

**PBR, VM-20 and AG38 update
Company Perspective**

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AGENDA

- Overview of PBR
 - History
 - Objectives
 - Scope
 - VM - 20
 - New Calculations
 - AG - 38
 - Timelines
- Field tests and Company Impacts
 - Assumptions/Methodologies/Margins
 - Exclusion Tests
 - Impact - Field Tests - Examples
- Questions

PBR History

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- Started in 2004
 - New Product Innovations
 - Changes in Product Risk Profile
- Initial Proposal in 2005
 - Free-form best-estimate assumptions w/stochastic runs
 - Strong opposition in 2006 - concept abandoned
- VM-20 Exposure Draft Published Oct. 2010
- VM-20 Working Draft Published Feb. 2011

PBR Objectives

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- “Right-Size” the reserves
- Protect policyholder’s interest
- Promote solvency of companies
- Efficient use of Capital
- Better align reserves w/product risk profiles
- Promote State uniformity
- Enhance industry compliance
- Develop industry experience studies
- Provide efficient, consistent, timely requirement updates

- VM-20 - Life products - primarily term and ULSG (AG38)
- VM-21 - Variable Annuities products
- VM-22 - Deferred Annuities products
- VM-25 - Health products
- VM-26 - Credit and Disability products
- VM-30 - Actuarial Opinion and Memorandum
- VM-31 - Reporting and Documentation

- http://www.naic.org/documents/committees_a_related_docs_valuation_manual.pdf

- Minimum Reserve = $\text{NPR} + \text{Max}(0, A - B)$
 - $A = \text{Max}(\text{DTR}, \text{STR})$
 - $B = \text{NPR} - \text{DPA}$

 - NPR = Net Premium Reserve
 - DTR = Deterministic Reserve
 - STR = Stochastic Reserve
 - DPA = Deferred Premium Asset

- Net Premium Reserve (NPR)
 - Calculated and serves as a minimum floor at the policy level
 - For term products, partially removes segmentation
 - Assumes 80% shock lapse at end of level period
 - Limits portion of profits (post-shock PVFP/PVFB < 135%)
 - Two Net Premiums needed to be calculated (pre- and post-shock)
- Deterministic Reserve (DTR)
 - Gross Premium Valuation using liability cash flow model
 - Run w/company experience
 - Infuse into industry mortality
- Stochastic Reserve (STR)
 - CTE 70 of the scenario reserves
 - # of scenarios not yet defined
 - can use scenario picking tools (so as not to use all 10K+ scenarios)
 - e.g. <http://www.actuary.org/content/economic-scenario-generators#3>

- Need to comply with applicable Actuarial Standards of Practice
- Must use model segments consistent with either the Company's
 - Asset segmentation plan
 - Investment strategies
 - Approach used to allocate investment income for statutory purposes
- Reinvestment assumptions must be consistent with the Company's investment policy

- ULSG (Universal Life w/ Secondary Guarantees)
- Section 8D - In Force business (issues from 7/1/2005 through 12/31/2012)
- Section 8E - New business (starting 1/1/2013)

- Reserve = Max(current method, DTR*)
 - DTR* differs from VM-20 DTR in 2 aspects
 - Capping of projected net investment earnings from starting assets
 $\min(A,B)$ where
 - A = Actual portfolio net investment returns,
 - B = Based on A-rated corporate bonds
 - capping on projected net investment rate for reinvestment assets
 $\min(\text{Ave}, 7\%)$ where
 - Ave = 12 mo average of the monthly seasoned corp bonds comp yield
 - 7% = 7% annum
 - NAIC may provide additional guidance

- 2012 - Finalize the Adoption of PBR/VM
 - This happened in September
- 2013-14 - Seek Legislative Approvals
 - Certain number of state legislatures will need to adopt VM-20
 - Biannual review by some states means consensus doubtful before late 2014
- Earliest effective date of VM-20 appears to be 1/1/2015

