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The NAIC solicits comments on this draft. Comments should be sent to Randall Stevenson, NAIC, at rstevens@naic.org.

VM-20: REQUIREMENTS FOR PRINCIPLES-BASED RESERVES FOR LIFE PRODUCTS

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Subsection 1. Purpose

A. The purpose of these requirements is to define the minimum valuation standard for individual life insurance policies subject to a principles-based reserve valuation as defined in [insert applicable section] of the Valuation Manual.

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B. The method for calculating reserves defined in these requirements constitutes the Commissioner's Reserve Valuation Method (CRVM) for policies to which these requirements are applicable.

C. Reserves for supplemental benefits and riders on policies that are subject to these requirements are to be determined on a basis that is consistent with the principles and methodologies defined in these requirements.

Subsection 2. Guiding Principles

The methodology defined by these requirements is based on the following principles. These principles shall be considered in their entirety, and shall be followed when applying the methodology defined by these requirements and analyzing the resulting reserves.

A. Principle 1: The reserve is determined using a prospective valuation method that appropriately captures material risks underlying the policies being valued and the assets supporting those policies including the product benefits and guarantees, the impact of material tail risk, the revenue available to fund the risks, and the effect of any risk mitigation techniques. For the purpose of these requirements, risks underlying the policies being valued and the assets supporting those policies do not include risks that are of a general business nature that are not specific to the insurance contract, or risks that are not readily quantifiable.

Drafting Note: Risks to be excluded consist of, but are not limited to: counterparty default risk, fraud, risk of company mismanagement, asset concentration risk, asset diversity risk, sovereign risk, and regulatory risk (the latter two are examples of risks that are not readily quantifiable).

B. Principle 2: All risk factors explicitly or implicitly included in the company's risk assessment and evaluation processes shall be reflected in the methodology defined by these requirements unless the risk factor is not included in the scope of risks defined by Principle 1 above. Company risk assessment and evaluation processes include, but are not limited, to economic value valuations, internal capital allocation models, experience analysis, asset adequacy testing, GAAP valuation and pricing.

C. Principle 3: A deterministic approach may be sufficient for certain products, depending on the nature of the risks, and a stochastic approach may be necessary for other products.

D. Principle 4: 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.

E. Principle 5: Assumptions that are not stochastically modeled should incorporate appropriate Margins for uncertainty.

Drafting Note: See Subsection 4.E.5 and 4.E.6 for guidance on the application of this guiding principle to the determination of Margins for each risk factor.

F. Principle 6: Assumptions are not locked in at issue, but are updated as expectations of future experience and economic conditions change.

G. Principle 7: While a cash flow model attempts to include all real world risks relevant to the objective of the cash flow model and relationships among the risks, it will still contain limitations because it is only a model. A cash flow scenario model cannot 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. Therefore:

(1) The limitations of the cash flow model shall be taken into consideration when setting assumptions, applying the methodology defined by these requirements 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), other derivative programs, 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.

Deleted: The choice of an appropriate Margin for each assumption may result in a distorted measure of the total risk. Conceptually, the choice of Margins should be made so that the final result approximates what would be obtained for the Reported Reserve at the required CTE level if it were possible to calculate results over the joint distribution of all future outcomes. In applying this concept to the actual calculation of the Reported Reserve, the actuary shall be guided by evolving practice and expanding knowledge base in the measurement and management of risk.

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Subsection 3. Definitions

A. Terms of Art. The following terms, when capitalized, shall have the indicated meanings for purposes of these requirements:

(1) "Accumulated Deficiency" means an amount measured as of the projection start date and as of the end of each projection year used in the calculation of the Scenario Reserve.

(2) "Anticipated Experience Assumption" means the 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 greater than the assumed value as less that the assumed value.

(3) "Clearly Defined Hedging Strategy" means a derivative program of the company established to hedge risks through the future purchase or sale or opening and closing of derivative instruments and that meets the requirements of a Clearly Defined Hedging Strategy as described in Subsection 4F(11).

(4) "Deterministic Reserve" means the amount determined on a seriatim basis using a single scenario and a set of prescribed and Prudent Estimate Assumptions.

(5) "Margin" means an amount applied to an Anticipated Experience Assumption in order to derive a Prudent Estimate Assumption to provide for estimation error and adverse deviation. The Margin

should be directly related to the level of uncertainty in the risk factor for which the Prudent Estimate 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 Reported Reserve than would otherwise result without it.

(6) "Model Segment" means a group of policies and associated assets that are modeled together to determine the path of Net Asset Earned Rates. This grouping shall be consistent with the company's asset segmentation plan, investment strategies, or approach used to allocate investment income for statutory purposes.

(7) "Modified Deterministic Reserve" means the amount used as a replacement for the portion of the Stochastic Reserve for those policies which are subject to the stochastic modeling exclusion.

(8) "Net Asset Earned Rates" means the path of earned rates reflecting the net general 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. These are also used as the discount rates.

(9) "Non-guaranteed Element (NGE) Spread" means 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 120 basis points.

(10) "Notional Gross Reserve" means the Reported Reserve that would have been held in the absence of any ceded reinsurance.

(11) "PBR Actuarial Report" means a document prepared by the company that summarizes all of the material decisions, assumptions, and methodologies used to support the calculation of the Reported Reserve, as well as the required documentation defined by these requirements and section [insert applicable section] of the Valuation Manual.

