

PBR Update

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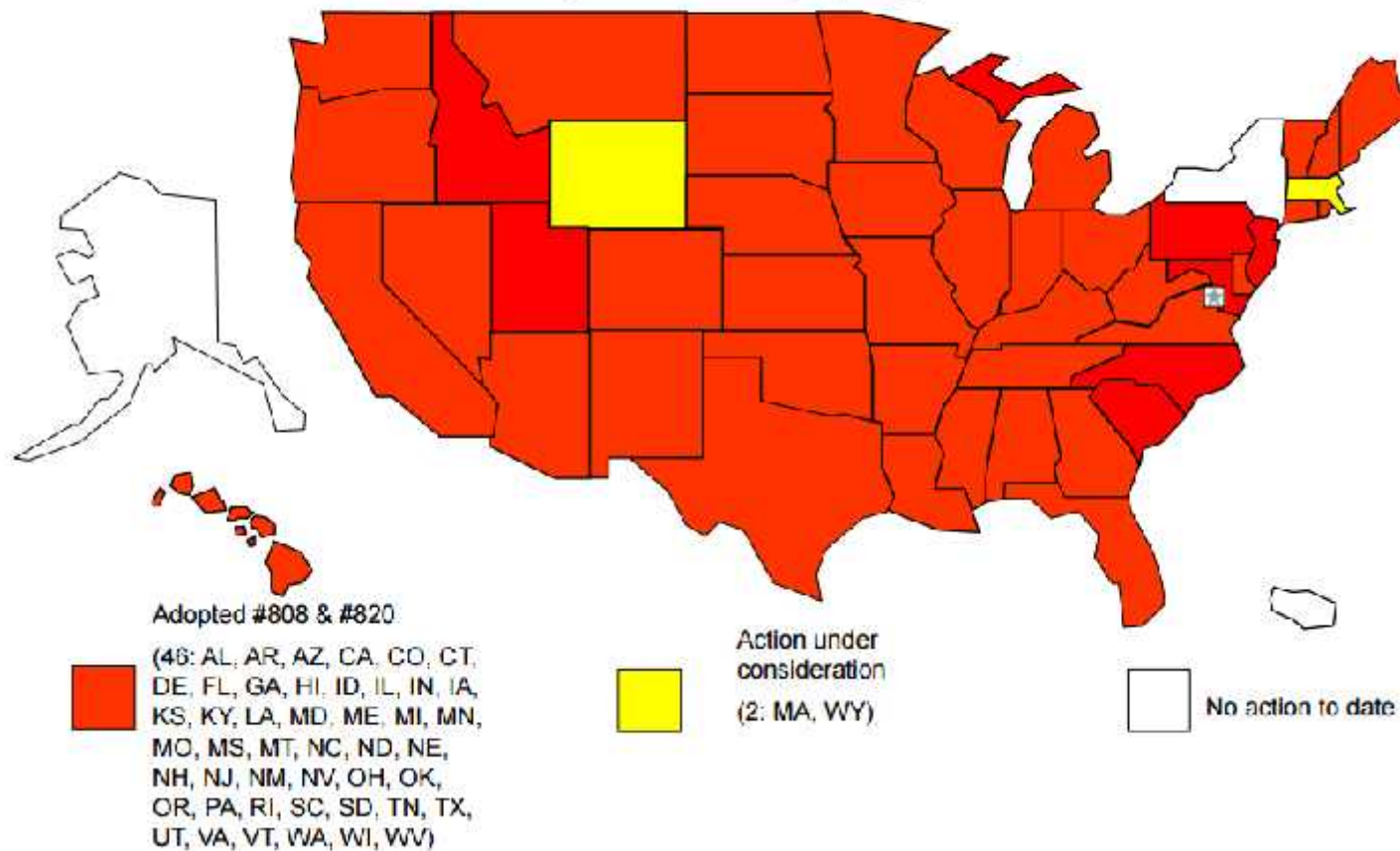
May 24, 2017

Agenda

- State Adoption Status
- Valuation Manual Overview
- Scope and Timing
- Exemptions
- Calculation Overview
- Mortality
- SOA Survey
- Experience Reporting
- Reference Materials

State Adoption Status

Implementation of Principle-Based Reserving
Revised Standard Nonforfeiture Law for Life Insurance (Model #808)
Revised Standard Valuation Law (Model #820)
[status as of January 31, 2017]



