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# Technical Line

**NAIC — final guidance**

## How principle-based reserving will affect life insurers

In this issue:



### What you need to know

- Life insurers domiciled in 46 states may begin using a principle-based reserving approach to estimate reserves for most types of life insurance contracts issued on or after 1 January 2017. Use of the approach is optional now but will be mandatory on 1 January 2020.
- The approach aims to better align the reserves recognized in the statutory-basis financial statements with the features and risk profiles of life insurance products.
- The approach requires life insurers to make more complex calculations than they use today and establish their own assumptions based on their actual experience with a product. As a result, they will need to make substantial changes to their processes, information technology systems and internal controls.
- Life insurers will need to actively involve various departments, including actuarial, investment, tax and finance, in various stages of their implementation plan.
- Life insurers also will need to prepare and retain more documentation than is currently required.

## Overview

Under the new principle-based reserving (PBR) framework established by the National Association of Insurance Commissioners (NAIC), life insurers will have to significantly change how they estimate reserves for most types of life insurance contracts.

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The approach requires life insurers to make several new calculations of reserve amounts for recognition in their statutory-basis financial statements and set their own assumptions based on their actual experience with each product. Life insurers have historically been required to use prescribed assumptions and formulas to establish reserves for statutory reporting purposes.

The NAIC developed the PBR framework to address concerns that reserves calculated under the current valuation standards don't accurately reflect the features and risk profiles of some life insurance products, particularly term insurance and universal life with secondary guarantees (ULSG). The NAIC also was trying to address concerns that life insurers were creating captive insurers and taking other steps to reduce their recorded reserves for these products. State insurance regulators expect the new approach to result in lower reserves for certain products and higher reserves for others.

Life insurers domiciled in 46 states[1] may now use a PBR approach to estimate reserves for life insurance contracts issued on or after 1 January 2017.[2] The approach is optional for a three-year transition period, and life insurers can elect to use it on a product-by-product basis. Use of the approach will be mandatory for life insurance contracts issued on 1 January 2020. Once a product transitions to PBR, the method must continue to be applied.

This publication summarizes the approach, which is described in VM-20, *Requirements for Principle-Based Reserves for Life Products*, of the NAIC's Valuation Manual, and the related statutory accounting and reporting implications of its application to certain life insurance products.

A summary of the components of the Valuation Manual and the related guidance for insurance products can be found in Appendix A and Appendix B, respectively, of this publication.

Any updates to the Valuation Manual do not require approval to be effective in states that have adopted the revised SVL.

## Background

The PBR framework for life insurance contracts is included in the NAIC's Valuation Manual, which sets the minimum reserve requirements for life, annuity and health products issued on or after 1 January 2017. The NAIC adopted the approach in its revised standard valuation law (SVL) that has been incorporated into the *Minimum Life and Annuity Reserve Standards Model Regulation* (#820).

Many states have enacted legislation to adopt the revised SVL, which incorporated the Valuation Manual by reference into their statutes. As a result, any changes the NAIC makes to the Valuation Manual requirements will have the force of law upon adoption without requiring further actions by the state. Insurers will need to understand the regulations adopted by their state of domicile to identify and understand any changes the state may have made to the PBR requirements in the Valuation Manual.

Life insurers in jurisdictions representing 85.7% of direct written premiums[3] for the life insurance industry in the US and its territories may now use the PBR approach since such jurisdictions have adopted the revised SVL. Life insurers domiciled in Alaska, Massachusetts, New York,[4] Wyoming, the District of Columbia and five US territories currently cannot apply the approach as they have not adopted the revised SVL.

An ad hoc drafting group, which includes NAIC staff, state insurance regulators and interested parties, has been formed to address questions from life insurers about the application of the PBR approach to life insurance contracts and provide guidance on the appropriate interpretation of certain requirements in the Valuation Manual.

The NAIC is currently developing requirements for the application of a PBR approach to establish reserves for non-variable annuities, which would be included in a new section (i.e., VM-22) of the Valuation Manual.

## How we see it

- Because the Valuation Manual is a living document, insurers will need to monitor NAIC developments and track any changes. As insurers implement PBR, we expect more revisions to be made to the Valuation Manual.
- Insurers also will need to determine whether their state of domicile has modified any of the requirements in the Valuation Manual adopted by the NAIC.
- Insurance groups with entities that are domiciled in states that have not yet adopted the Valuation Manual may want to consider delaying adoption of the PBR approach until they can use the same processes, systems and controls to estimate reserves for all of their entities.

## Key considerations

As described in the Valuation Manual, the PBR framework is intended to result in reserve estimates that better reflect the features and risk profiles of life insurance products while retaining an appropriate level of conservatism in establishing policy reserves.

The approach requires life insurers to calculate up to three separate reserve estimates: the net premium reserve (NPR), the stochastic reserve and the deterministic reserve.

The NPR is the minimum level at which reserves can be recorded. Life insurers will use prescribed formulas and assumptions, as they do today, to calculate this amount for all life insurance products. The NPR formula has been modified for term life products and ULSG products as described in the Valuation Manual.

The stochastic reserve is measured considering projections of the insurer's obligations for a product and the value of the assets allocated to satisfy them based on a range of scenarios with varying economic conditions. The deterministic reserve is measured in a manner similar to the stochastic reserve, but it is calculated based on a single scenario using moderately adverse economic conditions.

