



AMERICAN ACADEMY of ACTUARIES

Updated Principles-Based Reserves for Life Products Model Regulation from the American Academy of Actuaries' Life Reserves Work Group

Presented to the National Association of Insurance Commissioners'
Life and Health Actuarial Task Force

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PRINCIPLES-BASED RESERVES FOR LIFE PRODUCTS MODEL REGULATION

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Section 1. Purpose

- A. The method for calculating reserves defined in this regulation shall constitute the Commissioner's Reserve Valuation Method (CRVM) for policies to which this regulation is applicable.
- B. The purpose of this regulation is to define the minimum valuation standard under a principles-based approach for [the](#) individual life products [listed in Section 3.](#) ~~including individual life policies issued under a group life insurance contract.~~
- C. A principles-based approach is one that:
 1. Captures all of the identifiable, quantifiable and material risks, benefits and guarantees associated with the contracts including Material Tail Risk and the funding of the risks.
 2. Utilizes risk analysis and risk management techniques to quantify the risks and is guided by the evolving practice and expanding knowledge in the measurement and management of risk. This may include, to the extent required by an appropriate assessment of the underlying risks, stochastic models or other means of analysis that properly reflect the risks of the underlying contracts.
 3. Incorporates assumptions and methods that are consistent with, but not necessarily identical to, those utilized within the company's overall risk assessment process. Company risk assessment processes include but are not limited to experience analysis, asset adequacy testing, GAAP valuation and pricing.
 4. Permits the use of company experience, based on the availability of relevant company experience and its degree of credibility, to establish assumptions for risks over which the company has some degree of control or influence.
 5. Provides for the use of assumptions, set on a prudent best estimate basis, that contain an appropriate level of conservatism when viewed in the aggregate and that, together with the methods utilized, recognizes the solvency objective of statutory reserve reporting.

Section 2. Authority

This regulation is issued under the authority of Section [insert applicable section] of the Insurance Laws of [insert state]

[Drafting Note: This regulation presumes that changes to the SVL have been adopted that permit the use of the principles-based valuation standard defined by this regulation.]

Section 3. Scope

~~1.A.~~ Unless a policy form, supplemental benefit or rider, is exempted by the commissioner, the method defined by this regulation applies to all individual life insurance policies (except those listed in subsection B below) whether directly written or assumed through reinsurance, including, but not limited to:

- ~~a.~~ 1. Universal life insurance policies;
- ~~b.~~ 2. Variable life and variable universal life insurance policies;
- ~~c.~~ 3. Term life insurance policies;
- ~~d.~~ 4. Traditional whole life insurance policies;
- ~~e.~~ 5. Indexed life and indexed universal life insurance policies;
- ~~f.~~ 6. Individual life policies and individually underwritten certificates -issued under a group life insurance contract; and
- ~~g.~~ 7. Combination policies that include other benefits such as annuity benefits or long-term care benefits in addition to life insurance benefits, but are filed as individual life insurance policies.

2.B. Life Insurance policies not covered by this regulation include:

1. Credit Life policies
2. Industrial Life policies
3. Pre-need policies
4. Final Expense policies
5. Group Life (except individual policies or individually underwritten certificates issued under a group life insurance contract)

However, a company may make an irrevocable election to include all policies under one or more of the product categories listed in Subsection 3.B that are issued after a specified date. Such election shall be communicated to the commissioner and included in the Actuarial Report.

[Drafting Note: Definitions of the five product categories listed above will be included in this subsection. Examples of definitions currently found in state statutes and regulations include:

Credit Life: Insurance on the lives of debtors pursuant to or in connection with a specific loan or other credit transaction. [Iowa Reg. 191-28.2; Illinois Statute 215 ILCS 5/155.52(a)]

Industrial Life: Either that form of life insurance under which the premiums are payable monthly or more often if the face amount of insurance provided in the policy does not exceed \$2,500 and the words "industrial policy" are printed in prominent type on the face of the policy. [Illinois Statute 215 ILCS 5/228]

Pre-need: A life insurance policy, annuity contract, or other insurance contract...issued by an insurance company...which, whether by assignment or otherwise, has for a purpose the funding of a pre-need funeral contract or an insurance-funded funeral or burial agreement, the insured or annuitant being the person for whose service the funds were paid. [North Carolina Statute 90-210.60(4)]

Final Expense: A life insurance policy "advertised or marketed as a means of payment of final expenses for funeral, internment, entombment, or cremation merchandise or services." [Colorado Statute 10-7-102(1)(j)]

C. Reserves for policies, supplemental benefits, and riders on these policies that are not directly identified in this regulation are to be determined on a basis that is consistent with the principles and methodologies defined in this regulation.

[Drafting Note: emerging products are included in scope, but additional considerations may need to be incorporated in this regulation to address issues related to these new emerging products.

Also, ~~t~~The NAIC may want to consider the idea of allowing a company to provide a demonstration to the commissioner that the risks associated with a specified subset of policies or a specified product category ~~the~~ policies subject to this regulation are adequately addressed by the current formulaic approach. If the commissioner determines that the reserve on such policies ~~is~~are adequate to cover the risks, benefits and guarantees of the ~~policies~~, the company could then make an election to exempt such policies from the requirements of this regulation.]

Section 4. Guiding Principles

The method defined by this regulation is based on the following set of principles. These principles should be followed when applying the methodology defined by this regulation and analyzing the resulting reserves.¹

Principle 1: The reserve is based on a prospective valuation method that appropriately captures all material risks underlying the product being valued, including the magnitude of Material Tail Risk, the revenue to fund the risks, and the effect of any risk mitigation techniques.

Principle 2: ~~The method provides a framework that can be applied to all individual life insurance products.~~

Principle 23: A deterministic reserve approach may be sufficient for certain products, depending on the nature of the risks, and an ~~additional~~ stochastic approach may be necessary for other products.

Principle 34: For risks that the company has some degree of control over (e.g., mortality), assumptions should reflect a blend of company experience and prescribed assumptions (or methods for setting the assumptions), with the relative weightings of each dependent on the credibility of company experience. For risks that the company has no control over (e.g., market interest rate movements), prescribed assumptions or methods for setting the assumption should be used.

Principle 45: Assumptions that are not stochastically modeled should ~~be based on Prudent Best Estimates that~~ incorporate appropriate Margins for uncertainty.

Principle 56: Assumptions are not locked in at issue, but are updated as expectations of future experience and economic conditions change.

Principle 67: While a stochastic ~~cash-Cash flow-Flow model-Model~~ attempts to include all real world risks relevant to the objective of the stochastic cash flow model and relationships among the risks, it will still contain limitations because it is only a model. Neither a cash flow ~~scenario-Scenario~~ model, nor a method based on factors calibrated to the results of a cash flow ~~scenario-Scenario~~ model, can completely quantify a company's exposure to risk. A model attempts to represent reality, but will always remain an approximation thereto and hence uncertainty in future experience is an important consideration when determining the Stochastic Reserve ~~Amount-amount~~. As such:

1. The actuary must take the model's limitations into consideration when setting assumptions, applying the methodology and determining the appropriateness of the resulting reserve levels.
2. The use of assumptions and risk management strategies should be appropriate to the business and not merely constructed to exploit 'foreknowledge' of the components of the required methodology. Therefore, the use of assumptions, methods, models, risk management strategies (e.g., hedging), derivative instruments, structured investments or any other risk transfer arrangements (such as reinsurance) that serve to materially reduce the calculated statutory reserve without also reducing risk on scenarios similar to those used in the actual cash flow modeling are inconsistent with these principles.

¹ Note the following when considering these principles:

- a. The principles should be considered in their entirety.
- b. The method defined by this regulation requires companies to meet these principles with respect to only those policies that fall within the scope of this regulation and are in force as of the valuation date to which the requirements are applied.

Section 5. Definitions

The following terms shall have the indicated meanings for purposes of this regulation:

- A. Accumulated Deficiency: An amount measured as of the ~~beginning of the~~ Projection Start Date Period and as of the end of each Projection Year Interval ~~used in the calculation of the Scenario Reserve. that equals the projected Working Reserve less the amount of projected assets. The Accumulated Deficiency can be positive or negative.~~
- B. Actuarial Report: A document prepared by the actuary that summarizes all of the material decisions supporting the calculation of the Reported Reserve, including assumptions, margins and methodologies used to calculate the Reported Reserve.
- C. Aggregate Deterministic Scenario Reserve: An amount used to support the stochastic modeling exclusion for a group of policies ~~that is determined by calculating the greatest present value of Accumulated Deficiencies of the policies using Deterministic Reserve assumptions.~~
- D. Asset Segment: A group of assets associated with a grouping of policies that are modeled together to determine the path of Net Asset Earned Rates. This grouping in a manner that will generally follows the company's asset segmentation plan, investment strategies, or approach used to allocate investment income for statutory purposes.
- E. Best Estimate ~~Anticipated Estimate~~ Assumptions: The actuary's expectation of future experience for a Risk Factor given available, relevant information pertaining to the assumption being estimated and set in such a manner that it is reasonable to expect that the actual value of the Risk Factor is as likely to be be-greater than the assumed value as less than the assumed value.
- ~~E. Best Estimate Assumptions: The set of estimates of future experience for each Risk Factor in a given Projection Interval that, in the opinion of the Qualified Actuary, given all available, relevant information pertaining to the contingencies being valued, is most likely to give an unbiased estimate of the cash flows in that Projection Interval.~~
- F. Cash Flow Model: A model that projects asset and liability cash flows used to determine a path of Net Asset Earned Rates and the net cash flows and statement value of assets for the Deterministic Reserve and Stochastic Reserve
- G. Cash Surrender Value: The amount available to the policyholder upon surrender of the policy, prior to any outstanding policy indebtedness.
- H. Clearly Defined Hedging Strategy. A strategy undertaken by a company to manage risks through the future purchase or sale of hedging instruments and the opening and closing of hedging positions meeting the principles outlined in Section 4 of this regulation (particularly Principle ~~67~~) and the requirements of a Clearly Defined Hedging Strategy as described in ~~Subsection Section 7.E (97) of Section 7.~~
- I. Conditional Tail Expectation (CTE): A statistical risk measure that is calculated as the average of all modeled outcomes (ranked from lowest to highest) at percentiles above the percentile corresponding to the CTE level. The CTE measure provides enhanced information about the tail of a distribution compared to that provided by the order statistics (percentiles). For example, CTE 65 averages all modeled outcomes at percentiles above the 65th percentile.
- J. Deterministic Reserve: A reserve determined on a seriatim basis using a single Scenario and a set of Prudent Best Estimate assumptions. It equals the sum of the greater of the Seriatim Reserve and the Cash Surrender Value for each policy.
- K. Discount Rates: The path of pre-tax interest rates used to discount cash flows for the Deterministic Reserve and the Accumulated Deficiencies for the Stochastic Reserve calculations.
- L. Fraternal Benefits. Payments made by a fraternal life insurance company for charitable purposes that are consistent with and/or support the fraternal purposes of the company.

