PBR is here!

46 States have adopted PBR representing >75% of written premium

- The NAIC has determined that the versions adopted by the states are substantially similar
- PBR will be effective 1/1/17 with 3 year option to grade-in
- NY has indicated that they will adopt PBR effective in 2018

NAIC pilot is in progress to get feedback on process

- 12 companies, 9 states
- Calculating VM-20 calculations as of 12/31/2015
- Submit VM-20 supplement and VM-31 actuarial report to state of domicile by 8/19/16

Amendment forms on NPR, aggregation, reporting, and DR exclusion test are being considered
Background

NAIC reserving currently works whereby insurers and regulators are playing a catch-up game:

- Regulators promulgate mechanical regulation.
- Insurers “innovate” to design new products which lower reserves.
- Regulators review industry practice and try to redesign regulation.
## NAIC PBR objectives - why we need PBR

<table>
<thead>
<tr>
<th>Principle Based Approach</th>
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<tbody>
<tr>
<td>The formulaic approach prescribed by current state laws and regulations needs to be frequently updated as new product designs are introduced. PBR alleviates this need to a great degree.</td>
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<tr>
<td>State laws would establish principles upon which reserves are to be based rather than specific formulas, with more details and constraints included in the Valuation Manual.</td>
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<tr>
<td>Current formulas do not always accurately reflect the risks or the true cost of the liability or obligations of the insurer. For some products, this leads to excessive conservatism in reserve calculations and for others it results in inadequate reserves.</td>
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<tr>
<td>The current system locks in certain assumptions, resulting in reserves that do not change as economic conditions change or as insurers accumulate actual experience. The new system adjusts reserves as economic conditions change and as insurers accumulate credible experience.</td>
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## Current versus future state

<table>
<thead>
<tr>
<th>Current Statutory for Life Insurance</th>
<th>VM-20 PBR for Life Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formulaic, rules-based approach</td>
<td>Less prescriptive, principles-based</td>
</tr>
<tr>
<td>CRVM – formulaic and rules-based</td>
<td>Three components</td>
</tr>
<tr>
<td>- Prescribed mortality and interest</td>
<td>- Net premium reserve (NPR) – floor and seriatim</td>
</tr>
<tr>
<td>- Conservative assumptions</td>
<td>- Deterministic reserve (DR)</td>
</tr>
<tr>
<td>XXX – minimum reserves</td>
<td>- Stochastic reserve (SR)</td>
</tr>
<tr>
<td>- X-factors allowed for mortality</td>
<td>Assumptions based on company or industry experience</td>
</tr>
<tr>
<td>AG 36/37/38 for secondary guarantees</td>
<td>Annual unlocking of assumptions for all product types</td>
</tr>
<tr>
<td>- Optional lapse rates allowed</td>
<td>Explicit margins included on individual assumptions</td>
</tr>
<tr>
<td>Locked in assumptions</td>
<td></td>
</tr>
<tr>
<td>No explicit margins (assumptions already conservative)</td>
<td></td>
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</tbody>
</table>
Key challenges

The implementation of PBR for life insurance marks a significant change from current statutory reporting requirements. This will present many challenges for insurers.

While not all of the challenges below can be mitigated, we believe that a coordinated accounting change program will provide insurers with opportunities to leverage synergies and resources across change programs and help minimize program delays or unintended consequences.

- Development of an implementation plan
- More cooperation between pricing and valuation functions
- Experience study requirements and disclosures
- Implications on tax reserves
- Reserve assumptions will be critical in estimating KPIs
- Modeling requirements to calculate stochastic reserve
- Additional assumptions required, scenario generator
- Impacts on income statement, and additional volatility in results
PBR methodology
Scope of PBR

What products and companies are in scope?
— New business issued as of January 1, 2017
— All life products except pre-need, credit life, industrial, and riders and supplemental benefits with stand-alone charges
— Small company exemptions are expected to cover about 362 companies representing $9B of premium (based on 2013 data)
— Other companies may be exempt due to writing business in a single state

Three exemption tests:
— Premium written
— RBC ratio
— Other risk criteria

If a company is exempt, current CRVM calculations should be applied.
What is the PBR calculation?

