31 was not discussed.
  - Next steps will be to review VM-20 to ensure that all reporting and disclosure requirements in VM-20 are included in VM-31.



## VM-20 (Life) - Action Since December 2007

- Charges given the subgroup
  - General Charges – Review in detail, Consider Comments and Document Suggestions.
  - Specific Charges – Scope & Transition, Simplification in Application, Appropriateness of the CTE Measure, Guidelines for Margins, and the General Application of PBR to all Types of Companies & Products.
- Change to the Format of VM-20
- Additional Sections Reviewed:
  - Expense Assumptions – Section E.4.
  - Asset Assumptions – Section E.5.
- Stochastic Exclusion Test (formerly the Material Tail Risk Test) was integrated
  - Using 12 scenarios



## VM-20 (Life) - Action Since December 2007 (continued)

- Changes to the requirements for treatment of Non-Guaranteed Elements
- Changes to help clarify some requirements:
  - Clarified that use of data limited to 3 months prior to valuation date does not apply to experience studies
  - Simplifications are permitted to the Reserves for Supplemental Benefits & Riders on Policies subject to VM-20 – they may be calculated separately
- LHATF voted to expose new version at March 2008 meeting with these changes



## VM-20 (Life) - Discussion Since December

- Discount Rates:
  - Currently set equal to net asset earned rates
  - Would a company invest in higher yielding (riskier) assets to lower its reserve?
  - Should there be a cap and/or modifications to the discount rate to reduce this incentive?
- Stochastic Scenario Generation:
  - Currently there are four options (C-3 Phase I, Academy Scenarios, Company Set, Company ESG)
  - Subgroup looking to reduce number of options



## VM-20 (Life) - What's Left To Do

- Continue to work through requirements related to the asset assumptions:
  - The impact of margins on the asset assumptions
  - Reporting and documentation requirements related to assets
- Mortality requirements - Section E.2:
  - Methodology needs to be scrutinized
  - Margins will receive most discussion
  - Disclosure requirements
- Revenue sharing assumptions - Section E.6.
- CTE Level: current exposure states "...the highest average x%..."
- Definitions – The definitions will be moved to VM-01; currently there are at least 50



## Update on Risk Transfer Rules

- Subgroup (led by Sheldon Summers/CA) intends to submit an amendment to VM- 20 to retain risk transfer requirements.
- Impact of amendment:
  - Reinsurance agreement that complies with risk transfer requirements would be included in PBR calculations.
  - Reinsurance agreement that does not comply would be included only if including it would reduce reported surplus.



## Update on Risk Transfer Rules (continued)

- Academy Reinsurance Examples of how PBR would work under the current language in VM-20, where modeling and in some cases prescribed assumptions would replace risk transfer rules:
  - UL policy secondary guarantee:
    - no specified charge to policyholder, or
    - reinsurer charges more than the specified charge.
  - VA guarantee rider; reinsurer charges more than specified rider fee.
  - Term policy during level premium period.
  - Reinsurance of surrender benefit.



## PBR Process & Coordination Subgroup

- Exposure of VM-01:
  - Contains definitions of terms provided by the American Academy of Actuaries' Consistency Work Group (Chair – Bob DiRico)
  - Consistency Work Group is planning to provide additional definitions for the June NAIC meeting.
- Develop additional PBR information for blanks
  - Actual to expected information.
  - Information that shows development of PBR reserves over the reporting year and/or key calculation components of PBR reserves.
  - General interrogatory PBR information.
- Determine the approach to develop examination procedures appropriate for principles-based reserves and coordinate with appropriate NAIC groups.
- Address comments and remaining work on VM-00 and VM-01.



## PBR Governance Issues

- Why is governance of PBR important?
  - Substantial flexibility in determining reserves means ...
    - New obligations for company boards and management to assure they're appropriately governing the processes by which these reserves are determined; AND
    - New obligations for regulators to receive assurance that the results are appropriate and consistent with all applicable regulatory requirements.



## PBR Governance Issues (continued)

- PBR (EX) Working Group
  - Approved principles and actions for adoption of PBR.
  - Includes the following governance principles ...
    - Board and management actively develop, maintain, and implement governance policies and practices.
    - Sound risk management practices include oversight of PBR by the board and management.
- Corporate Governance Subgroup (CGS)
  - Established by the PBR (EX) WG, to recommend requirements for governance of PBR by the end of 2008.
  - Consistent with governance principles established by PBR (EX) WG.



## PBR Governance Issues (continued)

- Assurance of Company Reserve Calculations
  - LHATF asked the PBR (EX) WG for guidance on how regulators could be assured that reserves are appropriate and consistent with applicable requirements.
  - PBR (EX) WG Position statement is now exposed for comment and available on NAIC web site.
  - The Position builds on existing processes, e.g.:
    - Risk-Focused Surveillance examinations.
    - Analysis processes states currently in use.
  - Each state decides what it needs to review.
  - Depth and frequency of review depend on the circumstance of each company – e.g., risk, volume.
  - A “central process” may be established by the regulators to improve quality and consistency of reviews, and limit duplication.