Valuation Manual Overview

I. Introduction

II. Reserve Requirements

III. Actuarial Opinion and Report Requirements

IV. Experience Reporting Requirements

V. Valuation Manual Minimum Standards

VM-20 Requirements for Principle-Based Reserves for Life Products

VM-30 Actuarial Opinion and Memorandum Requirements

VM-31 PBR Actuarial Report Requirements for Business Subject to a PBR Valuation

VM-50 Experience Reporting Requirements

VM-51 Experience Reporting Formats

VM-A Appendix A Requirements

VM-C Appendix C Actuarial Guidelines

VM-G Appendix G Corporate Governance Guidance for PBR

VM-M Appendix M Mortality Tables

Scope and Timing

- Operative date of VM is January 1, 2017
- VM applies to life insurance, A&H, and deposit-type contracts
- VM-20 applies to individual life products except preneed, industrial life, and credit life
- Company may elect to defer application of VM-20 until 2020

2017 Companywide Exemption

- Company may file for exemption from VM-20 if each of the following conditions is met:
 - Company has less than \$300 million and group has less than \$600 million of ordinary life premium
 - Total Adjusted Capital is at least 450% of authorized control level RBC and unqualified actuarial opinion is provided
 - No ULSG policies with material secondary guarantee issued since VM operative date
- Statement of exemption must be filed with domestic commissioner prior to July 1; Commissioner may reject up until September 1