Life insurers will base the reserve recorded in their statutory-basis financial statements on the largest of the three reserve estimates, subject to certain adjustments described in the Minimum reserve section of this publication. Calculating stochastic and deterministic reserve estimates (i.e., modeled reserve valuations) will be a significant change for life insurers because they will need to set their own assumptions and perform more complex modeling than they do today. In addition, life insurers will have to perform experience studies to support their prudent estimate assumptions (as defined by the NAIC in the Valuation Manual) used in the modeled reserve valuations. Life insurers also will have to assess the relevance and credibility of the underlying data used in the experience studies and will be required to prepare and retain robust documentation to support the recorded estimate.

Senior management and the qualified actuary[5] also will be required to annually perform an assessment of internal control over their process to perform PBR valuations and prepare a comprehensive PBR actuarial report documenting the judgments made in the valuation process. Components of the PBR actuarial report are required to be filed with the domiciliary state insurance department and made available to other state insurance departments upon request.

## Considerations for VM-20 reserve valuations

### Company-wide exemption

When PBR becomes mandatory, insurers with less than $300 million in ordinary life premiums and insurance groups with less than $600 million in ordinary life premiums may request an exemption from VM-20 from their domiciliary state insurance commissioner before 1 July of each year. To be eligible for the exemption, the insurer or insurance group must meet all of the following conditions:[6] (1) total adjusted capital was at least 450% of the authorized control level risk-based capital (RBC) as reported in the most recent RBC filing, (2) the appointed actuary has issued an unqualified opinion on reserves and (3) ULSG products issued or assumed with an issue date of 1 January 2017 or thereafter include only nonmaterial secondary guarantees as defined in the Valuation Manual.

If the domiciliary state insurance commissioner rejects an exemption request, the insurer or insurance group will have to comply with the requirements of VM-20 to establish reserves for its life insurance contracts. If an exemption is approved, the minimum valuation standards and reserve requirements in VM-A, *Appendix A Requirements*, and VM-C, *Appendix C Actuarial Guidelines*, will continue to apply to the insurer's life insurance contracts. These reserve requirements are similar to the requirements of the Commissioners Reserve Valuation Method (CRVM).

The valuation model on which the recorded reserve is based may change from year to year.

State insurance regulators have indicated at NAIC meetings that an insurer likely would not want to apply for the company-wide exemption before the end of the three-year transition period (i.e., 1 January 2020) because, if the exemption request is denied, the insurer will have to adopt PBR in the year of rejection.

### Minimum reserve

A minimum reserve is determined for each product grouping (i.e., term insurance, ULSG and all other products). The resulting amount is calculated net of reinsurance. An insurer records the largest of the three reserves with an adjustment for due/deferred premiums in certain cases based on the below formula:

Minimum reserve = NPR + Excess* [ Greater of deterministic or stochastic reserve - NPR less due/deferred premium ]

* The amount calculated within the brackets is only added to the NPR if it is a positive value.

VM-20 provides guidance on the level of aggregation when calculating the NPR, stochastic reserve and deterministic reserve. In addition, Section 2 of VM-20 provides additional guidance on the level of aggregation for the minimum reserve that should be applied when an insurer would not calculate each of these reserves (i.e., an exclusion test is met).

#### *Net premium reserve*

The NAIC developed the modified NPR approach for term life and ULSG products to respond to the risks inherent in these products. However, the NAIC determined that the application of existing statutory guidance[7] for all other life insurance products resulted in an appropriately conservative calculation of the NPR. VM-A and VM-C incorporated the existing statutory guidance for these life insurance products.

The modified NPR approach results in an estimate that represents the actuarial present value of future benefits less the actuarial present value of future annual valuation net premiums on the valuation date. Actuarial present value methods use prescribed interest, mortality and lapse rate assumptions. The underlying calculations are different for term life and ULSG due to differences in the products. For example, term life products have fixed periodic premiums, and ULSG products have flexible premiums.

The NPR estimate is determined on a policy-by-policy basis, consistent with the existing unit of account methodology for life insurance products.

*Stochastic reserve*

The stochastic reserve is calculated for a group of one or more policies by determining a range of reserve estimates under multiple stochastically generated scenarios. The estimates (i.e., scenario reserves) are then ordered from the lowest to the highest to calculate the average of the largest 30% of such estimates (referred to as conditional tail expectation or CTE 70). This average is then adjusted for additional amounts needed to capture any material risks (regardless of whether they are explicitly identified in the Valuation Manual) that are not already reflected in the cash flows and the positive or negative pretax interest maintenance reserve (PIMR) balance allocated to the group of policies.

To determine the scenario reserve estimates, insurers are required to use prudent estimate assumptions or select assumptions that are appropriate for the stochastically generated economic scenarios. The insurer should use industry data if it does not have sufficient relevant and credible actuarial experience for the group of policies being evaluated.

Prudent estimate assumptions are assumptions developed by applying a margin to anticipated experience for the underlying risk factor (e.g., mortality, policyholder lapse). The margin is meant to address the risk of adverse deviation and estimation error and will vary based on the level of uncertainty about anticipated experience. Prudent estimate assumptions are used for each risk factor that is not prescribed or is not stochastically modeled. The insurer is expected to perform sensitivity tests to understand the significance of these assumptions on the modeled reserves estimated for a policy group.