- M. Gross Wealth Ratio. The Gross Wealth Ratio is the cumulative equity index return for the indicated time period and percentile (e.g., 1.0 indicates that the index is at its original level).
- N. Independent Reviewer.

[Drafting Note: Definition to be provided by SVL-2 group]

- O. Margin: An amount applied to a Best Estimate Assumption in order to derive a Prudent Best Estimate ~~assumption~~-Assumption to provide for estimation error and adverse deviation. The Margin should be directly related to the level of uncertainty in the ~~behavior of phenomenon~~Risk Factor for which the Prudent Best Estimate ~~assumption~~-Assumption is made, whereby the greater the uncertainty, the larger the required Margin, with the Margin added or subtracted as needed to produce a larger reserve than would otherwise result without it.
- P. Margin Ratio: The ratio of the aggregate margin for an Asset Segment to the discounted value of the capital requirement for the Policies in the Asset Segment, calculated in accordance with Section 7.B.64 of this Regulation.
- Q. Material Tail Risk: Material Tail Risk arises when the Scenario Reserves for one or more Scenarios are ~~materially unfavorable compared~~significantly higher than ~~to~~ the Scenario Reserves for the rest of the Scenarios.
- R. Net Asset Earned Rates: The path of earned rates reflecting the net ~~General-general Account-account~~ portfolio rate in each Projection Interval (net of appropriate default costs and investment expenses). This set of rates is one factor used to determine the amount of benefits, expenses, and revenue that depend on the level of interest credited.
- S. Net Investment Earnings: The amount used to determine the Net Asset Earned ~~R~~rate for each Projection Interval as defined in Section 7(F) (2).
- T. Non-Guaranteed Elements (NGE): Debits or credits to a policyholder's account value, benefit, premiums, or consideration that may be adjusted at the discretion of an insurance company. For purpose of this regulation, Non-Guaranteed Elements includes policyholder dividends for participating policies and participation rates and asset fee charges for equity indexed universal life policies.
- U. Non-Guaranteed Element (NGE) Spread. The provision that a company uses to adjust actual experience to determine each Non-Guaranteed Element. The NGE Spread can be positive or negative. For example, if a company credits interest to policyholders at a rate 1.20% lower than its net investment yield, then the NGE Spread is a negative one hundred and twenty basis points.
- V. Notional Gross Reserve: The amount of the Reported Reserve that would have been held in the absence of any ceded reinsurance.
- ~~W~~W. Per Policy Reserve: An amount determined for each Policy that equals the greater of the Cash Surrender Value and the Seriatim Reserve.
- ~~W~~W. Policy: A life insurance policy included in the scope of this Regulation.
- Y. Projection Interval: The time interval ~~selected-used~~ in the ~~Cash flow-Flow model-Model~~ to project the cash flows amounts (e.g. monthly, quarterly, annually).
- ~~Y~~Y. Projection Period: The period over which the Cash Flow Model is run to produce the Stochastic and Deterministic Reserves.
- ~~Z~~Z. Projection Start Date: The date on which the Projection Period begins.

~~AA-BB.~~ Projection Year. A 12- month period starting on the Projection Start Date or an anniversary of the Projection Start Date.

CC. Proprietary ~~Predetermined~~ Scenario Sets: A small number of prescribed paths of interest rate and equity performance that are not necessarily a representative sample of a larger set of stochastic paths, but a conservative sample developed by the company for the purpose of calculating the Stochastic Reserve for policies within the scope of this regulation.

DD. Prudent Best Estimate Assumption: A deterministic assumption, used to represent a Risk Factor, developed by applying a Margin to the Best Estimate Assumption for that Risk Factor.

EE. Qualified Actuary: An actuary who meets the qualifications as defined in Section 6.E. ~~(Certifications)~~ to certify that the reserves for the policies subject to this regulation have been calculated following all applicable laws, regulations, actuarial guidelines and Actuarial Standards of Practice. The Qualified Actuary shall be referred to throughout this regulation as “the actuary”.

FF. Recalculated Deterministic Reserve: The amount used as a replacement for the Stochastic Reserve for those policies that are subject to the stochastic modeling exclusion.
~~Risk Factor: An aspect of future experience that is not fully predictable on the Valuation Date and that can affect the future financial results arising from the provisions of a Policy.~~

~~Qualified Actuary: An actuary who meets the qualifications as defined in Section 6 (Certifications) to certify that the reserves for the policies subject to this regulation have been calculated following all applicable laws, regulations, actuarial guidelines and Actuarial Standards of Practice. The Qualified Actuary shall be referred to throughout this regulation as “the actuary”.~~

GG. Reported Reserve: The minimum reserve as of the Valuation Date for the policies falling within the scope of this regulation using a principles-based approach and equals the greater of the Deterministic Reserve and the Stochastic Reserve, as defined by this regulation.

~~GG.HH.~~ Revenue Sharing: Any arrangement or understanding by which an entity responsible for providing investment or other types of services makes payments to the company (or to one of its affiliates). Such payments are typically in exchange for administrative services provided by the company (or its affiliate), such as marketing, distribution and record keeping. Only payments that are attributable to charges or fees taken from the underlying variable funds or mutual funds supporting the policies that fall under the scope of this regulation shall be included in the definition of Revenue Sharing.

II. Risk Factor: An aspect of future experience that is not fully predictable on the Valuation Date and that can affect the future financial results arising from the provisions of a Policy.

JJ. Scenario: A single path of outcomes used in a Cash Flow Model, such as a path of future interest rates, equity performance, and separate account fund performance. It could also include outcomes related to policyholder behavior (e.g., lapses) and company experience (e.g., mortality).

KK. Scenario Reserve: Equals the amount determined in ~~Subsection 7 (H)(45)(ab) of Section 7~~ for all policies on an aggregated basis for a given Scenario that is used as a step in the calculation of the Stochastic Reserve.

LL. Seriatim Reserve: Equals the amount determined in ~~Subsection 7(G)(3)(b) of Section 7~~ for a given policy that is used as a step in the calculation of the Deterministic Reserve.

MM. Starting Assets: The assets assigned to an Asset Segment prior to the calculation of the Reported Reserve, and valued as of the Projection Start Date.

NN. Stochastic Reserve: Provides for all material risks of a group of policies, including Material Tail Risk arising from sensitivities to changing economic conditions. It equals the amount determined by applying a prescribed CTE level to the distribution of Scenario Reserves over a broad range of stochastically generated Scenarios and using Prudent Best Estimate ~~assumptions~~ Assumptions for all assumptions not stochastically modeled. The prescribed CTE level is established by the NAIC.

[Drafting Note: The prescribed CTE level is expected to be set by the NAIC.]

OO. Valuation Date: The date when for which the Reported Reserve is to be valued as required by the Standard Valuation Law.

~~OO. Working Reserve: The assumed reserve used in the projections of Accumulated Deficiencies supporting the calculation of the Scenario Reserve.~~

~~— *[Drafting Note: Discussions are in progress to define how the Working Reserve will be determined.]*~~

Section 6. Certification and Documentation Requirements

[Drafting Note: This regulation presumes that requirements have been adopted to define the regulatory and governance process.]

- A. A Qualified Actuary shall provide a certification that the Reported Reserve was calculated in a manner that meets the requirements of this regulation and complies with all applicable Actuarial Standards of Practice.
- B. A Qualified Actuary The actuary shall prepare an Actuarial Report each year that documents all material decisions made, and information used, to support the certification, including assumptions, margins and methodologies used to calculate the Reported Reserve.
1. The Actuarial Report shall include:
 - a. A description of the blocks of policies subject to the Model Regulation.
 - b. A description of the Starting aAssets supporting the block of policies subject to the Model Regulation, and a description of the reinvestment/disinvestment strategy used to acquire/sell assets after the Projection Start Date.
 - c. A comparison of the Deterministic Reserve to the Stochastic Reserve, including the distribution of the Scenario Reserves ~~and the result of applying the CTE risk level.~~
 - d. Documentation of the key modeling decisions made by the Aactuary, including:
 - i. A description of the valuation assumptions, methods, models, risk management strategies (e.g., hedging), derivative instruments, structured investments or any other risk transfer arrangements (such as reinsurance),
 - ii. Results of applicable sensitivity tests, and
 - iii. Disclosure of all items required by this regulation, including but not limited to: the impact of aggregation, the ~~aggregate~~ impact of ~~all~~ Margins on the Reported Reserve, and a demonstration of the stochastic modeling exclusion (if elected).
- ~~Description of the internal controls and procedures used to ensure the appropriateness of the actuary's judgment when permitted by this regulation and applicable guidelines and Actuarial Standards of Practice. A summary of the availability and effectiveness of controls on judgment via sound feedback loops.~~
- ~~f.e.~~ A list of the key risk measurement tracking tools that the company uses to track and assess the impact as an early warning of changes in experience between Valuation Dates,
2. The Actuarial Report shall be provided to an Independent Reviewer who shall provide an opinion to the commissioner on whether the company prepared proper documentation, made proper disclosures, and complied with this regulation ~~by requirements~~.