Three components to evaluate
— Net premium reserve (NPR) - floor and seriatim
— Deterministic reserve (DR)
— Stochastic reserve (SR)

The booked reserve will be the maximum of these components

Exclusion tests
— DR – if future net premiums are less than future gross premiums (UL without SG only)
— SR – if there is little interest or equity risk
Net premium reserve (NPR)

Serves as a minimum floor

Uses prescribed statutory assumptions (not company experience assumptions)
  — Mortality
  — Interest
  — Lapse

Formula based
  — Calculated seriatim then summed

Comparison is made to the greater of:
1. Cash Surrender Value AND
2. Amount needed to cover the cost of insurance to the next processing date
Deterministic reserve and stochastic reserve comparison

**Similarities**
- Both use cash flow models
- Both use the same assumptions for non-economic assumption (mortality, policyholder behavior, expenses)

**Differences**
- SR focus is on risks that have high impact but low probability
- SR based on the outcomes under multiple economic scenarios, not just one.
- SR uses a GPVAD method
- DR uses a Gross Premium Reserve
- SR will typically include dynamic policyholder behavior assumptions to reflect behavior expected from the scenario
Deterministic reserve (DR)

Gross Premium Valuation methodology
— PV of benefits and expenses less the PV of premium and other inflows

Principle based aggregate reserve
— Company can group policies into modeling cells to project future cash flows

Single Deterministic Scenario

Prudent Estimate Assumptions
— Best estimate assumptions plus a margin
— Margins based on credibility and risk level
Stochastic reserve (SR)

Greatest Present Value of Accumulated Deficiencies (GPVAD) Methodology
— CTE(70)

Principle based aggregate reserve
— Company can group policies into modeling cells to project future cash flows
— Same as deterministic reserve

Prescribed Economic Scenarios (Up to 10,000)
— Interest rate and economic returns

Prudent Estimate Assumptions
— Best estimate assumptions plus a margin for non-stochastically modeled assumptions
— Margins based on credibility and risk level
— Same as deterministic reserve
Assumptions
PBR Assumptions

Considerations
— Availability of appropriate policy data
— Credibility of assumptions
— Experience study reporting
— Attribution analysis for assumption updates

General Assumption Requirements (VM-20: Section 9.A)
— NOT locked in
— Prudent best estimate
— Margins – on each assumption
— Company experience can be used, if relevant and credible
— Must provide to regulators

Under PBR, assumptions with fall into two categories:
— Prescribed
— Prudent estimate
Prescribed assumptions

Used for risks where the company has very little of no influence or control over the outcome.

- For these types of risks, all companies will be required to use the same assumptions
- Includes stochastically generated assumptions for interest rate and equity returns

Examples

- Interest rate movements
- Equity movements
- Asset default experience
- Spreads on reinvestment assets
Prudent estimate assumptions

**Used for risks where the company has some degree of influence over the outcome.**
- For these types of risks, assumptions could differ by company, reflecting the risk profiles of the company
- Equals the actuary’s best estimate plus a margin that includes a provision for adverse deviation and estimation error
- Generally based on the actual experience of the company (combine with industry experience if not credible)

**Examples**
- Mortality
- Lapse
- Partial Surrender
- Expenses

**Hierarchy for Setting Assumptions**
1. Use own experience, if relevant and credible
2. Combine relevant company experience with industry experience data or other applicable data consistent with credibility theory and accepted actuarial practice
3. Use other available relevant experience consistent with accepted actuarial practice
4. Use the most relevant data available using sound actuarial judgment.
Post-PBR considerations
Broad potential impacts of PBR statutory accounting changes

**Accounting and Reporting Impacts**
- Modelling Challenges
  - Model strain – 3 calculation engines
  - Scenario generation
  - Exclusion tests
  - Sensitivity testing
  - Asset modeling
- Assumption Setting
  - Collection and analysis of experience data
  - Credibility
  - Internal vs. industry studies
  - Experience Study Reporting
- Disclosure requirements

**Business Impacts**
- Impact on capital management strategies across captive use, reinsurance, and determination of required capital and RBC.
- PBR could result in significantly different earnings figures
  - Resulting in needed changes in KPIs and
  - Improved monitoring of changes in reserves
- Significant impacts will be felt in the pricing environment specifically on product design and a likely shortened pricing cycle
  - Use of stochastic scenarios in pricing
  - Allocation of stochastic reserve to the pricing cell level
  - Mapping of underwriting classes
  - Pricing of riders
  - Reconciliation of pricing and valuation models