An insurer is required to stochastically determine its assumptions about interest rate movements and equity performance.[8] An insurer has the option to stochastically determine other assumptions instead of using prudent estimate assumptions.

The stochastic reserve estimates may be calculated on a policy-by-policy basis or for a group of policies. The number and breakout of groups should be based on how the insurer manages risks across the different product types, with a minimum of three different product types (i.e., term insurance, ULSG and all other insurance products) as specified in Section 5 of VM-20.

*Stochastic exclusion test*

An insurer uses the stochastic exclusion test to determine whether it can qualify to exempt a group of policies from the determination of stochastic reserve estimates required by VM-20. It is meant to identify policies that do not have material interest rate risk or asset return volatility risk. An insurer may not exclude a group of policies from the stochastic reserve model for which there is one or more clearly defined strategies in place to economically hedge the risks applicable to the underlying product.

There are three approaches that can be taken to determine whether an insurer qualifies for the exclusion as described in Section 6 of VM-20. The documentation supporting a conclusion that the exclusion can be applied must be sufficiently clear so that another actuary can understand the results.

Insurers will need to calculate their modeled reserves for policies subject to VM-20 unless they pass the exclusion tests.

| Approaches for the stochastic exclusion test | | | |
|---|---|---|---|
| | Stochastic exclusion ratio test | Stochastic exclusion demonstration test | Certification |
| Scope | May be applied to all products in scope of VM-20. | May be applied to all products in scope of VM-20. | May be applied to all products in scope of VM-20 when there is no material interest rate risk or asset return volatility, except for term life and ULSG products. |
| Timing | Must be performed on an annual basis. | Must be performed, after the approach has been passed, at least once every three calendar years thereafter. | Periodic certifications (by the qualifying actuary) are required in the first year of application and at least once every three calendar years thereafter, with documentation retained to support the certification. |

***Deterministic reserve***

The deterministic reserve can be estimated using one of two approaches. The first approach, which is similar to a gross premium valuation model commonly used today to estimate statutory reserves, is described in Section 4.A of VM-20. Under this approach, the reserve is based on a single defined scenario developed using prudent estimate assumptions. The amount calculated under this approach will equal the actuarial present value of benefits, expenses and related amounts, less the actuarial present value of premiums and related amounts. The positive or negative PIMR balance allocated to the group of policies is deducted from the calculation to determine the deterministic reserve.

The second approach (referred to as the direct iteration approach) is described in Section 4.B of VM-20 and is intended to achieve the same result through the use of a simpler calculation. Under this approach, an insurer uses the same cash flow model and assumptions as in the first approach to calculate the starting assets[9] that will fully satisfy the liabilities for a block of business over the projection horizon. The deterministic reserve would equal the statutory carrying value of those starting assets.

The deterministic reserve calculation is performed on a group of one or more policies that fall into at least one of the following categories specified in Section 4 of VM-20: term insurance products, ULSG products and all other types of insurance products.

***Deterministic exclusion test***

The deterministic exclusion test can be used by insurers to determine whether certain policies may be exempted from the deterministic modeling requirements, except for the following:

- Term insurance policies
- A group of ULSG policies with material secondary guarantees[10]
- A group of insurance policies that do not qualify for the exemption from the stochastic reserve requirements

If the sum of the valuation net premiums for all years for the group of policies being evaluated is less than the sum of the corresponding anticipated gross premiums for such policies, the policies qualify for the exemption. Different product types cannot be grouped together for purposes of this exclusion test if they have significantly different risk profiles.

If an insurer no longer issues new policies in a particular group, and the group has qualified for the exemption for three consecutive years, the insurer only needs to perform the test once every five calendar years thereafter.

*Timing and modification to the reserve estimates*

Insurers are allowed to establish the assumptions used to estimate their stochastic or deterministic reserves based on data up to three months before the valuation date, as long as they determined the assumptions remain valid based on actual experience for the underlying products through the valuation date. This three-month allowance does not apply to the company data used in experience studies to determine prudent estimate assumptions.

Insurers are allowed to use simplifications, approximations or modeling efficiency techniques to calculate their NPR, stochastic reserve or deterministic reserve estimates only if they can demonstrate that these techniques do not understate the reserves by a material amount. If used, these considerations must be fully and clearly documented in the PBR actuarial report.

*Treatment of ceded reinsurance in the reserve valuations*

The NPR is determined gross of reinsurance ceded and then adjusted through a credit to the reserve liability consistent with current statutory accounting guidance. The stochastic reserve and deterministic reserve estimates are calculated based on expected cash flows with and without the effect of reinsurance. The adjustment to the reserve liability representing the credit for reinsurance will be based on the difference in reserves calculated with and without the effect of reinsurance.

## How we see it

- Insurers will need to assess their current system capabilities to maintain and track the data needed at the policy level for the NPR valuation and aggregate the information for the stochastic reserve and deterministic reserve valuations.
- Insurers will need to carefully consider the aggregation of policies when estimating their stochastic and deterministic reserves based on the different requirements for these models in the Valuation Manual.
- Insurers with policy benefit reserves subject to reinsurance agreements will need to carefully assess the effect of reinsurance assumptions (e.g., the expected amount of premiums to be paid for yearly renewable term reinsurance, the linkage of the reinsurance coverage to the underlying risks) on the cash flows used in their modeled reserve valuations. If another party administers the policies, the insurer should assess whether it needs additional information to calculate the reserve.
- When using simplifications or other modifications to calculate reserves, the insurer should consider whether the selected methods and assumptions are supportable, rather than just making sure that the reserve is adequate. In addition, the preparers of statutory-basis financial statements need to consider whether the financial statements, including reserves, are presented in a manner that achieves fair presentation of information that is free of material misstatement.