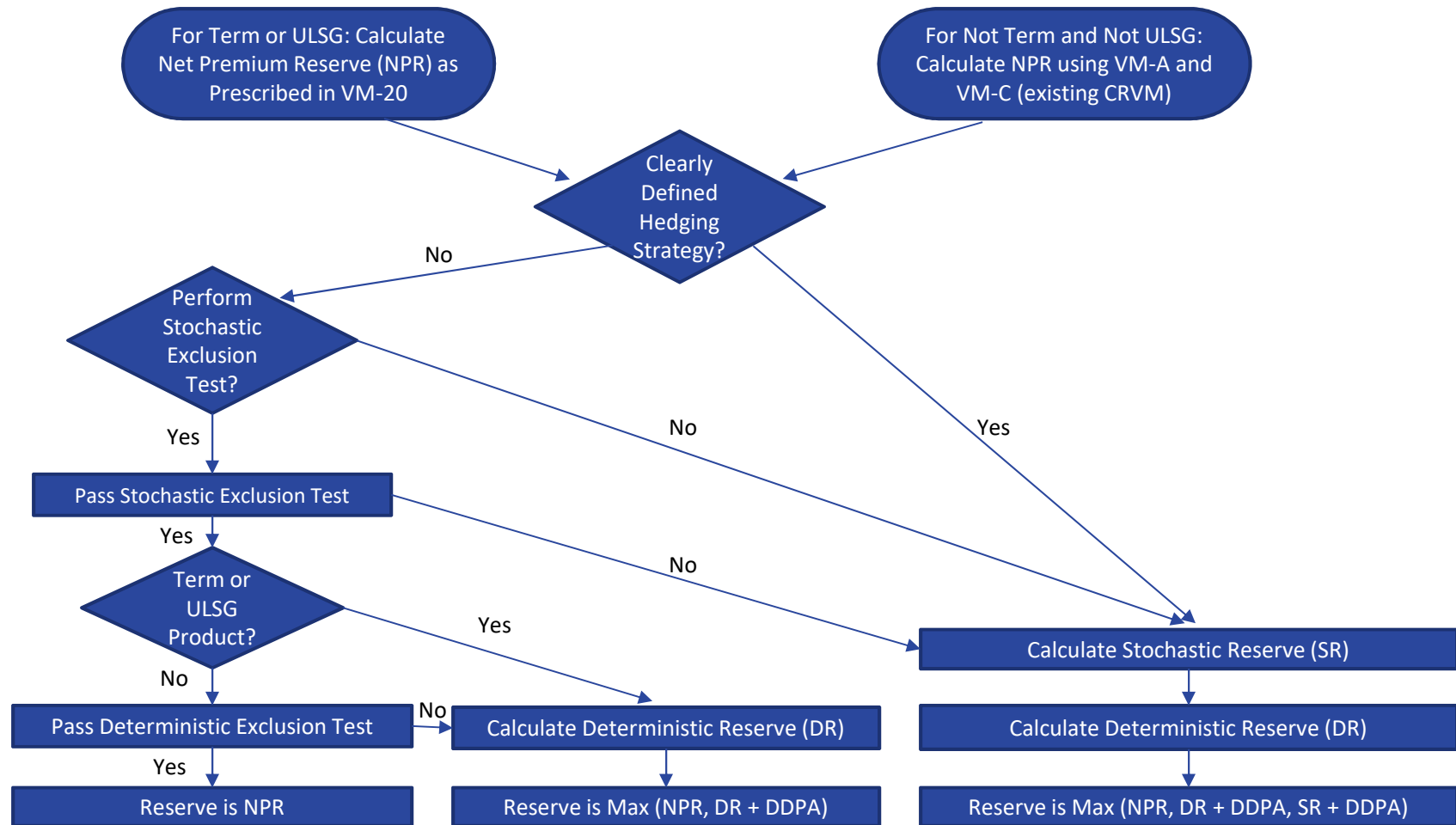
Proposed Companywide Exemption

- Company may file for exemption from VM-20 **for current calendar year issues** if each of the following conditions is met:
 - Company has less than \$300 million and group has less than \$600 million of ordinary life premium (**excludes preneed premiums and transfers of reserves in force through reinsurance**)
 - Total Adjusted Capital is at least 450% of authorized control level RBC **or company has less than \$50 million of ordinary life premium (Commissioner may grant exemption if met in either of two prior years)**
 - An unqualified actuarial opinion is provided
 - No ULSG policies with material secondary guarantee issued since **1/1/2020**
- Statement of exemption must be filed with domestic Commissioner by July 1; Commissioner may reject up until September 1

Single State Exemption

- Optional exemption found in the SVL
- Commissioner may exempt a domestic company licensed and doing business only in that state from VM requirements
- Reserves would be computed using assumptions and methods prior to operative date of VM
- Additional requirements may be established by commissioner

Calculation Schematic



Minimum Reserve Components

NPR

- Formulaic, seriatim reserve with prescribed assumptions
- Interest rate is locked at issue, but other assumptions are not
- Floor is greater of cost of insurance to next paid to date and cash value
- Non-term, non-ULSG products use current CRVM

DR

- Aggregate reserve with prescribed and prudent-estimate assumptions
- Cash flows projected for model segment over single scenario
- Method A: $DR = PV \text{ of } (\text{benefits} + \text{expenses} - \text{premiums}) - PIMR$
- Method B: $DR = \text{Assets needed to liquidate benefits and exp.} - PIMR$

SR

- Aggregate reserve with prescribed and prudent-estimate assumptions
- Cash flows projected for model segment over multiple scenarios
- Scenario reserve = Greatest PV of accum. def. + starting asset value
- $SR = CTE 70 \text{ of scenario reserves} + \text{other material risk amounts} - PIMR$

Seriatim Policy Minimum Reserve

- Minimum reserve = Policy NPR plus the policy's share of any excess of DR or SR over NPR
- Policy's share of the excess reserve = NPR multiplied by the ratio of the reserve excess divided by the aggregate NPR for the group of policies
- Example for policy x
 - $NPR(x) = 100$
 - DR Excess of Group A (containing x) = 200
 - Aggregate NPR for Group A = 2,000
 - $Min\ Reserve(x) = 100 + [100 \times (200 / 2,000)] = 110$

Stochastic Exclusion Test (SET)

- **Groups of policies pass the SET if:**
 - Annually and within 12 months before the valuation date the company demonstrates that the policies pass the ratio test; or
 - In the first year and every third thereafter the company provides the demonstration test; or
 - For other than variable life or ULSG, in the first year and every third thereafter the company provides a certification that the policies are not subject to material interest rate or asset return volatility risk
- **Ratio test**
 - Compare reserve under baseline scenario to the largest reserve under 16 scenarios
 - Test is passed if reserve variability is low enough
 - Asset adequacy analysis models may be used, with adjustments
- **Demonstration test**
 - Demonstrate that the stochastic reserve would not increase the minimum reserve
 - May use any of 4 proposed methods or another method acceptable to commissioner

Deterministic Exclusion Test (DET)

- May not be applied for term and material secondary guarantee UL products
- May not be applied for policies not passing the SET
- Groups of policies pass the DET if the sum of future valuation net premiums is less than the sum of anticipated gross premiums
- If closed group of policies passes 3 years in a row, only need to test every 5 years going forward

Mortality Assumptions

- **NPR**
 - CSO valuation table (prescribed)
 - May be unlocked in the future
- **DR & SR**
 - Prudent-estimate mortality
 - Improvement permitted up to valuation year

Determining DR & SR Mortality Assumptions

1. Determine applicable industry basic table
2. Determine company experience rates (if applicable)
3. Determine level of credibility of company experience (if applicable)
4. Determine prescribed mortality margins
5. Determine prudent estimate mortality assumption