## PBR Governance Issues (continued)

- The Academy's Role
  - The Academy's Life Governance Team is actively involved in providing comments to the NAIC on governance of PBR.
  - Made presentations to PBR (EX) WG and CGS.
  - Issued reports and comment letters to PBR (EX) WG.
  - Will be commenting on PBR (EX) WG Position on assurance of company reserve calculations.



## PBR Governance Issues – Next Steps

- By the end of 2008, NAIC technical groups (e.g., CGS) should complete recommendations for corporate governance of PBR.
- Whatever requirements are adopted, company boards and management will need to decide what additional requirements they need to assure themselves that PB reserves are appropriate and meet all of the applicable requirements.



## Upcoming PBR Seminars

### **“Introduction to PBA: An Overview of a Principle-Based Approach (PBA) to Reserves and Capital”**

- June 9-10th, Hilton Walt Disney World, Orlando, FL
- Focus on high-level understanding of PBR, including:
  - Purpose, goals & key elements
  - PBR for life products, annuities & reinsurance
  - Current issues in taxes & implementation
  - Multiple Q&A sessions, to get answers to your questions
- Information & Registration: [www.actuary.org](http://www.actuary.org), click on “Life”
- Registration open through May 31<sup>st</sup>



## Upcoming PBR Seminars (continued)

### “Implementation of a Principle-Based Approach to Reserves and Capital”

- September 24, Renaissance Washington Hotel, Washington D.C. (before the Valuation Actuary Symposium)
- Focus on implementation issues related to PBR
  - Efficient modeling techniques
  - Development of economic scenarios
  - Stochastic Exclusion Test
  - Modeling results for selected products
  - Reinsurance examples
  - Etc.
- Information & Registration: [www.actuary.org](http://www.actuary.org) & [www.soa.org](http://www.soa.org)



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## IMPLICATIONS OF PBA

## Implications of PBA on product design/pricing of products with material tail risk

- Assessing, measuring and determining the risks associated with products will be the major change in product development and pricing
- Implementing PBR requires more sophisticated stochastic modeling and risk management capabilities
- Companies that price using a “deterministic” pricing model will need to educate pricing staff on stochastic approaches
- Substantially more discussion with the Valuation Actuary will be needed
- May need to determine alternative approach to calculate expected statutory reserve levels for pricing (stochastic-on-stochastic)
- Likely need to increase modeling capabilities and/or size of actuarial staff
- Incorporating hedging into pricing necessitates using risk-free scenarios and making an assumption about volatility

⇒ **Exact impact on the level of capital and reserves by product and in aggregate is not known yet**

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## IMPLICATIONS OF PBR

## Impact of PBA on risk and capital management

- Increased scrutiny of regulators and rating agencies
  - All major U.S. rating agencies are currently developing or enhancing their Economic Capital (EC) models
  - Analysis of PBR as part of overall ERM/EC assessment
- Focus on efficient use of capital
  - Leveraging regulatory work into better EC models
  - Implementation of EC via stress testing or full stochastic model
- Greater focus on risk management and reducing financial volatility
  - More volatility in capital/reserves will lead to greater earnings volatility
  - Risk mitigation involves an understanding of tail risk
- Better integration of functions will be needed
  - Pricing and product development
  - Valuation
  - Capital management
  - Corporate risk management/decision making

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## IMPLICATIONS OF PBR

## Impact of PBR on reserves and capital

- Risk Transfer Rules – Impact on Reserves
  - Currently point of much discussion in a principles-based context
  - To qualify for reinsurance reserve credit, reinsurance must transfer all material risks being ceded
    - Pass / fail calculation – no partial credit
  - If reinsurance agreement fails test, then company still has to hold reserve and deposit accounting is used
  - Also, a reinsurance agreement failing the test can only be included in PBR if including it would reduce reported surplus
- Reinsurance rates do not have to be fixed from issue to receive reserve credit, but
  - Reinsurer cannot terminate inforce contracts
  - Cannot raise future prices to recoup past losses
  - Must have mechanism in agreement that is used to adjusting future prices (i.e., based on changes in risk)
  - Generally must still have guaranteed maximum charge