## Considerations for implementing the PBR approach

During the transition period, insurers will have to evaluate whether they are prepared to apply the provisions of a principle-based valuation to establish policy reserves. Considerations will likely include the preparedness of the insurer's infrastructure to perform the PBR calculations and report the results (in the PBR actuarial report) to the domiciliary state insurance department, the effect of PBR on pricing and product design and the potential consequences of uncertainties relating to establishing tax reserves.

### Tax implications

It is unclear how the Internal Revenue Service (IRS) will apply the tax law to reserves calculated under the PBR framework to determine the amount of those reserves that will be deductible for tax purposes. Currently, the tax law prescribes how an insurer calculates the amount of recorded reserves it can deduct for tax purposes, and that calculation, which is formulaic and performed on a policy-by-policy basis, is aligned with the historic statutory reserve valuation requirements.

Neither Congress nor the IRS has addressed the income tax implications (i.e., whether the amount of the reserve deduction will change) resulting from the use of a principle-based valuation approach to estimate reserves for the statutory basis of accounting. Insurers that implement a PBR methodology before guidance is issued by the IRS or the law is changed by Congress would need to assess the potential tax contingencies resulting from these uncertainties.

### How we see it

The timing of the issuance of final rules by Congress addressing the amount of the reserve deduction could influence an insurer's decision on when to implement PBR.

## Financial accounting and reporting

The adoption of PBR primarily affects the actuarial processes and procedures to estimate reserves and prepare the actuarial report required under the PBR framework. However, it also affects an insurer's financial accounting[11] processes and procedures, including obtaining and evaluating the underlying data relevant to the estimates.

Statement of Statutory Accounting Principles (SSAP) No. 51R, *Life Contracts*, incorporates the requirements of Appendix A-820, *Minimum Life and Annuity Reserve Standards*, of the Accounting Practices and Procedures Manual for establishing the minimum valuation standards, methodologies and assumptions used to calculate policy benefit reserves. The NAIC revised Appendix A-820 to incorporate the appropriate references to the Valuation Manual upon state adoption of the revised SVL (while maintaining the old guidance for policies issued before the implementation of PBR).

### Change in valuation basis

The most significant accounting update is the clarification of the guidance in SSAP No. 51R on when changes in the measurement of the reserve liability constitute a change in valuation basis. The NAIC adopted a modified definition for the change in valuation basis applicable to life and annuity contracts with reserves estimated based on the Valuation Manual's requirements or *Actuarial Guideline XLIII — CARVM for Variable Annuities* (AG 43). The definition for other products that continue to apply existing statutory guidance (e.g., life insurance contracts that were issued before 1 January 2017) has not changed.

The nature of the change determines the location where its effect will be reported in the statutory-basis financial statements. A change in valuation basis that also meets the definition of a change in accounting as defined in SSAP No. 3, *Accounting Changes and Corrections of Errors*, will be recorded as a separate adjustment to surplus (with the cumulative amount of the adjustment calculated as of the beginning of the year). All other changes will be recorded as a change in estimate with the adjustment to the reserve liability recorded through current operations.

The modified definition of a change in valuation basis includes situations when the required reserve methodology has changed or when voluntary changes are made from one allowable reserving method to another. For example, changing to a new standardized mortality table (e.g., Commissioners Standard Ordinary table) and implementing regulatory changes in methodology would be considered a change in valuation basis. The following examples are not considered a change in valuation basis:

- Updating assumptions based on changes in company, industry or other experience
- Moving among PBR valuation models (i.e., largest of the NPR, stochastic reserve and deterministic reserve) to recognize the reserve liability
- Periodic updates to the Valuation Manual assumption tables (e.g., industry valuation basic tables, asset spread tables, default cost tables)

The adoption of PBR is expected to meet the definition of a change in accounting as defined in SSAP No. 3 and the modified definition of a change in valuation basis in SSAP No. 51R. However, SSAP No. 51R also was updated to clarify that the adoption of PBR would not affect surplus since PBR is only applied prospectively to new policies issued on or after the implementation date. That is, the PBR framework will always be applied as the valuation basis used to establish reserves for newly issued policies.

## Asset adequacy testing

After adopting PBR, life insurers must continue to perform an analysis of the adequacy of the reserve liability as required by Appendix A-822, *Asset Adequacy Analysis Requirements*. The amount of the minimum reserve calculated under the PBR framework will need to be adjusted (i.e., increased) if it is determined that an additional reserve should be established based on the results of the asset adequacy testing performed. The requirement to perform asset adequacy testing has been incorporated into VM-30, *Actuarial Opinion and Memorandum Requirements*.

## Financial statement disclosures and supplemental schedules

The disclosure requirements for life insurance reserves were not modified for the adoption of PBR. However, the implementation of the PBR framework will trigger certain of these existing disclosure requirements. Life insurers will have to disclose new information in the statutory-basis financial statements to indicate their accounting policy relating to the establishment and measurement of PBR liabilities. Their prior accounting policy still will have to be provided since it is the basis for the reserve valuation applicable to those life insurance contracts issued prior to the implementation of PBR.