[Drafting note: The timing of when the Report is provided will be determined by the NAIC. Details regarding the role and responsibilities as of to exactly what the Independent Reviewer will be defined by the NAIC doing is needed.]

3. The Actuarial Report and any other material provided by the company to the commissioner or an Independent Reviewer in connection therewith, shall be kept confidential by the commissioner and the Independent Reviewer and shall not be made public. The Actuarial Report or other material may otherwise be released by the commissioner (a) with the written consent of the company or (b) to the American Academy of Actuaries upon request stating that the report of other material is required for the purpose of professional disciplinary proceeding and setting forth procedures satisfactory to the commissioner for preserving the confidentiality of the Actuarial Report or other material.

[Drafting note: Record retention requirements are needed if not included in the law.]

- C. This regulation requires ~~a Qualified Actuary~~ the actuary to make various determinations, verifications and a certifications. The company shall provide the ~~Qualified Actuary~~ actuary with the necessary information sufficient to permit the actuary to fulfill the responsibilities set forth in this regulation and responsibilities arising from applicable Actuarial Standards of Practice.
- D. Except in cases of fraud or willful misconduct, the ~~Qualified Actuary~~ actuary shall not be liable for damages to any person (other than the insurance company and the commissioner) for any act, error, omission, decision or conduct with respect to the actuary's opinion.
- E. ~~The qualifications of a~~ Qualified Actuary ~~are~~ shall:
 1. Be a member of the American Academy of Actuaries;
 2. Be familiar with all appropriate standards of practice that apply to principles-based reserves;
 3. Not have been found by the commissioner, following appropriate notice and hearing to have:
 - a. Violated any provision of, or any obligation imposed by, the insurance law or other law in the course of his or her dealings as a Qualified Actuary, an Independent Reviewer or an Appointed Actuary;
 - b. Been found guilty of fraudulent or dishonest practices;
 - c. Demonstrated his or her incompetence, lack of cooperation, or untrustworthiness to act as a Qualified Actuary; or
 - d. Resigned or been removed as a Qualified Actuary within the past five (5) years as a result of acts or omissions indicated in any adverse report on examination or as a result of a failure to adhere to generally acceptable actuarial standards or for the other reasons enumerated in this Section 6(E)(3);
 4. Not fail to notify the commissioner of any action taken by a commissioner of another state similar to that under Paragraph (3) above.

[Drafting Note: It needs to be determined whether the Qualified Actuary must be appointed by, or be delegated authority by, the Board of Directors of the company] This will depend on the requirements of the regulatory and governance process being established in other regulations and guidelines]

Section 7. Definition of General Reserve Methodology

A. Summary

1. This regulation applies the principles of risk management, asset adequacy analysis and stochastic modeling to establish the minimum reserve for the products within its scope. For some products, using only a deterministic, single scenario approach may be adequate to capture the risks of the policy. For products with Material Tail Risk arising from sensitivities to changing economic conditions, a

stochastic modeling approach is required (although an exception to this requirement ~~can~~may be made if certain conditions are met, as described in Subsection 7 H(5) below). However, the stochastic modeling approach does not require that all assumptions be stochastically modeled.

2. This regulation requires that the Reported Reserve for policies falling within its scope be based on the greater of an amount calculated using a seriatim, deterministic method (Deterministic Reserve) and an amount calculated using a stochastic method when appropriate (Stochastic Reserve), where the comparison is done on an aggregate basis. Both the Deterministic Reserve and the Stochastic Reserve shall be determined by projecting net cash flows as described below.
3. The actuary ~~can~~may elect to perform the reserve calculations required by this regulation on a date other than the Valuation Date, but in no event earlier than six months before the Valuation Date, as long as an appropriate method is used to adjust the reserve so determined to the Valuation Date. Disclosure of the results of such adjustment and the methodology used to determine the adjustment is required.
4. The Deterministic Reserve is calculated ~~as the sum over all policies~~ using a seriatim approach ~~that uses~~and Prudent Best Estimate assumptions over a single Scenario.
5. The Stochastic Reserve is calculated in the aggregate using a projection of net cash flows over a broad range of stochastically generated Scenarios, using Prudent Best Estimate assumptions for all assumptions not stochastically modeled, and then applying a prescribed Conditional Tail Expectation (CTE) level. A company may elect to exclude certain policies from the stochastic modeling requirement if certain conditions are met (as described in Subsection 7 H(5) below.)

~~[Drafting note: LHATF needs to determine whether aggregate or seriatim calculations are performed.]~~

B. Prudent Best Estimate Assumptions ~~and Margins~~

1. The actuary shall determine Prudent Best Estimate Assumptions ~~used in the calculation~~ for each Risk Factor that is not prescribed or is not stochastically modeled. The Prudent Best Estimate assumptions shall vary from Scenario to Scenario ~~if necessary, in the actuary's judgment, to reflect dependencies of the Risk Factors~~as appropriate. A Prudent Best Estimate assumption is developed by applying a Margin to a Best Estimate Aassumption for the Risk Factor. The Prudent Best Estimate Assumption for each Risk Factor shall be:
 - a. Consistent with the principles stated in Section 4 of this regulation,
 - b. Based on any relevant and credible experience that is available, including, but not limited to, the company's own experience studies and industry experience studies.
 - c. Set to produce, ~~in concert~~together with other Prudent Best Estimate Assumptions, an overall value for the Reported Reserve that is consistent with the ~~stated level of conservatism for that quantity~~objectives of statutory reserve reporting, and
 - d. Supported by ~~have~~ a documented ~~feedback loop~~ process to ~~for~~ reassessing the appropriateness of the assumption in the future valuations.
2. Best Estimate Assumptions. The Best Estimate assumption is the actuary's expectation of future experience for a Risk Factor given all available, relevant information pertaining to the assumption being estimated and set in such a manner that there is an equal likelihood of the actual value being greater than or less than the expected value. The actuary shall use company experience, if relevant and credible, to establish a Best Estimate assumption for any Risk Factor. To the extent that company experience is not available or credible, the actuary may use industry experience or other data to establish the Best Estimate assumption, making modifications as needed to reflect the actuary's expectation of the risk.
3. Aggregate Margin. Consistent with the definition of a principles-based approach in Section 1.C.5., Margins shall be determined in a manner that when taken in the aggregate, the impact on the Reported

Reserve produces an appropriate and reasonable level of conservatism that is consistent with the objectives of statutory reporting.

[Drafting Note: The LRWG and other PBR reserve groups need LHATF's input on how to define when the Reported Reserve produces an appropriate and reasonable level of conservatism consistent with the objectives of statutory reporting. By doing so, the regulator, peer reviewer and actuary are then able to reach conclusions regarding the appropriateness of Margins.]

4. Margin for each Risk Factor. The actuary shall provide for adverse deviations and estimation error in each Risk Factor. When determining the Margin for each Risk Factor, the actuary shall be guided by the following principles:
 - a. The greater the uncertainty in the Best Estimate Assumption, the larger the required Margin, with the Margin added or subtracted as needed to produce a larger reserve than would otherwise result without it.
 - b. The actuary shall examine the sensitivity of the Reported Reserve to changes in the assumptions for the Risk Factor. Greater analysis and justification is needed to establish the Margin when the impact of alternate assumptions is material, such as increased disclosure to the regulator and more frequent monitoring of emerging experience.
 - c. Margins do not need to be established for Risk Factors where alternate assumptions do not have a material impact on the Reported Reserve. ~~Consistent with the definition of a principles-based approach in section 1.C.5., Margins shall be determined in a manner that when taken in the aggregate, the impact on the Reported Reserve produces an appropriate and reasonable level of conservatism that is consistent with the objectives of statutory reporting~~ *[possible addition: "reflecting such things as "covariance" of risks and reductions due to benefits of diversification"]*.
 - d. The magnitude of fluctuations in historical experience of the company for the Risk Factor shall be included in the analysis of determining the Margin. When available and appropriate, the actuary may elect to express such fluctuations using the standard deviation around the mean or other standard statistical measures.
 - e. The Margin does not need to take into account the possibility of catastrophe events which are implausible in usual operations.
 - f. The Margin shall satisfy any further conditions set forth by this Regulation or any supporting Actuarial Guidelines and applicable Actuarial Standards of Practice with respect to Margins or Prudent Best Estimate Assumptions for the Risk Factor.
 - g. Unless there are clear reasons to expect otherwise, a higher Margin shall be established when:
 - i. experience data are lacking or limited as compared to the case if abundant and relevant experience data are available,
 - ii. there is doubt about the reliability of the Best Estimate Assumption, such as, but not limited to recent changes in circumstances, or changes in company policies,
 - iii. an approximation with less precision is being used,
 - iv. the experience is not relevant and credible and the event assumed is further in the future, or
 - v. there are contingencies related to policyholder behavior in situations where a given policyholder action results in the surrender or exercise of a valuable option,

2. In setting the Margin for a Risk Factor, the actuary must assure that:

- ~~a. the Margin is directly related to uncertainty in the Risk Factor, whereby the greater the uncertainty, the larger the required Margin, with the Margin added or subtracted as needed to produce a larger reserve than would otherwise result without it,~~
- ~~b. larger Margins are used if experience data are lacking or limited than would be the case if abundant and relevant experience data are available,~~
- ~~c. sensitivity testing is performed to determine the assumptions that are material to the extent that a small change in the assumptions lead to a large change in the reserve. If such case occurs, a larger margin would be needed unless relevant credible experience is relied upon to conclude otherwise, and~~
- ~~d. the Margin satisfies any further conditions set forth by this Regulation or any supporting Actuarial Guidelines and applicable Actuarial Standards of Practice with respect to Margins or Prudent Best Estimate Assumptions for the Risk Factor.~~

~~3. In addition, in setting the Margin for a Risk Factor, the actuary must consider:~~

- ~~a. that larger Margins may be required to reflect contingencies related to policyholder behavior in situations where a given policyholder action results in the surrender or exercise of a valuable option..~~
- ~~b. the relationship of the Margin for certain or all Risk Factors to the market price of risk for that Risk Factor. For certain risk factors, the market price of risk for a Risk Factor may be estimated by taking the product of the economic or regulatory capital allocation for the Risk Factor and the excess of the pre-tax market rate of return for such risks over the pre-tax risk-free interest rate of comparable maturity.~~
- ~~c. the magnitude of fluctuation in the historical experience of the company for the Risk Factor as measured by the standard deviation around the mean or other standard statistical measure (if meaningful historical experience data are available for the Risk Factor).~~

5. The actuary shall determine and disclose in the Actuarial Report an estimate of the impact of each the Margin on the Deterministic Reserve for the following Risk Factors: each material mortality, policyholder behavior, expense, and asset return assumptions. ~~Risk Factor~~ This shall be determined for each Asset Segment by:

- a. Calculating the sum of Seriatim Reserves based on the Best Estimate Assumption for the Risk Factor and Prudent Best Estimates for all other Risk Factors, and
- b. Subtracting the value determined in Subsection 45(a) above from the sum of Seriatim Reserves as reported.