Mortality Industry Basic Table

- Determined using Underwriting Criteria Scoring Tool
- Currently applies to 2015 VBT
- A Relative Risk (RR) score is determined for each underwriting class
- RR tables for nonsmokers (10): 50, 60, 70, 80, 90, 100, 110, 125, 150, 175
- RR tables for smokers (4): 75, 100, 125, 150

Mortality Credibility

- May use Limited Fluctuation Method or Bühlmann Empirical Bayesian Method
- Credibility determines allowed use of company experience as well as margins
- Sufficient data period is last policy duration with at least 50 claims (can be determined at aggregate level)

Credibility of company data	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% of an applicable industry table
20%-39%	10	2	8*
40%-59%	20	4	12*
60%-79%	35	7	17*
80%-100%	50	10	25*

* Maximum is the lesser of (1) this number and (2) sufficient data period + 15 times the credibility percentage

Ratio of 2015 VBT with VM-20 mortality margin (assuming no credibility) to 2017 CSO (Ultimate)

Attained		Female		Male		Attained		Female		Male		Attained		Female		Male	
Age	Ns	Sm	Ns	Sm	Age	Ns	Sm	Ns	Sm	Age	Ns	Sm	Ns	Sm	Ns	Sm	
18	97%	97%	97%	99%	46	100%	100%	100%	100%	74	98%	98%	98%	98%			
19	97%	97%	98%	98%	47	100%	100%	100%	100%	75	98%	98%	98%	98%			
20	96%	96%	98%	97%	48	100%	100%	100%	100%	76	98%	98%	98%	98%			
21	100%	100%	98%	98%	49	100%	100%	100%	100%	77	98%	98%	98%	98%			
22	100%	97%	98%	99%	50	100%	100%	100%	100%	78	98%	98%	98%	98%			
23	100%	99%	99%	98%	51	100%	100%	100%	100%	79	98%	98%	98%	98%			
24	96%	98%	98%	98%	52	100%	100%	100%	100%	80	97%	97%	97%	97%			
25	96%	98%	98%	99%	53	100%	100%	100%	100%	81	97%	97%	97%	97%			
26	100%	98%	99%	98%	54	100%	100%	100%	100%	82	97%	97%	97%	97%			
27	98%	98%	99%	98%	55	100%	100%	100%	100%	83	97%	97%	97%	97%			
28	96%	99%	98%	98%	56	100%	100%	100%	100%	84	97%	97%	97%	97%			
29	97%	98%	99%	98%	57	100%	100%	100%	100%	85	97%	97%	97%	97%			
30	98%	99%	100%	99%	58	99%	100%	100%	100%	86	96%	96%	96%	96%			
31	99%	98%	99%	99%	59	100%	100%	100%	100%	87	96%	96%	96%	96%			
32	99%	98%	99%	99%	60	99%	99%	99%	100%	88	96%	96%	96%	96%			
33	100%	99%	100%	99%	61	99%	100%	100%	100%	89	96%	96%	96%	96%			
34	99%	100%	98%	100%	62	99%	99%	99%	99%	90	96%	96%	96%	96%			
35	99%	99%	98%	99%	63	99%	99%	99%	99%	91	96%	96%	96%	96%			
36	99%	100%	99%	99%	64	99%	99%	99%	99%	92	95%	95%	95%	95%			
37	99%	99%	99%	99%	65	99%	99%	99%	99%	93	95%	95%	95%	95%			
38	99%	99%	100%	99%	66	99%	99%	99%	99%	94	95%	95%	95%	95%			
39	100%	99%	99%	99%	67	99%	99%	99%	99%	95	95%	95%	95%	95%			
40	100%	99%	100%	99%	68	99%	99%	99%	99%	96	95%	95%	95%	95%			
41	99%	100%	99%	99%	69	99%	99%	99%	99%	97	95%	95%	95%	95%			
42	100%	100%	100%	100%	70	99%	99%	99%	99%	98	94%	94%	94%	94%			
43	100%	99%	99%	100%	71	99%	99%	99%	99%	99	94%	94%	94%	94%			
44	99%	100%	100%	100%	72	98%	98%	98%	98%	100	94%	94%	94%	94%			
45	100%	100%	100%	100%	73	98%	98%	98%	98%								

SOA Survey

- Designed to assess the current state of the industry's preparedness for implementing PBR
- Conducted in July of 2016
- Survey of companies selling term and/or ULSG products and likely to be subject to VM-20
- 57 out of 72 companies indicated PBR would not be used to value policies issued in 2017

Source: Society of Actuaries 2016 Mortality & Other Implications of PBR (VM-20) Survey – Part 2

What is the reason(s) for not valuing policies issued in 2017 pursuant to VM-20?