Upon adoption of PBR, a life insurer also will have to include the disclosures related to a change in accounting principle as required under SSAP No. 3. However, no adjustment will be recorded directly to surplus, so the primary disclosure required will be a description of its new accounting policy.

The NAIC also developed the VM-20 Reserve Supplement, which life insurers would provide to state insurance regulators as supplemental information to their annual statements. It is meant to provide a snapshot of the valuation of life insurance reserves for policies issued on or after 1 January 2017. The VM-20 supplement is not a part of the statutory financial statements and is unaudited.

| VM-20 Reserve Supplement | | |
|---|---|---|
| Part 1 | Part 2 | Part 3 |
| Summary of life insurance reserves by product type valued under VM-20, including disclosure of the recorded reserve, NPR, stochastic reserve, deterministic reserve and the deferred premium asset.<br>Amounts are shown on a pre- and post-ceded reinsurance basis. | Summary of life insurance reserves by product type not valued under VM-20 as a result of the three-year transition period (i.e., continue to apply existing methodologies under VM-A and VM-C). | For insurers that have filed and been granted a company-wide exemption:<br>▸ Disclosure of the related state statute or regulation that was used to obtain the exemption.<br>▸ Information about the minimum reserve requirements of that state (in certain cases). |

## How we see it

- The new definition of a change in valuation basis will require certain changes in the reserve liability to be recorded through current operations, rather than directly to surplus, after an insurer adopts the PBR approach.
- An insurer will need to make accounting policy disclosures that address reserving for contracts issued before and after the implementation of PBR.

## Regulatory considerations

The Valuation Manual requires insurers to provide actuarial documentation and certifications when they use a principle-based valuation approach to estimate reserves for one or more policy groups.

### Corporate governance

VM-G, *Appendix G Corporate Governance Guidance for Principle-Based Reserves*, includes the responsibilities of the board of directors, senior management and qualified actuaries when an insurer applies the PBR framework. VM-G is applicable to insurers that use a principle-based valuation approach to establish reserves in accordance with VM-20 and VM-21, *Requirements for Principle-Based Reserves for Variable Annuities*.[12]

The board of directors is responsible for overseeing the insurer's infrastructure (e.g., its policies, procedures, controls, resources) to implement a PBR valuation function and overseeing management's process to identify and correct (as needed) any material weakness in internal controls related to the insurer's PBR valuations.

Senior management (defined as the highest ranking officers of an insurer or insurance group, such as the chief executive officer, chief financial officer, chief actuary, chief risk officer and other individuals designated with responsibilities for operating results, risk assessment and financial reporting) is responsible for directing the implementation and ongoing efforts relating to the PBR valuation function. This includes making sure the insurer devotes adequate resources to the process to enable effective internal controls, as discussed in the Internal controls section below.

Qualified actuaries are responsible for overseeing the PBR valuation, including verifying that the assumptions, methods and models used to determine the reserves and the internal standards, internal controls and documentation of the PBR valuation process comply with the requirements. Qualified actuaries must verify that the prescribed assumptions, methods or models are being used in the valuation; however, they are not required to verify that any prescribed assumptions, methods or models are appropriate.

The qualified actuaries also are required to provide the board of directors and senior management with qualitative and quantitative information intended to summarize the PBR valuation process. Other requirements include disclosing any significant unresolved issues regarding the insurer's reserves to the insurer's external auditors and state insurance regulators and preparing the PBR actuarial report in accordance with VM-31, *PBR Actuarial Report Requirements for Business Subject to a Principle-Based Reserve Valuation*.

## Internal controls

Without appropriate planning, insurers may under-estimate the efforts required to achieve an effective internal control environment for their PBR valuation of reserves.

Insurers are currently obligated to design and implement internal controls relating to the reserve estimation process to meet the requirements of management's attestation on the effectiveness of internal controls under the *Annual Financial Reporting Model Regulation* (#205). The implementation of a PBR approach will require management and the qualified actuary to perform an assessment of the effectiveness of internal controls over the insurer's process to perform PBR valuations, including controls over the completeness of data, the system calculation of reserves and the required reporting in the PBR actuarial report. The controls should be designed to make sure that the PBR valuation was done in accordance with the Valuation Manual and considered all significant risks inherent in the PBR liabilities and related assets. The results of the assessment are to be communicated at least annually to the board of directors and made available to state insurance regulators upon request.

However, implementation efforts may require insurers to make changes to their existing internal controls as process changes (including model changes) are developed. Controls may need to be developed or tailored to address various components of a PBR valuation for the following functions:

- Oversight of models used in the reserving process
- Operation of the information technology systems (e.g., actuarial valuation system, policy administration systems) and related data access and change management controls (including for Excel spreadsheets)
- Integrity of data used in the estimate (e.g., investment activity, policyholder transactions) and experience studies
- Evaluation and review of key actuarial judgments:
  - Selection and support of prudent estimate assumptions and stochastic assumptions
  - Evaluation of the effect of simplifications or modifications in the VM-20 reserve valuations supporting the calculated reserve
  - Assumption sensitivity tests (e.g., assessment of the margin included in prudent estimate assumptions)
  - Reasonableness of each of the final VM-20 reserve valuations and calculation of final recorded reserve

- Evaluation and review of outputs from the PBR valuation:
  - Amounts recorded in the financial statements and related disclosures
  - VM-20 Reserve Supplement
  - PBR actuarial report
  - Actuarial opinion and memorandum (AOM)
  - Experience reporting

The assessment of effective internal controls will require coordination with the appropriate internal departments to make sure they understand their roles and requirements for the PBR valuation function. At a minimum, the actuarial, investment, tax and financial reporting departments will need to be involved.