Since the actuary does not determine a Best Estimate assumption or a Prudent Best Estimate assumption for assumptions that are prescribed (e.g. interest rates movements, equity performance, and net spreads on reinvestment assets), the prescribed assumption shall be deemed to be the Prudent Best Estimate assumption, and the equivalent of a “best estimate” assumption for each of these Risk Factors will be prescribed by the NAIC for the purpose of determining the impact of each Margin as required by this section.

~~5.6.~~ The actuary shall determine and disclose in the Actuarial Report an estimate of the aggregate Margin for each Asset Segment by:

- a. Calculating the sum of Seriatim Reserves based on Best Estimate Assumptions prior to the addition of any Margins,
- b. Subtracting the value determined in Subsection ~~5(a)~~6(a) above from the sum of Seriatim Reserves as reported.

Since the actuary does not determine a Best Estimate Assumption or a Prudent Best Estimate Assumption for assumptions that are prescribed (e.g. interest rates movements, equity performance, and net spreads on reinvestment assets), the prescribed assumption shall be deemed to be the Prudent Best Estimate Assumption, and the equivalent of a “best estimate” assumption for these Risk Factors will be prescribed by the NAIC for the purpose of determining the aggregate impact of all Margins as required by this section.

6.7. The actuary shall determine and disclose in the Actuarial Report an estimate of the Margin Ratio for each Asset Segment by:

- a. Estimating the aggregate risk-based capital requirement on the Projection Start Date- and at the end of each Projection Year for the Policies in the Asset Segment,
- b. Determining the discounted value of the aggregate risk-based capital requirements for the Policies in the Asset Segment determined in 7(a) above, using the Discount Rates for the Asset Segment,
- c. Dividing the aggregate margin for the Asset Segment determined in Subsection (~~6.5~~) above by the discounted value of the risk-based capital requirement for the Policies in the Asset Segment determined in 7(b) above.

The estimate of the aggregate risk-based capital requirement shall be an estimate of the total risk-based capital at the Company Action Level for the Policies in each Asset Segment, based on the annual statement instructions for the year in which the Valuation Date falls. The actuary may base estimates for future years on the assumption that functional relationships from which the current year risk-based capital can be calculated will continue to hold for future years.

[Drafting Note: the NAIC may want to consider setting a prescribed minimum floor for this ratio.]

[Drafting Note: Further guidance on how to calculate the Margin Ratio may be provided in an Actuarial Guideline.]

C. Cash Flow Models

1. Purpose. Both the Stochastic Reserve and Deterministic Reserve calculations require the use of Cash Flow Models for each Asset Segment. The Cash Flow Models shall:
 - a. Project the premiums, benefits, expenses, and other applicable revenue items to be used in the reserve calculations; and
 - b. Project the total asset and liability cash flows, Net Investment Earnings, and invested asset balances for the purpose of determining the path of Net Asset Earned Rates.

For the Deterministic Reserve, it is permissible to use a grouped liability model to calculate the path of Net Asset Earned Rates and then perform the Seriatim Reserve calculation on each policy based on those Net Asset Earned Rates.

2. General description of cash flow projections. For the Deterministic Reserve and for each Scenario for the Stochastic Reserve, a cash flow projection shall be made ignoring Federal Income Tax and shall reflect the dynamics of the expected cash flows for the entire Asset Segment. The projection shall include the effect of all material product features, both guaranteed and non-guaranteed.
 - a. Actual gross premiums received from the policyholder shall be included as revenue in the cash flow projection. Amounts charged to account values on General Account business (such as COI and expense charges) shall not be included in the cash flow projection as revenue, but shall be projected since they will affect the level of cash surrender benefits.
 - b. Net cash flows between the General Account and Separate Account for variable products will be included in the cash flow projection. (Cash flows going out from the General Account to the Separate Account increase the reserve, and cash flows coming in to the General Account from the Separate Account decrease the reserve). Examples include allocation of net premiums to the Separate Account, policyholder-initiated transfers between fixed and variable investment options, transfers of Separate Account values to pay death or withdrawal benefits, and amounts charged to Separate Account values for cost of insurance, expense, etc.

- c. Insurance company expenses (including overhead expenses), commissions, fund expenses, contractual fees and charges, Revenue Sharing income received by the company (net of applicable expenses) and cash flows associated with any reinsurance are to be reflected on a basis consistent with the requirements herein. [Expenses paid to provide Fraternal Benefits in lieu of federal income tax are excluded.](#)
 - d. Asset cash flows shall include cash receipts/disbursements associated with investment income, realized capital gains and losses, principal repayments, appropriate asset default costs, investment expenses, income from hedge instruments, asset prepayments, and asset sales.
 - e. Throughout the projection, where estimates of asset or liability items are made that are neither stochastically generated nor prescribed, such estimates shall be on a Prudent Best Estimate basis.
 - f. Since the projection of cash flows reflects premium mode directly, deferred premiums are zero under this approach.
3. Cash flows from starting assets. Assets at the beginning of the projection shall be selected from the company's actual assets backing the policies associated with each Asset Segment. The amount of starting assets shall be determined as described in Section E.1. Cash flows on General Account starting assets for each Projection Interval shall be determined as follows:
- a. Fixed income investments (e.g., public bonds, convertible bonds, preferred stocks, private placements, ABS, commercial mortgage loans, residential mortgage loans, MBSs, and CMOs) including hedge instruments associated with these assets.
 - i. Gross investment income and principal repayments shall be modeled in accordance with the contractual provisions of each asset and in a manner consistent with each Scenario. Grouping of assets is allowed if the actuary can demonstrate that grouping does not result in materially lower reserves than would have been obtained using a seriatim approach.
 - ii. Appropriate asset default costs and investment expenses shall be reflected through a deduction to the gross investment income using Prudent Best Estimates.
 - iii. Realized capital gains and losses on asset sales shall be modeled in a manner that is consistent with the company's documented investment and disinvestment policy.
 - iv. Any uncertainty in the timing [and amounts](#) of asset cash flows related to [the paths of movements in interest rates, equity returns, or other economic values contained in the various Scenarios](#) ~~(e.g., prepayment risk)~~ shall be reflected directly in the projection of asset cash flows under the various Scenarios within the model as defined in Section 7.D.
 - b. Equity investments (i.e., non-fixed income investments having substantial volatility of returns such as common stocks and real estate investments) including hedge instruments associated with these assets.
 - i. The number of equity investment categories, and the allocation of specific assets to each category (e.g. large cap stocks, international stocks, owned real estate, etc.) shall be determined by the actuary as described in Section 7.E.74.
 - ii. The gross investment return (including realized and unrealized capital gains) for each investment category shall be projected in a manner that is consistent with the projected total return on the S&P 500 for the Scenario, reflecting any differences in the total return and risk between the S&P 500 and each equity investment category. This does not imply a strict functional relationship between the returns on the various investment categories and the return on the S&P 500, but it would generally be inappropriate to assume that an investment category consistently 'outperforms' (i.e. has lower risk, but achieves a higher expected return relative to the efficient frontier) the S&P 500.

- iii. For the Deterministic Reserve, the projected S&P 500 total return shall be prescribed as described in Section 7.D.1. For the Stochastic Reserve, the projected S&P 500 return for each scenario shall be modeled stochastically as described in Section 7.D.2.
 - iv. The time of sale of the asset shall be modeled in a manner that is consistent with the investment policy of the company for the respective equity investment categories. Investment expenses shall be reflected through a deduction to the gross investment return using Prudent Best Estimates [Assumptions](#).
 - c. All other assets. Asset cash flows on other assets that are not described in item a) and b) shall be modeled using methods consistent with the methods described in items a) and b). This includes assets that are a hybrid of fixed income and equity investments.
4. Disclosure of embedded spread on starting assets. For fixed income investments included in the starting assets (i.e. the asset categories defined in Section 7.C.3 (a), the actuary shall estimate and disclose in the Actuarial Report the following values for each Asset Segment:
- a. The approximate market value and the method used to determine such approximate market value of such investments on the Valuation Date.
 - b. The statutory value of such investments on the Valuation Date.
 - c. The gross level “option-adjusted” spread (in basis points) over the Treasury yield curve at the Valuation Date implied in the approximate market values of such investments on that date. Further guidance on acceptable methods to compute this spread shall be published by the NAIC.
 - d. The projected average estimated annual default costs (including how they were derived) expressed as a percent of the approximate average annual market value of such investments. Further guidance on acceptable methods to compute this spread shall be published by the NAIC.
 - e. The net level “option-adjusted” spread over the Treasury yield curve at the Valuation Date (Item c. minus Item d.).
 - f. The aggregate weighted average life and the method used to determine such aggregate weighted average life of such investments at the Valuation Date.