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## IMPLICATIONS OF PBR

## Reinsurance treaties are increasingly scrutinized in the PBA world

- No reserve credit unless collateral is held on shore in state of domicile
- To receive credit under C-3 Phase II, not all material risk needs to be transferred
  - But, company needs to be able to model the impact of the treaty exactly (including any limits/exclusions)
- Some ability to lower capital by ceding offshore
  - Reinsurance is in NAIC capital calculation as asset risk (C-3 Phase I)
  - C-3 Phase II does not apply to offshore companies
    - Regulators are scrutinizing treaties with limits/exclusions in PBR filings – cedents prefer “step in your shoes” quota share coverage
  - Generally, cedent would not be required to hold C-3 Phase II capital for business ceded to offshore entities
  - Rating agencies generally want to see C-3 Phase II capital on a gross basis as well

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IMPLICATIONS OF PBR

## Use of hedging strategies in the PBA world

- In order to qualify as a Clearly Defined Hedging Strategy (CDHS), a strategy must, at a minimum, identify<sup>1</sup>:
  1. The specific risks being hedged (e.g., cash flow, policy interest credits, delta, rho, vega, etc.);
  2. The hedge objectives;
  3. The risks not being hedged (e.g., variation from expected mortality, withdrawal, and other utilization or decrement rates assumed in the hedging strategy, etc.);
  4. The financial instruments that will be used to hedge the risks;
  5. The hedge trading rules including the permitted tolerances from hedging objectives;
  6. The metrics for measuring hedging effectiveness;
  7. The criteria that will be used to measure effectiveness;
  8. The frequency of measuring hedging effectiveness;
  9. The conditions under which hedging will not take place;
  10. The person or persons responsible for implementing the hedging strategy;
  11. Areas where basis, gap or assumption risk related to the hedging strategy have been identified; and
  12. The circumstances under which the hedging strategy will not be effective in hedging the risks.

1 Life Reserve Working Group (June 2007)

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IMPLICATIONS OF PBR

## Use of hedging strategies in the PBR world (continued)

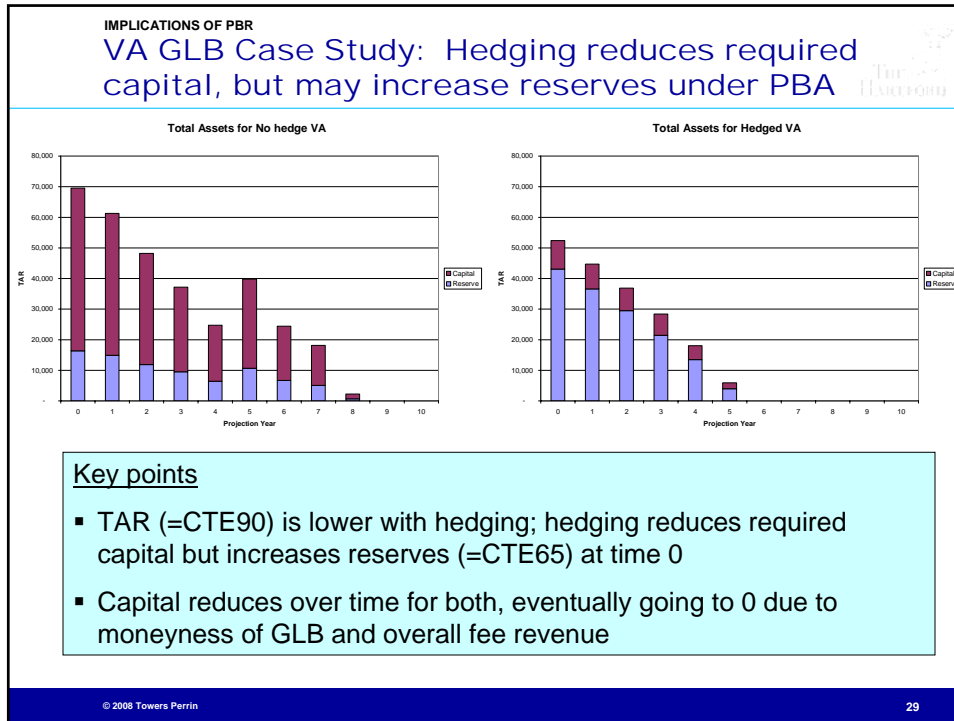
- Use of static versus dynamic hedging strategy
  - Strategy modeled must be consistent with actual hedging strategy
  - Use of static strategy implies no reinvestment
  - For standard scenario, all hedges must be sold at the end of year 1, and no future hedging can be modeled thereafter
- Use of structured hedging solutions implies a static strategy, i.e. no reinvestment possible in stochastic calculation
- Total Asset Requirement (TAR) is a combination of TAR (with Hedge) and TAR (Adjusted), where TAR (Adjusted) allows for less than efficient hedging strategy:
 

$$\text{TAR} = \text{TAR}(\text{with Hedge}) + e \cdot [\text{TAR}(\text{Adj}) - \text{TAR}(\text{with Hedge})] \text{ and}$$

$$e \in [0.0; 1.0]$$

  - Most companies have used  $e = 0.5$  initially (expecting a decrease in e-factor over time)

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Questions and Comments

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