VM-G does not include a prescribed format for the performance of the annual assessment of internal controls. Therefore, insurers will need to determine the appropriate method to communicate the results of their assessment of the effectiveness of internal controls over the PBR valuation of reserves.

## Actuarial opinion and memorandum

VM-30 contains guidance for insurers that file the life, accident and health annual statement or the fraternal annual statement. Insurers that file the other annual statement blanks (i.e., property/casualty, health) will continue to follow the existing statutory guidance in the annual statement instructions. The VM-30 requirements first apply to annual statements that are released after the effective date of the Valuation Manual (i.e., 1 January 2017 for states that have adopted the revised SVL).

The AOM requirements are completed by the appointed actuary. However, a state insurance commissioner can specify methods of analysis and assumptions for rendering an acceptable opinion on the adequacy of reserves and related actuarial items.

VM-30 also prescribes the information (e.g., asset adequacy analysis) that needs to be included in the AOM.

## PBR actuarial report

Development of the PBR actuarial report for VM-20 products[13] will be a significant undertaking. It must be prepared on an annual basis if the insurer calculates a stochastic reserve or deterministic reserve for any life insurance contracts.[14] The report may include one or more sub-reports covering groups of policies within the different model segments. It will be prepared by the qualified actuary responsible for the PBR valuation process.

The overview section of the report must be submitted to the domiciliary state insurance commissioner by 1 April of the following year,[15] while the complete report must be submitted to state insurance commissioners upon request. The Valuation Manual requires that sufficient documentation be included in the report so another actuary qualified in the field can evaluate the procedures performed. The report should describe all material decisions made in the PBR valuation process and information used by the insurer.

The report includes an overview section followed by detailed analysis relating to the assumptions, cash flow models, calculation of the stochastic reserve and deterministic reserve, required certifications and other considerations applicable to the PBR valuation process. A summary of the topics included in the PBR actuarial report can be found in Appendix C of this publication.

### Experience reporting

An insurer is required to submit certain experience data (e.g., mortality, morbidity, policyholder behavior data) to the NAIC. The collection of this information is intended for use in establishing (or maintaining) industry experience tables/factors and assisting state insurance regulators in their review of the PBR actuarial reports. It also is meant to encourage insurers to establish a disciplined process to produce experience studies.

The requirements[16] for the data subject to collection and the format to be used for reporting the data to the NAIC can be found in VM-50, *Experience Reporting Requirements*, and VM-51, *Experience Reporting Formats*. These sections also include data confidentiality provisions and exemptions for experience reporting in certain circumstances.

### How we see it

- As they execute their implementation plans, insurers should consider the design of their internal controls relating to a principle-based valuation approach to estimate reserves and make sure the appropriate departments (e.g., actuarial, investment, tax, finance) are aware of the requirements and are actively involved in the process.
- Given the volume of information required in the PBR actuarial report, insurers should start planning the process for evaluating the information and descriptions of decisions that will have to be included in the report.

## Other matters

### PBR pilot project

The NAIC recently released the results of its PBR pilot project involving 11 companies and their state insurance regulators. Participating insurers calculated their VM-20 reserve valuations, completed the VM-20 Reserve Supplement, prepared the VM-31 PBR actuarial report and submitted the information for review by their state insurance regulators.

The project generated several observations from the state insurance regulators on the output of the PBR calculations and feedback on the PBR actuarial report. For example, it was noted that the treatment of reinsurance in certain of the PBR valuations did not have the intended effect (i.e., pre-reinsurance ceded reserve was less than the post-reinsurance ceded reserve). It was also noted that none of the VM-31 PBR actuarial reports initially submitted were considered fully complete. However, the NAIC indicated that those reports with additional detail generally had fewer regulator follow-up questions on their content.

### Next steps

- Insurers should begin developing detailed implementation plans for adopting PBR. The board of directors, senior management and qualified actuaries should discuss these plans to make sure the appropriate infrastructure is in place for an effective transition.
- Insurers also should monitor any developments at the NAIC or actions taken by other regulators that could affect their PBR valuations.

## Endnotes:

[1] As indicated in the "Excel file, 1/31/17" on the Principle-Based Reserving Implementation (EX) Task Force page of the NAIC website at http://www.naic.org/cmte_ex_pbr_implementation_tf.htm.

[2] Life insurers will follow the existing statutory guidance incorporated in VM-A and VM-C to estimate reserves for life insurance contracts issued before the implementation of PBR.

[3] See endnote 1.

[4] In July 2016, the New York Department of Financial Services said it intended to adopt PBR for its regulated life insurers beginning in January 2018 and created a working group consisting of industry and consumer representatives to provide input on the necessary reserving safeguards to be established.

[5] The term "qualified actuary" is defined in Section 1 of VM-5.