[Drafting Note: This disclosure is intended to provide regulators and Independent Reviewers a tool to assess from a capital market perspective the level of asset risk embedded in a company’s principles-based valuation compared to that of other companies or compared to the current market risk associated with typical- asset classes found in insurance company portfolios. It is anticipated that market spread benchmarks for various asset classes and quality rating levels will be developed or recommended to provide context to regulators and Independent Reviewers when assessing an individual company’s disclosures. It is important to recognize that asset spreads reflect all sources of risk, not just defaults. Further, the existence of these disclosure metrics does not indicate an intent that long-term estimates of default costs should fluctuate significantly from period to period based on movements in market values.]

5. Cash flows from reinvestment assets. Net cash flows in each Projection Interval shall be reinvested in a manner consistent with the company’s investment policy for each Asset Segment. Handling of disinvestment shall be consistent with the company’s investment policy and reflect economic reality such as the reasonable short-term borrowing capacity of the company. Cash flows from reinvestment assets shall be determined as described in Section 7.C.3., but with the additional requirement that net spreads (net of default costs and investment expenses) over Treasuries reflected in the purchase yields for such assets shall be prescribed by the NAIC. ~~be are to be Prudent Best Estimates. However, for each Asset Segment, the aggregate weighted spread over Treasuries, net of appropriate default costs,~~

in each Projection Interval for the fixed income portion of the reinvestment assets (i.e. the asset categories defined in Section 7.C.3. (a)) shall be subject to a prescribed cap.

[Drafting Note: the NAIC shall define the nature and level of the prescribed net spreads over Treasuries cap in an actuarial guideline.]

6. Future IMR amounts. Realized capital gains and losses arising from changes in interest rates can be reflected in the Projection Interval when they occur, or can be spread out over future Projection Intervals by establishing a new IMR amount.

[Drafting note: more discussion is needed as to how principles-based reserves will interact with IMR.]

7. Length of Projection Period projections. The Projections Period shall be sufficiently long performed for at least as many future years as needed so that no materially greater reserve value of the Reported Reserve would result from a longer Pprojection Pperiods.
8. Simplified approaches. For the Deterministic Reserve and Stochastic Reserve, simplified approaches may be acceptable if they can be shown to produce reserves that are not materially different than those produced by a more robust cash flow model.
9. Asset adequacy analysis principles and techniques as defined by applicable regulations, actuarial guidelines and Actuarial Standards of Practices shall be relied on for many of the detailed aspects encountered in projecting cash flows.

D. Description of Scenarios

1. For the Deterministic Reserve, the cash flow projections shall be made in a manner that reflect a single path of U.S. Treasury yield curves, a single path of S&P 500 returns for General Account assets, and a single set of paths of future fund performances for Separate Account assets. For Treasuries, this path shall start with the current U.S. Treasury rate yield curve in effect at the Valuation Date and grade linearly over time to an ultimate static U.S. Treasury rate yield curve. The length of the grading period and the values of the ultimate yield curve shall be prescribed by the NAIC. The method applicable to determine the single paths of S&P 500 returns and future fund performance shall also be prescribed by the NAIC.

[Drafting Note: It is anticipated that specific parameters associated with the deterministic paths of these underlying indices will be published in an actuarial guideline and updated from time to time.]

2. For the Stochastic Reserve, the cash flow projections shall be made in a manner that reflect stochastically generated paths of U.S. Treasury yield curves, S&P 500 returns for General Account equity assets, and future fund performance for Separate Account assets. These stochastically generated paths shall be determined by:
 - i. Stochastic generators and model parameters prescribed by the NAIC, or
 - ii. Pre-packaged scenarios generated from the stochastic generators and model parameters prescribed by the NAIC, or
 - iii. The use of Proprietary Predetermined-Scenario Sets developed by the company for the purpose of calculating the Stochastic Reserve for policies within the scope of this regulation, or

[Drafting Note: The Proprietary Predetermined-Scenario Set and weights will be constructed from a universe of scenarios in manner that produces a result that is reasonably similar to the prescribed CTE amount. This is needed to provide small to intermediate size companies an alternative to modeling a large representative sample from an interest rate generator, or a large number of prepackaged scenarios. Additional guidance is needed to assist the actuary in developing and justifying the use of appropriate Proprietary Predetermined-Scenario Sets]

- iv. Stochastic models developed by the company if mandated calibration criteria established by the NAIC are met. Returns for equity performance and groupings of variable funds shall be determined on a stochastic basis such that the resulting distribution of the Gross Wealth Ratios of the Scenarios meets the scenario calibration criteria established by the NAIC.

If the company chooses to use a fully integrated interest rate/equity return model, the equity return scenarios must satisfy the equity return calibration criteria adopted by the NAIC and the interest rate scenarios must satisfy the interest rate calibration criteria adopted by the NAIC.

[Drafting Note: It is anticipated that a prescribed interest rate generator and model parameter values like the C3P1 generator, as well as a prescribed equity return generator and model parameter values will be published in an actuarial guideline and updated from time to time.

It is also anticipated that the actuarial guideline will define a prescribed set of pre-packaged equity return scenarios similar to those used for C3P2 RBC requirements for variable annuities, as well as a prescribed set of pre-packaged interest rate scenarios.

In addition, it is anticipated that the guideline will contain calibration criteria for equity return models that are similar to those used for the C3P2 RBC requirements for variable annuities, as well as calibration criteria for interest rate models. Calibration criteria for interest rate models are in the process of being developed, and may not be available at the time the regulation is adopted. .

Ideally, a fully integrated model of interest rates, equity returns, and separate account fund performance would be used. If the company chooses to use a fully integrated interest rate/equity return model, the equity return scenarios must satisfy the equity return calibration criteria adopted by the NAIC and the interest rate scenarios must satisfy the interest rate calibration criteria adopted by the NAIC. The US Treasury Fund scenarios within the 10,000 prepackaged scenarios for the C3P2 requirements qualify as meeting this standard. Although an integrated modeling approach is desirable, we believe a number of simpler approaches are acceptable.]

3. The number of scenarios for which Scenario Reserves are computed shall be considered to be sufficient if any resulting understatement in total reserves, as compared with that resulting from running a broader/more robust range of additional scenarios, is not material.

[Drafting Note: More guidance is needed to assist the actuary in determining if a sufficient number of scenarios have been used.]

E. Starting and Projected Assets

1. Starting Assets Amount. For the projections supporting the reserve methodology, the value of assets at the Projection Start Date ~~start of the projection~~ shall be set equal to the estimated value of the Reported Reserve at the Projection Start Date ~~start of the projection~~. However, in no event shall the total value of sStarting aAssets amount (i.e., the sum of the value of sStarting aAssets amounts for all Asset Segments) be less than a prescribed percentage, established by the NAIC, of the final Reported Reserve. When an Asset Segment includes policies that are not subject to the Model Regulation, the actuary shall determine an equitable method to apportion the total amount of assets between the subject and non-subject policies. Starting Assets shall be valued consistently with their annual statement values. The amount of such asset values shall equal the sum of the following items, all as of the Projection Start Date ~~start of the projection~~:
 - a. all of the Separate Account assets supporting the policies; and
 - b. an amount of assets held in the General Account equal to the estimated value of the Reported Reserve as of the Projection Start Date ~~start of the projections~~ less the amount in a.) above.

For products in which a substantial portion of policyholder funds are allocated to Separate Accounts, in many instances the initial General Account assets may be negative, resulting in a projected interest expense. General Account assets chosen for use as described above shall be selected on a consistent basis from one reserve valuation hereunder to the next.

2. Due and Accrued Investment Income. Starting Assets shall include the balance of any due and accrued investment income on the invested assets included in the starting asset amount.
3. Treatment of Hedge Assets. Any hedge assets allocable to the business being valued and meeting the requirements described in subsection 78 below shall be reflected in the projections and included with other General Account assets under item E.1.b.) above. To the extent the sum of the value of such hedge assets and the value of assets in item E.1.a.) above is greater than the estimated value of the Reported Reserve as of the start of the projection, then item E.1.b.) above may include enough negative General Account assets such that the sum of items a.) and b.) above equals the estimated value of the Reported Reserve as of the start of the projection.
4. Treatment of IMR. Any positive Interest Maintenance Reserve (IMR) balance allocable to the business being valued may be included as a negative asset in the determination of the General Account Assets under item 2) above, thus allowing additional positive General Account assets to be allocated to support the reserve calculation. Any negative IMR balance allocable to the business being valued, to the extent it offsets positive IMR balances elsewhere in the entity, must be included as a positive asset with the opposite effect as described above.
5. Valuation of Projected Assets. The ~~projected~~ values of projected Starting Assets shall be determined in a manner consistent with their values at the start of the projection. For reinvestment assets, the value shall be determined in a manner consistent with the value of assets at the start of the projection that have similar investment characteristics.
6. Grouping of equity investments in the General Account. The portion of the Starting Asset Amount held in the General Account represented by equity investments (e.g. common stocks, real estate investments) may be grouped for modeling using an approach that establishes various equity investment categories, as determined by the actuary, with each investment category defined to reflect the different types of equity investments in the portfolio. In assigning each equity investment to an investment category, the fundamental characteristics of the asset shall have an appropriate relationship to the other assets assigned to the investment category.

An appropriate proxy for each equity investment category shall be designed in order to develop the investment return paths. The development of the returns for the proxy equity investment categories is a fundamental step in the modeling and can have a significant effect on results. As such, the actuary must map each investment category to an appropriately crafted proxy investment category normally expressed as a linear combination of recognized market indices (or sub-indices). The proxy construction process should include an analysis that establishes a firm relationship between the investment return on the proxy and the specific equity investment category.

7. Grouping of Variable Funds and Subaccounts. The portion of the Starting Asset Amount held in the Separate Account represented by the variable funds and the corresponding account values may be grouped for modeling using an approach that recognizes the investment guidelines and objectives of the funds. In assigning each variable fund and the variable subaccounts to a grouping for projection purposes, the fundamental characteristics of the fund shall be reflected and the parameters shall have the appropriate relationship to the required calibration points of the S&P 500. The grouping shall reflect characteristics of the efficient frontier (i.e., returns generally cannot be increased without assuming additional risk).