Reasons for Not Valuing Policies Issued in 2017 Pursuant to VM-20	# of Responses
Company Elects the 3-Year Transition Period	40 (57%)
Company Meets the Small Company Exemption	11 (15%)
Unsure of Impact to Tax Reserves	11 (15%)
No Products that Fall under VM-20	7 (10%)
Valuing Only under AG-48	2 (3%)
Single State Exemption	0 (0%)
Total # of Responses	71

Source: Society of Actuaries 2016 Mortality & Other Implications of PBR (VM-20) Survey – Part 2

What are your expectations with respect to exclusion testing?

Product Types	Moving to VM-20	Pass DET	Pass SET	Pass Both	Do not expect to pass either
≤ 20 Year Level Term	11	8	1	0	2
> 20 Year Level Term	10	7	1	0	2
Annually Renewable Term	2	1	0	0	1
Other Term (ROP Term)	1	1	0	0	0
Universal Life w/ Secondary Guarantees (ULSG)	4	0	0	0	4
Universal Life w/o Secondary Guarantees	3	0	1	0	2
Whole Life	0	0	0	0	0
Indexed Life	0	0	0	0	0
Variable Life	0	0	0	0	0
Other Life	0	0	0	0	0

Two “problems” with the responses in this chart:

- DET is not allowed for term products
- DET is not allowed if SET is not passed

Source: Society of Actuaries 2016 Mortality & Other Implications of PBR (VM-20) Survey – Part 2

Do you expect to use some credible company mortality experience, what industry table do you expect to use when not fully credible, and how frequently do you expect to perform mortality experience studies?

Product Types	Expect to Reflect Some Credible Company Experience	Industry Experience Table	Frequency of Company Experience Studies
≤ 20 Year Level Term	10	2015 VBT (4)	Annually (9) Every 3 years (1)
> 20 Year Level Term	9	2015 VBT (4)	Annually (9)
Annually Renewable Term	2	“No Table Identified”	Annually (1) Every 3 years (1)
Other Term (ROP Term)	1	“No Table Identified”	Annually (1)
Universal Life w/ Secondary Guarantees (ULSG)	4	2015 VBT (2)	Annually (3) Every 1-2 years (1)
Universal Life w/o Secondary Guarantees	3	“No Table Identified”	Annually (2) Every 1-2 years (1)
Whole Life	0	0	0
Indexed Life	0	0	0
Variable Life	0	0	0
Other Life	0	0	0

Source: Society of Actuaries 2016 Mortality & Other Implications of PBR (VM-20) Survey – Part 2

What are your plans for using the 2017 CSO mortality table for products issued in 2017?

Value products issued in 2017 using 2017 CSO table?	# of Respondents
Yes	32 (44%)
No	27 (38%)
Don't Know	13 (18%)
Total # of Respondents	72

Determine minimum cash values for products issued in 2017 using 2017 CSO table?	# of Respondents
Yes	19 (26%)
No	39 (54%)
Don't Know	14 (19%)
Total # of Respondents	72

Develop and file updated forms and non-forfeiture values with the IIPRC in 2017 using the 2017 CSO table?	# of Respondents
Yes	24 (33%)
No	34 (47%)
Don't Know	14 (19%)
Total # of Respondents	72

Source: Society of Actuaries 2016 Mortality & Other Implications of PBR (VM-20) Survey – Part 2

Experience Reporting (VM-50)

- Requirements apply to licensed life and health companies
- No 3-year transition – reporting is required for 2017
- Reporting is performed annually
- Reporting for life insurance business must follow instructions in VM-51 Experience Reporting Formats
- Initially focuses on mortality, but will ultimately include policyholder behavior and expenses
- Data is reported gross of reinsurance ceded and does not include reinsurance assumed

Experience Reporting Exemptions

- Companies licensed only in state of domicile may be exempted by domiciliary commissioner
- Companies with less than \$50 million in direct individual life premium are exempted for applicable calendar year

Purpose of Experience Reporting

- Provides a database to establish industry experience tables and factors
- Assists regulators, auditors, and reviewing actuaries in performing reasonableness checks
- Provides an independent check on the accuracy and completeness of company experiences studies
- Provides a basis for establishing and updating prescribed assumptions and margins

Reference Materials

- SOA PBR Professional Development Series
- Life PBR Under VM-20 Practice Note (2017)
- PBR for Life Products ASOP (Exposure Draft 2017)
- Model Governance Practice Note (2017)
- Model Governance Checklist (2016)
- PBA Implementation Guide (Revised 2016)
- SOA 2016 Mortality & Other Implications of PBR (VM-20) Survey – Part 2