[6] As of 4 May 2017, the Life Actuarial (A) Task Force (LATF) exposed revisions to the conditions that must be met to qualify for the company-wide exemption.

[7] Paragraph 15 of SSAP No. 51R indicates that statutory policy benefit reserves have historically been calculated as the excess of the present value of future benefits paid to or on behalf of policyholders less the present value of future net premiums.

[8] Equity performance assumptions are used in generating prescribed economic scenarios when the underlying products are exposed to volatility in equity (i.e., asset) returns, such as separate accounts.

[9] Starting assets represent the assets held by the insurer that are allocated toward its insurance products.

[10] The Valuation Manual defines the term nonmaterial secondary guarantee. An insurer would not pass this exclusion test if its ULSG policies included secondary guarantees that do not meet this definition.

[11] To facilitate implementation of PBR, the NAIC adopted Issue Paper No. 154, *Implementation of Principle-Based Reserving*, to maintain a record of all revisions to existing statutory accounting and reporting guidance. In addition, corresponding updates were made to the provisions of SSAP No. 51R to reference the Valuation Manual and provide guidance on how to recognize the effect of the PBR calculation of policy benefit reserves for reporting the liability in the statutory-basis financial statements.

[12] VM-21 is intended to include the same requirements as AG 43. Therefore, if an insurer chooses to aggregate business subject to AG 43 and VM-21 in calculating reserves, VM-G will apply to both methodologies.

[13] VM-31 also requires a PBR actuarial report to be prepared and submitted for annuity contracts subject to VM-21. The specific requirements for these contracts are not included in this publication.

[14] If an insurer does not calculate the stochastic reserve or deterministic reserve required by VM-20 as a result of meeting the exclusion tests, only certain of the VM-31 provisions are applicable.

[15] As of 1 June 2017, the LATF exposed revisions intended to standardize the format of the PBR actuarial report and require submission of the full report to the domiciliary state insurance department.

[16] As of the 2017 Spring National Meeting, the NAIC was working on refining these requirements.

## Appendix A: Components of the Valuation Manual

The Valuation Manual indicates that the objective of the reserve requirements is to produce a conservative valuation to "provide protection to policyholders and promote solvency of companies against adverse fluctuations in financial condition or operating results." The following table presents the minimum reserve requirements for those products in scope of the Valuation Manual.

| Minimum reserve requirements | |
|---|---|
| VM-20, *Requirements for Principle-Based Reserves for Life Products* | Establishes the requirements for the application of a PBR methodology to certain life insurance products issued on or after 1 January 2017. |
| VM-21, *Requirements for Principle-Based Reserves for Variable Annuities*[1] | Incorporates the requirements of AG 43 into the Valuation Manual. This section mirrors the existing statutory guidance in AG 43 that requires insurers to apply a principle-based valuation approach to establish policy reserves for variable annuities. |
| VM-25, *Health Insurance Reserves Minimum Reserve Requirements* | Requires the continued use of existing statutory guidance to establish reserves for individual and group accident and health insurance policies and certificates. |
| VM-26, *Credit Life and Disability Reserve Requirements* | Defines CRVM as the minimum valuation standard for establishing reserves for credit life and credit disability insurance products. |
| VM-A, *Appendix A Requirements*<br>VM-C, *Appendix C Actuarial Guidelines* | References the prescribed formulas and assumptions, as insurers use today, in Appendix A, *Excerpts of NAIC Model Laws,* and Appendix C, *Actuarial Guidelines,* included in the NAIC's *Accounting Practices and Procedures Manual*.<br>The inclusion of these references is necessary to provide the minimum reserve requirements for policies or contracts issued on or after 1 January 2017 unless otherwise provided in the Valuation Manual. For example, insurers that issue life insurance products other than term life and ULSG will calculate the NPR using a formula based on existing statutory guidance. |

The NAIC is currently developing the minimum valuation standard and related guidance for the application of PBR methodology to non-variable (i.e., fixed) annuities. The guidance will be incorporated into in a new section of the Valuation Manual (i.e., VM-22).[2] In the meantime, life insurers will continue to apply the existing statutory guidance in VM-A and VM-C to establish reserves for these products.

Appendix B of this publication highlights common types of insurance products and identifies the sections of the Valuation Manual that prescribe the minimum valuation standards and guidance to establish policy reserves for those products.

[1] As of the 2017 Spring National Meeting, the Variable Annuities Issues (E) Working Group was working on potential revisions to the requirements of VM-21.

[2] As of the 2017 Spring National Meeting, the Life Actuarial (A) Task Force adopted a proposal to modernize the valuation methodology for interest rates on income annuities included in VM-22, *Maximum Valuation Interest Rates for Income Annuities*. This guidance would implement a methodology that is expected to be more responsive to the current economic environment for income annuities. If this proposal is adopted by the Executive (EX) Committee by the 2017 Summer National Meeting, it would be effective 1 January 2018.