An appropriate proxy for each variable subaccount shall be designed in order to develop the investment return paths. The development of the returns for the proxy funds is a fundamental step in the modeling and can have a significant effect on results. As such, the actuary must map each variable account to an appropriately crafted proxy fund normally expressed as a linear combination of recognized market indices (or sub-indices). The proxy construction process should include an analysis that establishes a firm relationship between the investment return proxy and the specific variable funds.

8. Modeling of Hedges. The appropriate costs and benefits of hedging instruments that are currently held by the company in support of the policies falling under the scope of the regulation shall be included in the projections when determining the Deterministic Reserve and the Stochastic Reserve. If the company is following a Clearly Defined Hedging Strategy and the hedging strategy meets the requirements as defined in subsection 5 below, the projections shall take into account the appropriate costs and benefits of hedge positions expected to be held in the future through the execution of that strategy.

[Drafting note: permitting the modeling of hedges in the Deterministic Reserve calculation on policies that are subject to the stochastic modeling exclusion is still under study.]

To the degree either the currently held hedge positions or the hedge positions expected to be held in the future introduce basis, gap, price, or assumption risk, a suitable reduction for effectiveness of hedges shall be made. The actuary is responsible for verifying compliance with the requirements of a Clearly Defined Hedging Strategy for all hedge instruments included in the projections.

While hedging strategies may change over time, any change in hedging strategy shall be documented and include an effective date of the change in strategy.

These requirements do not supersede any statutes, laws, or regulations of any state or jurisdiction related to the use of derivative instruments for hedging purposes and should not be used in determining whether a company is permitted to use such instruments in any state or jurisdiction.

9. Requirements of a Clearly Defined Hedging Strategy. In order to qualify as a Clearly Defined Hedging Strategy, the strategy must meet the principles outlined in ~~section~~ [Section 4](#) of this regulation (particularly Principle ~~76~~) and shall, at a minimum, identify:
 - a. The specific risks being hedged (e.g., delta, rho, vega, etc.),
 - b. the hedge objectives,
 - c. the risks not being hedged (e.g., variation from expected mortality, withdrawal, and other utilization or decrement rates assumed in the hedging strategy, etc.),
 - d. the financial instruments that will be used to hedge the risks,
 - e. the hedge trading rules including the permitted tolerances from hedging objectives,
 - f. the metric(s) for measuring hedging effectiveness,
 - g. the criteria that will be used to measure effectiveness,
 - h. the frequency of measuring hedging effectiveness,
 - i. the conditions under which hedging will not take place,
 - j. the person or persons responsible for implementing the hedging strategy,
 - k. areas where basis, gap or assumption risk related to the hedging strategy have been identified, and
 - l. the circumstances under which the hedging strategy will not be effective in hedging the risks.

The hedge strategy may be dynamic, static, or a combination thereof.

Strategies involving the offsetting of the risks associated with other products outside of the scope of this regulation do not currently qualify as a Clearly Defined Hedging Strategy.

F. Net Asset Earned Rates and Discount Rates

1. For both the Deterministic Reserve and the Stochastic Reserve calculations, a Cash Flow Model shall be used to determine a path of Net Asset Earned Rates that reflects the net General Account portfolio rate in each Projection Interval (i.e., monthly, quarterly, annually). Separate Account investment returns are not included in the calculation of Net Asset Earned Rates. This path of Net Asset Earned Rates will vary by Asset Segment and for each Scenario, and will depend on, among other things,
 - a. the projected Net Investment Earnings from the portfolio of starting assets,

- b. the pattern of projected asset cash flows from the starting assets and subsequent reinvestment assets,
 - c. the pattern of net liability cash flows, and
 - d. the projected Net Investment Earnings from reinvestment assets.
2. The Net Asset Earned Rate for each Projection Interval shall be computed in a manner that is consistent with the timing of cash flows and length of the Projection Interval of the related cash flow model. It shall be calculated as the ratio of Net Investment Earnings divided by invested assets. The following considerations pertain to the calculation of this ratio:
 - a. Net Investment Earnings shall include investment income plus capital gains and losses (excluding capital gains and losses that are included in the IMR), minus appropriate default costs and investment expenses
 - b. Net Investment Earnings shall include any change in due and accrued investment income during the Projection Interval.
 - c. Net Investment Earnings shall also include income from hedge instruments and amortization of the Interest Maintenance Reserve on all applicable assets.
 - d. Policy loan interest (net of investment expenses) and policy loan balances shall be included in the calculation.
 - e. Invested assets shall be determined in a manner that is consistent with the timing of cash flows within and the length of the Projection Interval of the related Cash Flow Model.
 - f. The outstanding Interest Maintenance Reserve shall be reflected as an adjustment to invested assets. Any negative IMR balance can only be reflected to the extent that a positive IMR balance exists on policies outside the scope of this regulation.
 - g. The statutory value of hedge instruments shall be included in invested assets. Reasonable approximations are acceptable.
 - h. All items reflected in the ratio shall be consistent with statutory asset valuation, including reflection of accrued and unearned investment income where appropriate.

[Drafting Note: Section 7, part C, Item 8 permits the use of simplified approaches to calculate the Deterministic Reserve and Stochastic Reserve. This availability for simplification includes ways to determine appropriate Net Asset Earned Rates. Small to intermediate size companies, or any size company with smaller blocks of business, have options to create Net Asset Earned Rates under simplified approaches if they continue to meet the requirements of Section 7.C.(8).]

3. The path of Discount Rates for each Asset Segment shall be equal to the path of Net Asset Earned Rates.

G. The Deterministic Reserve

1. Purpose. The purpose of the Deterministic Reserve is to produce a reserve that is adequate to cover the product benefits and expense, reflecting future revenue, under a single Scenario. However, it is not meant to explicitly capture Material Tail Risk.
2. Reserve Calculation Description. The Deterministic Reserve is determined using the following steps:
 - a. Determine Prudent Best Estimate assumptions as defined in Subsection 7.B.
 - b. Project cash flows for each policy as described in Subsections 7.C., 7.D., and 7.E.
 - c. Calculate the path of Net Asset Earned Rates for each Asset Segment as described in Subsection 7.F.
 - d. Calculate the Seriatim Reserve for each policy using the methodology described in Subsection 7.G (3).
 - e. Calculate the Per Policy Reserve for each policy.
 - f. Calculate the Deterministic Reserve as described Subsection 7.G (4).
3. Calculation of the Seriatim Reserve for Each Policy.

- a. Use the Cash Flow Model to project the items in (i) through (v) below for each policy. Use the path of Net Asset Earned Rates as appropriate to determine benefits, expenses and revenue that depend on earned rates. For example, earned rates are needed to determine the level of cash surrender benefits.
 - i. The future benefits for each policy, including but not limited to death and cash surrender benefits.
 - ii. The future expenses for each policy, including but not limited to, commissions, general expenses, and premium taxes. Federal income taxes ([and expenses paid to provide fraternal benefits in lieu of federal income taxes](#)) are excluded.
 - iii. The future gross premium payments for each policy.
 - iv. Other applicable revenue for each policy, such as fees and revenue on assets invested in sub-accounts, and any Revenue Sharing income.
 - v. The future net cash flows to/from the General Account from/to the Separate Account for each policy
- b. The Seriatim Reserve for each policy is equal to:
 - i. The present value of future benefits determined by discounting the future benefits using the path of Discount Rates for the corresponding Asset Segment; plus
 - ii. The present value of future expenses determined by discounting the future expenses using the path of Discount Rates for the corresponding Asset Segment; plus
 - iii. The policy account value invested in the Separate Account at the Valuation Date ~~for the corresponding Asset Segment~~; minus
 - iv. The present value of future gross premium payments and/or other applicable revenue determined by discounting these future premiums and other revenue using the path of Discount Rates for the corresponding Asset Segment; minus
 - v. The present value of future net cash flows to/from the General Account from/to the Separate Account determined by discounting these future net cash flows using the path of Discount Rates for the corresponding Asset Segment.

4. The Deterministic Reserve

The Deterministic Reserve equals the sum of the Per Policy Reserve as of the Valuation Date for all policies falling under the scope of this regulation. If the Per Policy Reserve for each policy is determined on a date that precedes the Valuation Date, then the Per Policy Reserves shall be adjusted to the Valuation Date.

H. The Stochastic Reserve

1. Purpose. The purpose of the Stochastic Reserve is to produce a reserve that is adequate to cover the product benefits, revenue and expenses over a broad range of stochastically generated Scenarios for all policies falling under the scope of this regulation. It is meant to capture all material risks, including Material Tail Risk. The Stochastic Reserve may be determined assuming that all, or only some, of the risks underlying the policies are modeled stochastically, but at a minimum, it must assume that interest rate movements, equity movements, and separate account fund performance be modeled stochastically.
2. Reserve Calculation Description: The Stochastic Reserve is determined using the following steps:
 - a. Determine policy grouping as defined in Subsection [7.H](#) (3)
 - b. Determine Prudent Best Estimate assumptions as defined in Subsection [7.B](#)
 - c. Project cash flows for each Asset Segment for each Scenario as described in Subsections [7.C.](#), [7.D.](#), and [7.E](#)

- d. Calculate the path of Net Asset Earned Rates and Discount Rates for each Asset Segment for each Scenario as described in Subsection 7.F
 - e. Calculate the Scenario Reserve for each Scenario using the methodology described in Subsection 7.H (4)
 - f. Calculate the Stochastic Reserve as described in subsection 7.H (6).
3. Grouping of Policies for Modeling: Projections may be performed for each policy in force on the date of valuation or by grouping policies into representative cells of model plans using all characteristics and criteria having a material impact on the size of the reserve. Grouping shall not be done in a manner that intentionally understates the resulting Reported Reserve.