**Accounting and Reporting Impacts**
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- Disclosure requirements

**Systems & Processes Impacts**
- Existing systems may have capacity to model under PBR, however, significant challenges will permeate in modelling
  - Expanded Data needs across:
    - Pricing,
    - Modeling and
    - Assumptions
- Risk Management and Governance considerations include pricing, modelling and assumption setting and the related processes over review, approval and implementation
  - Increased management judgment will elevate financial reporting risk, and will require changes to process documentation and MAR (Model Audit Rule) testing

**People & Change Impacts**
- Internal and External stakeholders will need to be engaged to communicate changes in reserves and earnings and their resulting impacts on the entity.
- Due to pervasive organizational change there is a need for a strong project management office with an effective governance structure and communication protocols
- Impacted departments will need appropriate communication and training to understand their role, the impact to their job responsibilities and their level of involvement in the ongoing support of the conversion project and ongoing accounting
Technical considerations

Infrastructure
— Warehouse
— Data Analytics
— Governance

Modeling
— 3 calculations for PBR
— Ability to run stochastic scenarios
— Maintain current CRVM for inforce business

Documentation
— Internal
— Regulatory
— Enhance GAAP Assumption Rationale

Peer Review/Validation
— Evaluation assumption decisions, process, documentation, etc.
A principles-based methodology requires a robust governance framework.
— Flexibility in assumptions, methods, and models requires a higher standard of governance
— Companies are obligated to assure they are governing the process by which reserves are determined
— Regulators must obtain assurance that results are appropriate and consistent with the legal requirements

VM-G provides guidance regarding responsibilities for company boards, management, and qualified actuaries under PBR.

The SVL primarily points to the VM for governance, but does specifically:
— Require that PBR assumptions, methods, and models be consistent with (but not necessarily identical to) those used in other company risk assessment processes
— Require that the company annually provide to the commissioner and the board a certification of the effectiveness of internal controls with respect to the PBR valuations
Reporting and documentation guidance

— **VM-20** Reserve Supplement from Annual Statement Blank
— **VM-31** PBR Report Requirements for Business Subject to a Principle-Based Reserve Valuation
  - Covers both VM-20 and VM-21 (AG 43)
— **VM-50** Experience Reporting Requirements
— **VM-51** Experience Reporting Formats

— Requirements are *similar* to the AOMR *but* there is a greater level of detail required
  - Regulators need to have confidence in the results
  - Complexity of the PBR model
  - Assumptions are not prescribed
  - Use of own experience assumptions, margins, and credibility weighting
— In order for regulators to have enough information to deem that assumptions are appropriate, companies will need comprehensive documentation of derivation of assumptions, credibility, and margins.
— It is not sufficient to simply state assumptions. Companies must prove how assumptions were derived, provide experience studies, demonstrate credibility, explain and quantify margins, and perform sensitivity testing
Reporting considerations

— Resources and timing
  — Very detailed and time-consuming to put together, especially the first time
  — Due at a time when resources are already stretched to the limit
  — Plan ahead; start putting information together in December

— Additional disclosures
  — Requires inclusion of assumption rationale, as well as assumptions themselves
  — Use of company experience requires experience studies reported and formatted in accordance with VM-50 and VM-51
  — Mortality and policyholder behavior Actual/Expected (required every 3 years)
  — Impact of individual and aggregate margins on deterministic reserves
  — Impact of aggregation on stochastic reserve
  — Quantification of assumption margins and sensitivities

— Level of granularity
  — More detailed than asset adequacy report
  — Detailed information about reinsurance treaties
Life PBR does not fit easily into the structure of life insurance reserves developed by Congress in 1984
— One method (CRVM), one mortality table, one statutory interest rate, infrequent changes, consistency across industry

There is a wide range of technical questions
— Methods, assumptions, transition rules, statutory cap, product tax
— Some existing guidance (Notice 2008-18 on Life PBR and VACARVM, Notice 2010-29 on AG 43)

General Issues
— Life insurance product tax compliance
— Federally prescribed reserve method
— Statutory reserve cap
— Transition period
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