### Other sections of the Valuation Manual

The following sections of the Valuation Manual provide information relevant to the minimum valuation standards to establish reserves subject to its requirements:

- VM-2, *Minimum Nonforfeiture Mortality and Interest* — Identifies the mortality tables and interest rates that should be used in determining the minimum nonforfeiture standard for life insurance products issued on or after the implementation of PBR
- VM-5, *NAIC Model Standard Valuation Law* — Includes information from the revised SVL that establishes the minimum valuation standards and related requirements for the application of a PBR methodology
- VM-M, *Appendix M Mortality Tables* — Identifies the valuation mortality tables and industry experience valuation basic tables[3] that have been adopted by the NAIC

The requirements of other sections of the Valuation Manual, including actuarial opinion and memorandum (VM-30), PBR actuarial report (VM-31), experience reporting (VM-50 and VM-51) and corporate governance (VM-G), are further discussed in the Regulatory considerations section of this publication.

[3] Valuation basic tables are mortality tables based on industry experience without adding in any margins (i.e., loads).

## Appendix B: Insurance products

This appendix summarizes the minimum reserve requirements in the Valuation Manual for contracts within its scope that are issued after 1 January 2017.

| | Common product types | Applicable guidance |
|---|---|---|
| **Life insurance** | Whole life contracts, endowment contracts, term life contracts, supplementary contracts, group life contracts, franchise life contracts, universal life-type contracts, variable life contracts and limited payment contracts | VM-20 (unless the insurer has elected to apply the transition guidance or has been granted the company-wide exemption)<br>VM-A and VM-C (for life contracts that are not subject to VM-20) |
| **Annuity** *(life contingent)* | Deferred annuity, variable annuity, straight-line annuity, life annuity with a period certain, refund annuity and joint and survivorship annuity | VM-21 (for variable annuity contracts and similar business)<br>VM-A and VM-C (for fixed annuity contracts)[4] |
| **Deposit-type** *(no insurance risk)* | Supplemental contracts, lottery payouts, structured settlements, guaranteed interest contracts, income settlement options, dividend and coupon accumulations, annuities certain, premium and other deposit funds and certain funding agreements | VM-A and VM-C |
| **Health insurance** | Managed care, income replacement, expense reimbursement, credit accident and health, continuing care, long-term care and accidental death and dismemberment contracts | VM 25, VM-A and VM-C |
| **Credit life & disability** | Credit life, credit disability and other credit-related insurance products | VM-26 |

The products listed above also may be offered with a rider or supplemental benefit. If these features have a separately identified premium or charge, the following applies:

- Supplemental benefits and term life insurance riders on persons other than the named insured on the base policy may be valued and reserved for separately from the base policy following the reserve requirements for that benefit.
- Term life insurance riders on the named insured on the base policy, riders that enhance or modify terms of the base contract (i.e., a secondary guarantee rider) or any other riders are valued as part of the base policy.

If the rider or supplemental benefit does not have a separately identified premium or charge, all cash flows for these features are included in the calculation of the reserve for the base policy. A separate reserve is not determined for the rider or supplemental benefit.

[4] The NAIC is currently developing the guidance in VM-22. After it is adopted, it will represent the minimum valuation standard for non-variable (i.e., fixed) deferred annuity contracts.

## Appendix C: VM-31 PBR actuarial report requirements

This appendix provides a summary of the information required to be addressed in the PBR actuarial report for VM-20 policies.

### Actuarial report overview

- Identification of the actuary with qualifications and relationship to the insurer
- Policies or contracts subject to VM-20 and the groups of policies in each sub-report
- Copy of Part 1 and Part 2, Section 1 of the VM-20 Reserve Supplement
- Description of the risks determined material to the group of policies
- Reliance on others for data, assumptions, projections or analysis
- Summary of the valuation assumptions and margins for each major product line within the group of policies
- Description of the asset portfolio (e.g., types, duration, quality ratings) and method of allocation to multiple segments
- Description of the approach used to model risk management strategies (e.g., hedging) and any clearly defined hedging strategies
- Rationale for materiality considerations when making decisions (e.g., percentage of surplus or reserves)
- Certification that the PBR valuation was in accordance with VM-5 and VM-20 and the assumptions and margins are prudent estimates

### Actuarial report requirements

#### Assumptions

- Mortality
- Expense
- Asset
- Revenue sharing
- Policyholder behavior
- Reinsurance
- Non-guaranteed elements
- Summary of assumptions and margins, along with any changes since the last report
- Documentation requirements that vary for each assumption

#### Cash flow models

- Modeling system
- Model segments
- Model validation
- Projection period
- Reinsurance cash flows
- Grouping of assets and policies by model segment

#### Additional items for the stochastic reserve and deterministic reserve

- Stochastic and deterministic tests (if calculated)
- Materials risks that are not fully reflected in the cash flow models used to calculate the stochastic reserve
- Summary of the effect of aggregation on the stochastic reserve
- Impact of individual margins on the deterministic reserve for each risk factor (or group of risk factors) that has a material impact on the estimate
- Aggregate effect of all margins on the deterministic reserve
- Sensitivity testing, including an explanation of how the results were considered in developing assumptions
- Explanation of why the use of a date that precedes the valuation date to calculate reserves did not result in a material change in the results of the valuation
- Description of approximations and simplifications used in the reserve calculation

#### Certifications

- Authorized investment officer certifies the modeled asset investment strategy is consistent with the insurer's current investment strategy.
- Qualified actuary certifies the modeling of clearly defined hedging strategies.
- Senior management certifies the PBR valuation complies with VM-G.
- If certain policies meet the stochastic exclusion test of VM-20, the qualified actuary certifies that the group of policies is not subject to material interest rate risk or asset return volatility risk.