4. Calculation of the Scenario Reserve

- a. For each Scenario, the Scenario Reserve is determined by following steps (i) through (v) below:
 - i. Calculate the net accumulated asset amount for each Asset Segment at the end of each Projection Year~~duration~~ and at the Projection Start Date~~start of the projection~~, as described in paragraph (b) below. Note that the net accumulated asset amount can be either positive or negative.
 - ii. Calculate the Accumulated Deficiency for each Asset Segment at the end of each Projection Year~~duration~~ and at the Projection Start Date~~start of the projection for each Asset Segment~~ by subtracting taking the negative of the net accumulated asset amount for the Asset Segment. ~~from the excess of the Working Reserve over the aggregate accumulated asset amount at that Duration.~~ Note that the Accumulated Deficiency can be either positive or negative.
 - iii. At the end of each Projection Year~~duration~~ and at the Projection Start Date~~start of the projection~~, calculate the discounted value of the Accumulated Deficiency for each Asset Segment that was calculated in step (ii). The discounted value shall be calculated using the path of Discount Rates for the Asset Segment from the P~~starting date of the projection~~ Start Date to the end of the respective Projection Year~~duration~~.
 - iv. Determine the aggregate discounted value of the Accumulated Deficiency at the end of each Projection Year~~duration~~ and at the Projection Start Date~~start of the projection~~ as the sum of the discounted value of Accumulated Deficiency at that Duration across all Asset Segments.
 - v. Determine the Scenario Reserve as the sum of (a) the statement value of the s~~Starting~~ a~~Assets~~ across all Asset Segments and (b) the maximum of the values calculated in step (iv). Note that the amount ~~is~~ described in (b) can be either positive or negative.

[Drafting Note: the definition of Accumulated Deficiency used in the calculation of the Scenario Reserve needs further discussion and analysis before it is finalized.]

- b. For each Scenario the net accumulated asset amount for an Asset Segment at the end of each Projection Year~~each duration~~ is equal to the projected statement value of invested assets for that Asset Segment. For all Scenarios, the net accumulated asset amount for an Asset Segment at the Projection Start Date is the annual statement value of s~~Starting~~ a~~Assets~~ for that Asset Segment. The projected annual statement value of invested assets at any future d~~D~~ duration must reflect the accumulation of cash flows into and out of the portfolio for the items listed in (i) through (vi) below, as described in section 7.C.2. and 7.C.3. The net accumulated asset amount can be either positive or negative.

- i. Benefits, including but not limited to death and cash surrender benefits.

- ii. Expenses, including but not limited to, commissions, general expenses, and premium taxes, but excluding Federal Income Tax [and expenses paid to provide Fraternal Benefits in lieu of federal income taxes.](#)
 - iii. Gross premium payments.
 - iv. Other applicable revenue such as fees and revenue on assets invested in sub-accounts, and any Revenue Sharing income.
 - v. Net payments to/from the General Account from/to the Separate Account.
 - vi. Net Investment Earnings as defined in section 7.F.2.
5. **Stochastic Modeling Exclusion:** It may not be necessary to perform stochastic modeling for groups of policies where it can be demonstrated that the Stochastic Reserve will not be greater than the Deterministic Reserve. Thus, the actuary may elect to exclude certain groups of policies from the stochastic modeling requirement upon demonstration that the Recalculated Deterministic Reserve for those policies (which includes any additional reserve amount that the actuary may decide to add for the purpose of the stochastic modeling exclusion) will adequately provide for all material risks underlying such policies.
- a. To exclude a group of policies from the stochastic modeling requirement, the actuary shall, for the group of policies to be excluded:
 - 1) Determine the Recalculated Deterministic Reserve for these policies, which equals the sum of the amounts in a) and b) below:
 - a) the greater of the Aggregate Deterministic Scenario Reserve ([as described in ee Subsection H\(5\)\(cb\) below](#)) and the sum of the Per Policy Reserves for these policies.
 - b) An additional reserve amount that the actuary may decide to include for the purpose of the stochastic modeling exclusion.
 - 2) Provide a demonstration that the Recalculated Deterministic Reserve adequately provides for all material risks underlying such policies. An acceptable demonstration shall ~~include~~:
 - a) Provide a reasonable assurance that if the Stochastic Reserve was calculated for only those policies subject to the stochastic modeling exclusion, it would not be greater than the Recalculated Deterministic Reserve for such policies;
 - b) Provide sufficient supporting information that an experienced independent actuarial reviewer can assess the reasonableness of the conclusion to exclude the group of policies; and
 - c) Provide an effective evaluation of the residual risk exposure resulting from risk mitigation techniques such as hedge instruments and reinsurance.

[A complete demonstration supporting the exclusion must be provided in the Actuarial Report in the initial exclusion year and at least once every three calendar years subsequent to the initial exclusion. Any demonstration shall take into account whether changing conditions over the current and two subsequent calendar years would be likely to change the conclusion to exclude the group of policies from the stochastic modeling requirement. If, as of the end of any calendar year, the actuary determines the Stochastic Reserve will exceed the Recalculated Deterministic Reserve for the group of policies, the exclusion shall be discontinued and the policies shall be included in the stochastic modeling calculations.](#)
 - b. [Examples of acceptable methods to demonstrate that the exclusion requirements are met for a group of policies include, but are not limited to:](#)
 - 1) [Comparing the Recalculated Deterministic Reserve to the Stochastic Reserve directly.](#)
 - 2) [Comparing the Recalculated Deterministic Reserve to a set of Scenario Reserves resulting from a sufficient number of adverse deterministic scenarios selected by the actuary that are “in the tail” to demonstrate that the Stochastic Reserve would be less than the Recalculated Deterministic Reserve.](#)

- 3) Comparing the Recalculated Deterministic Reserve to a modified Stochastic Reserve that is calculated using a representative sample of policies to demonstrate that the Stochastic Reserve would be less than the Recalculated Deterministic Reserve.
- 4) Comparing the Recalculated Deterministic Reserve to the Stochastic Reserve on a date that precedes the Projection Start Date.
- 5) Demonstrating that any risk characteristics that would otherwise cause the Stochastic Reserve to exceed the Recalculated Deterministic Reserve are not present or have been substantially eliminated through action such as: a) hedging; b) investment strategy; c) reinsurance; or d) passing on to the policyholder by contract provision.

b.c. The Aggregate Deterministic Scenario Reserve is equal to the greatest present value of the Accumulated Deficiencies at the end of each Projection Year and at the Projection Start Date, where the Accumulated Deficiency for each Duration is determined in the aggregate for all policies using the steps outlined in Subsection H(4) above, but using the cash flows for items listed in (i) through (vi) in Subsection H4(b) that are used to calculate the Deterministic Reserve.

6. The Stochastic Reserve

The Stochastic Reserve is calculated for all policies falling under the scope of this regulation and shall be determined as follows:

- a. Rank the Scenario Reserves from lowest to highest.
- b. Take the average of highest (100-CTE risk level) % of the Scenario Reserves.
- c. Add to b) above the Recalculated Deterministic Reserve for all policies that are subject to the stochastic modeling exclusion.

If the Scenario Reserves are determined on a date that precedes the Valuation Date, then the Scenario Reserves shall be adjusted to the Valuation Date before performing steps a. through c. above.

[Drafting Note: the CTE risk level shall be determined by the NAIC. If Pre-determined Scenarios Sets are used, the derivation of the Stochastic Reserve will be defined by actuarial guideline, rather than the process defined above.]

7.7. Aggregation: Aggregation of policies to reflect offsetting risks is permitted when calculating the Stochastic Reserve. However, since the regulation requires the Stochastic Reserve be compared to a seriatim Deterministic Reserve that uses the Cash Surrender Value as a minimum floor on a policy by policy basis, this comparison imposes a limitation on the magnitude of any risk offsets that may be reflected in the Reported Reserve.

The Stochastic Reserve may be calculated separately for subsets of the policies. If this approach is followed, the comparison of the Deterministic Reserve to the Stochastic Reserve may be made in the aggregate. In this case, the Stochastic Reserve for each subset of policies is determined by following the methodology in Subsection (H) 2 separately for each subset of policies.

8. Impact of Aggregation: The actuary shall disclose the estimated impact of aggregation, that is, the degree of risk offsets reflected in the Reported Reserve due to aggregating groups of policies when performing the Stochastic Reserve calculation.

- a.a. The impact of aggregation on the Reported Reserve shall be determined by:
 - ii.i. Subdividing the total block of policies subject to the regulation into subgroups that reflect similar risk characteristics that will likely create risk offsets when aggregated together.
 - ii.ii. Determining the Reported Reserve for each subgroup of policies.
 - iii. Summing the Reported Reserves for each subgroup of policies, and subtracting the actual Reported Reserve for all policies.

- b. Examples of risk characteristic that the actuary may consider when selecting the number of subgroups include:
 - i. Separate Account vs. General Account policies.
 - ii. Flexible premium vs. fixed premium policies.
 - iii. Policies with cash values vs. policies with little or no cash values,
- c. The actuary shall disclose in the Actuarial Report the impact of aggregation at least once every three years, and in the current year regardless of the three year requirement if the company has made a material change in its risk profile, such as buying or selling a block of business, or entering into (or canceling) a reinsurance arrangement covering the policies subject to the regulation.
- d. The actuary can use reasonable approximations when performing this demonstration, but must fully disclose the nature of the approximations used and the rationale for why the approximations are appropriate.
- e. The actuary can use a date that precedes the Valuation Date to perform this demonstration, but shall certify that the use of such date will not produce a material change in the results if the results were based on the Valuation Date.

I. The Reported Reserve

The Reported Reserve shall equal the greater of:

- a. The Deterministic Reserve, and
- b. The Stochastic Reserve

If there is Separate Account business, the Reported Reserve shall be allocated between the General and Separate Accounts as follows: The amount of reserve held in the General Account shall be the difference, whether positive or negative, between the Reported Reserve and the reserve held in the Separate Account as of the Valuation Date.

- c. The amount of reserve held in the Separate Account shall be an amount not less than the sum of the account values held in the Separate Account for policies being valued as of the Valuation Date.

[Drafting Note: More guidance is needed to establish the Separate Account values as of the Valuation Date.]