- Mortality Assumptions - Company Experience
 - NPR - 2001 CSO, can use the preferred class structure, subject to AG42
 - DTR and STR - can use company experience for some period and then grade into industry tables - depends on company's credibility

- Company Credibility
 - Should be determined using common actuarial practice
 - Can be done at a mortality segment level or at a more aggregate level

- Mortality Improvement
 - No future mortality improvement
 - Historical improvement up to valuation date is allowed, for industry tables improvement factors must be published by SOA

■ Mortality Assumptions - Industry Tables

- Currently VBT 2008 based
- Need to use Underwriting Criteria Score calculator, maintained by SOA, to determine the corresponding Relative Risk (RR) tables

■ Margins

- Vary by attained age
- Margins for Company's mortality experience depend on the its credibility as well, For example, attained age 55
 - 0% credible experience gets 16% margin
 - 100% credible experience gets only 4% margin

■ Grading into industry mortality - depends on company credibility

- Maximum number of years for data to be considered sufficient - last duration with at least 50 claims
- Maximum number of years in which to begin grading after sufficient data no longer exists
- Maximum number of years in which to grade 100% into industry table

Credibility of Company data over sufficient data period	Maximum # of years for data to be considered sufficient	Maximum # of years in which to begin grading after sufficient data no longer exists	Maximum # of years in which the assumption must grade to 100% to an applicable industry table
10-19%	10	2	10
20-39%	20	4	15
40-59%	30	6	18
60-79%	40	8	20
80-100%	50	10	25

■ Lapses

- Company experience for the block of business
- If no data can use experience from other similar block(s), even if not written directly by the company - need to adjust for the material differences
- If data is not fully credible, the company must establish margins shifting the lapse assumptions towards the conservative end of the plausible range
- For ULSG policies with minimal cash value, for durations without credible experience lapse assumptions must be graded in: CIA's *Lapse Experience under Term-to-100 Insurance Policies*

■ Expenses

- Use fully allocated expenses
- Same expenses for deterministic and stochastic scenarios
- Assume future inflation, no future expense improvements
- Should not include taxes

■ Reporting Requirements

- Company must perform an experience study at least every 3 years
- Description of each mortality segment and rationale for choosing it
- Level of aggregation for mortality segments and showing preservation of total deaths holds
- Sources and credibility of the data
- Margins used, and methodology to determine them
- Explanation on how assumptions were determined for periods with less than fully credible data

■ Deterministic Exclusion Test (DET)

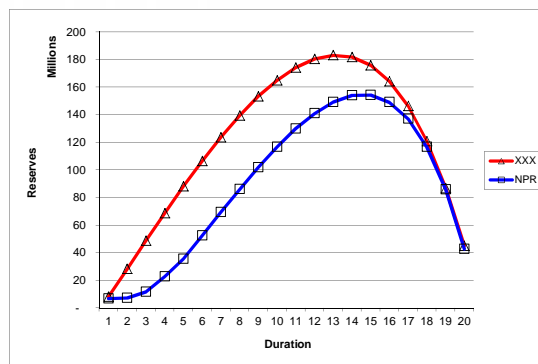
- Fail if: Sum of GPs < Sum of NPs
 - NPs calculated without lapses
 - The test is done on the block of policies
 - If policies are subject to a shock lapse, the comparison is done only during the initial premium period (pre shock period)
- Most Term products will likely fail DET

■ Stochastic Exclusion Test (SET)

- Based on 16 (9 if portfolio does not contain equity investments) deterministic scenarios
- If $(a - b) / c \geq 4.5\%$ fail, where
 - a - Adjusted Deterministic Reserve
 - b - Largest DTR from the other scenarios
 - c - PV of benefits paid under DTR, adjusted for reinsurance
- All reserves are calculated using anticipated mortality without margins

■ If a block of policies fails SET, it is assumed to fail DET as well

■ 20 year Term - Field Test 2011: NPR vs XXX reserves



■ 1 year Inforce projected over 20 years

Questions?

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