J. Treatment of Non-Guaranteed Elements

1. Non-Guaranteed Elements are to be included in the models used to project future cash flows for both the Deterministic Reserve and the Stochastic Reserve. Where ~~NGE on Guaranteed Elements~~ are based on some aspect of experience ~~plus the company's NGE Spread~~, future changes in the level of ~~NGE on Guaranteed Elements~~ can be reflected in ~~determined by~~ the ~~eCash fFlow models~~ Models based on the experience assumed in each Scenario. The intent is to model the determination of ~~project the~~ NGE Non-Guaranteed Elements as the company would actually set them if experience unfolded in a manner consistent with the Scenario under consideration, but reflecting a Margin for uncertainty as described below.
2. As would be the case in actual practice, the projected NGE should not be assumed to change simultaneously with the change in projected experience, but only at the date following the recognition of a change in experience on which the company would normally implement a change.

3. When determining the NGE assumption for each Scenario, the actuary must take into consideration those factors that could cause the company to modify its current NGE scale and/or its current NGE Spreads, such as existence of contract guarantees.
4. Due to the uncertainty in the future level of NGE arising from factors such as those listed below, a Margin should be established on the NGE assumption that would result in an increase in the reserve compared to the reserve level that would result from assuming that each Non-guaranteed Element equals the experience of the Scenario plus 100% of the current NGE Spread. Factors that must be considered when determining the Margin include:
 - a. The company's ability to modify its Non-Guaranteed Element scale and/or NGE Spreads, and the company's past NGE practices and current NGE policies.
 - b. Impact on policyholder behavior by maintaining the current Non-Guaranteed Element scale and/or NGE Spreads under the Scenario.
 - c. Impact of the NGE assumption on the competitive position of the product under the Scenario.
 - d. The size of the Margin as measured by the method used to calculate the Margin Ratio as described in Section 7.B.7.
- ~~5.~~ Any liability for dividends declared but not yet paid that has been established according to sStatutory Accounting procedures-Principles as of the Valuation Date shall be reported separately from the Reported Reserve. Accordingly, where such a separate liability is reported on the statutory balance sheet as of the Valuation Date, any dividends that are included in the separate liability shall be excluded from the reserve cash flow projection.

~~*[Drafting Note: An Actuarial Guideline or Actuarial Standard of Practice will provide details regarding the way future non-guaranteed elements may be adjusted in the projection done for valuation purposes.]*~~

K. Treatment of Supplemental Benefits

Reserves for supplemental benefits may be calculated separately when calculating the Deterministic Reserve and the Stochastic Reserve.

L. Allocation of Reported Reserve to Individual Policies

1. When the Reported Reserve is equal to the Deterministic Reserve, the Reported Reserve allocated to each contract shall be the Per Policy Reserve for each policy as defined in Subsection G (4) (a).
2. When the Reported Reserve is equal to the Stochastic Reserve, the reserve allocated to each policy shall be the Per Policy Reserve for each policy as defined in Subsection G (4) (a), plus an allocation of the excess of the Reported Reserve over the Deterministic Reserve. Such allocation shall be made in proportion to the Per Policy Reserve for each policy as defined in Subsection G (4) (a).

[Drafting Note: It is the intent of this section to allocate the Reported Reserve back to the individual policy that gave rise to the reserve. The allocation to individual policies is needed, among other reasons, to allocate assets under the Life and Health Insurance Guaranty Association Model Act.]

Section 8. Requirements for Reinsurance

A. General Considerations

1. The terms "reinsurance" and "reinsurer" in this Section include retrocession and retrocessionaire respectively.
2. The assumptions that are used by a ceding company to determine the Reported Reserve and the Notional Gross Reserve for policies that are ceded to a reinsurer shall be appropriate for the ceding company and need not be the same as the assumptions used by the assuming company to determine the Reported Reserve for these policies. As a consequence, the credit for reinsurance ceded calculated by

the ceding company may not necessarily be equal to the Reported Reserve set up by the assuming company.

3. Since any increase or decrease in actual risk should be reflected in principles-based reserves, it is possible for reinsurance to decrease (or increase) the aggregate risk faced by the ceding and assuming company with respect to the reinsured policies, and if so, the sum of the reserves held by the two companies should decrease (or increase). In any case, the sum of the reserves held by the ceding and assuming companies should not be less than the sum of the Deterministic Reserves held by the companies, and this sum will not, in turn, be less than the total cash surrender value for the reinsured policies.

B. Reinsurance Ceded

1. Cash Flows for Reinsurance ceded. The cash flows used in calculating the Deterministic Reserve and Stochastic Reserves shall include the effect of cash flows received from or paid to reinsurers under the terms of such ceded reinsurance agreements that meet the requirements for accounting as reinsurance. Cash flows received from and paid to reinsurers under the terms of any reinsurance agreement that does not meet the requirements for accounting as reinsurance of the Model Regulation shall be taken into account by the ceding company only if doing so results in an increase in the Reported Reserve held for such policies.

~~*[Drafting note: the impact of the reinsurance on the Working Reserve needs to be determined.]*~~

2. Cash Surrender Value floor. In applying subsection G (4) (a) of section 7 (the Cash Surrender Value floor under the Deterministic Reserve) the Cash Surrender Value shall be taken to be that portion of the Cash Surrender Value of the policy that the company is obligated to pay after taking into account the terms of any reinsurance agreement(s) meeting the requirements for accounting as reinsurance.
2. Assumptions for reinsurance ceded. The assumptions used to project cash flows to and from reinsurers should be consistent with other assumptions used by the ceding company in calculating the Reported Reserve for the reinsured policies, and should reflect the terms of the reinsurance agreement. Current laws and regulations regarding credit for reinsurance should be assumed to remain in effect ~~throughout~~~~for the duration of~~ the projection. The actuary shall include a Margin that has the effect of increasing the Reported Reserve if such Margin is necessary to reflect uncertainty regarding the reinsurance cashflows received from the reinsurer. Such uncertainty is likely to be present if the current terms of the reinsurance agreement are not guaranteed for the entire projection period used in calculating the Reported Reserve.
3. Credit for Reinsurance. While it is recognized that the actuary's primary responsibility is to determine the appropriate liability net of reinsurance, a Notional Gross Reserve shall be calculated using methods and assumptions consistent with those used in calculating the Reported Reserve, but excluding the effect of reinsurance. The credit for reinsurance ceded shall be the excess, if any, of the Notional Gross Reserve over the Reported Reserve, for agreements that meet the requirements for accounting as reinsurance. The assumptions used to calculate the Notional Gross Reserve are to some degree hypothetical, since this is not the situation that actually occurs. For example, assets backing ceded reserves may be held by the reinsurer, not the ceding company. The ceding company should use assumptions that represent what company experience would be if the reinsurance were not entered into and the business was managed in a manner consistent with the manner the retained business is managed.

[Drafting Note: Current laws and regulations regarding reserve credit restrict the terms of reinsurance agreements for which credit may be taken and prescribe conditions under which reinsurance credit may be taken with respect to unauthorized reinsurers. A review of these laws and regulations in light of principles-based reserving may be appropriate.]

C. Reinsurance Assumed

1. Cash Flows for Reinsurance assumed. The cash flows used in calculating the Deterministic Reserve and Stochastic Reserves shall include the effect of cash flows received from and paid to ceding companies under the terms of assumed reinsurance agreements.

[Drafting note: the impact of the reinsurance on the Working Reserve needs to be determined.]

2. Cash surrender value floor. In applying Subsection G (4) (a) of Section 7 (the Cash Surrender Value floor for the Deterministic Reserve), the Cash Surrender Value for each assumed policy shall be taken to be that portion of the Cash Surrender Value of the policy that the company is obligated to pay after taking into account the terms of any reinsurance agreement(s).
3. Assumptions for reinsurance assumed. The assumptions used to estimate cash flows to or from the ceding company should reflect the reinsurer's (i.e. the assuming company's) experience for the business segment to which the reinsured policies belong, and should reflect the terms of the reinsurance agreement. In particular, if reinsurance premiums or allowances are not guaranteed, the actuary should consider treating them in the same manner as a Non-Guaranteed Element.

Section 9. Reporting of Experience

Unless exempted by the commissioner, every authorized company shall annually file with the commissioner, with the NAIC, or with a Statistical Agent designated by the NAIC and acceptable to the commissioner, statistical reports showing mortality, morbidity, policyholder behavior, and expense experience, and other data necessary to value all the types of life insurance in which it does business, and such other information as the commissioner may deem necessary or expedient for the administration of the provisions of this act. The form of the reports shall be established by the commissioner or the commissioner may require the use of a form established by the NAIC or by a statistical agent designated by the NAIC and acceptable to the commissioner.

Statistical Agent means an entity with proven systems for protecting the confidentiality of individual insured and company information; demonstrated resources for and history of ongoing electronic communications and data transfer ensuring data integrity with companies, which are its members or subscribers; and a history of and means for aggregation of data and accurate promulgation of the experience modifications in a timely manner.

[Drafting note: Related issues to be ironed out include the confidentiality of the company's experience and an infrastructure that can be put in place to properly handle the data that is being submitted. Also, if this requirement is included in the SVL, then this Section can be removed.]

Section 10. Effective Date

- A. The method defined by this regulation affects all policies issued on or after <<insert date>>. For reinsured policies, the effective date is the original issue date of the policies reinsured, regardless of the effective date of the reinsurance.

[Drafting Note: LHATF needs to determine the effective date and transition rules regarding application to this approach. Possible transition rules include limiting the application of this methodology to all inforce policies or policies issued after a certain date and/or, establishing a grade in period from current reserve levels to those under this methodology]

- B. Transitional rules for reinsurance.

[Drafting Note: We expect that principles-based reserves will be adopted by all US life companies for products within the scope on a uniform date. If there is uneven adoption of principles-based reserves, then some relaxation of this concept until adoption is complete should be considered by the NAIC, based on administrative considerations. This could be done by establishing special transitional rule for situations where the ceding and assuming companies are subject to different

effective dates or different reserve requirements. When principles-based reserving methods are applied to all life products, then this section will no longer be needed.]