(12) "Per Policy Reserve" means an amount determined for each Policy that equals the greater of the cash surrender value and the Seriatim Reserve.

(13) "Policy" means a life insurance policy included in the scope of these requirements.

(14) "Pretax Interest Maintenance Reserve (PIMR)" means the statutory Interest Maintenance Reserve liability adjusted to a pre-tax basis for each Model Segment at the projection start date and at the end of each projection interval. The negative of this amount is treated as an invested asset within these requirements and the amortization of this amount is treated as investment income.

(15) "Proprietary Scenario Set" means a small number of paths of interest rate and equity performance that are not necessarily a representative sample of a larger set of stochastic paths, but are a sample developed by the company for the purpose of calculating the Stochastic Reserve on a conservative basis.

(16) "Prudent Estimate Assumption" means a deterministic assumption, used to represent a risk factor developed by applying a Margin to the Anticipated Experience Assumption for that risk factor.

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(17) "Reinsurance Cash Flows" means the net cash or asset equivalents payable between the company and its reinsurance partners. Positive reinsurance cash flows shall represent amounts payable from the reinsurance partners to the company; negative reinsurance cash flows shall represent amounts payable from the company to its reinsurance partners.

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(18) "Reinsurance Aggregate Cash Flows" means the difference between Reinsurance Cash Flows and Reinsurance Discrete Cash Flows, as defined below. Examples of Reinsurance Aggregate Cash Flows include experience refunds, or the incremental impact of an overall cap on Reinsurance Discrete Cash Flows that would otherwise be payable by the reinsurer.

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(19) "Reinsurance Discrete Cash Flows" means Reinsurance Cash Flows determined by applying reinsurance terms to an individual covered policy, without reference to the circumstances and events of other policies. Examples of Reinsurance Discrete Cash Flows would be proportional sharing of one or more items of revenue or expense associated with an underlying reinsured policy, without attempting to take into account the potential impact of an overall dollar cap in the reinsurance agreement, for all covered policies, on the total revenues or expenses shared for policies in the covered group.

(20) "Reported Reserve" means the minimum reserve requirement as of the valuation date for the policies falling within the scope of this Section.

(21) "Scenario" means a single path of outcomes used in the 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).

(22) "Scenario Reserve" means the amount determined in Subsection 4D(4)(a) for all policies on an aggregated basis for a given Scenario that is used as a step in the calculation of the Stochastic Reserve.

(23) "Seriatim Reserve" means the amount determined in Subsection 4C(3)(b) for a given Policy that is used as a step in the calculation of the Deterministic Reserve.

(24) "Stochastic Reserve" means 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 Estimate Assumptions for all assumptions not stochastically modeled, plus the Modified Deterministic Reserve for those policies subject to the stochastic modeling exclusion.

B. The following general usage terms shall have the indicated meanings for the purposes of these requirements:

(1) "Cash flow model" means 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.

(2) "Cash surrender value" means the amount available to the policyholder upon surrender of the Policy, prior to any outstanding policy indebtedness.

(3) "Conditional tail expectation (CTE)" means 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.

(4) "Credibility adjusted mortality table" means the set of mortality rates resulting from the credibility procedure described in Subsection 6D(4) to blend company experience mortality rates with the industry mortality table rates,

(5) "Derivative asset program" means a derivative program for which the derivative instrument cash flows are combined with asset cash flows in performing the reserve calculations.

(6) "Derivative instrument" is as defined in the NAIC Accounting Practices and Procedures Manual and includes but is not limited to an option, warrant, cap, floor, collar, swap, forward or future, or any other agreement or instrument substantially similar thereto or any series or combination thereof. Each derivative instrument shall be viewed as part of a specific derivative program.

(7) "Derivative liability program" means a derivative program for which the derivative instrument cash flows are combined with liability cash flows in performing the reserve calculations.

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(8) "Derivative program" means a program to buy or sell or open or close one or more derivative instruments to achieve a specific objective that has been defined or approved by the company's Board of Directors or a subcommittee thereof. Both hedging and non-hedging programs (e.g. for replication or income generation objectives) are included in this definition. Each derivative program shall either be treated as a derivative asset program or as a derivative liability program, where such treatment shall not change from one year to the next except under special circumstances disclosed by the company.

(9) "Discount rates" means 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, and equal the Net Asset Earned Rates.

(10) "Fraternal benefits" means payments made by a fraternal life insurance company for charitable purposes that are consistent with and/or support the fraternal purposes of the company.

(11) "Gross wealth ratio" means 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).

(12) Industry mortality table means an NAIC approved mortality table (without valuation margins) used for credibility weighting purposes to blend with the company's experience mortality rates when the company's experience is less than 100% credible.

(13) "Material tail risk" arises when the Scenario Reserve for one or more Scenarios is significantly higher than the Scenario Reserves for the rest of the Scenarios.

(14) "Mortality segment" means a group of policies used as the basis for a company's mortality experience studies. Mortality segments may be divided into subsets of policies for credibility weighting purposes, based on such risk characteristics as gender, age, duration, and risk class.

(15) "Net investment earnings" means the amount used to determine the Net Asset Earned Rate for each projection interval as defined in Subsection 4I(2).

(16) "Non-guaranteed elements (NGE)" means 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 these requirements, non-guaranteed elements includes policyholder dividends for participating policies and participation rates and asset fee charges for equity indexed universal life policies.

(17) "Projection interval" means the time interval used in the cash flow model to project the cash flows amounts (e.g. monthly, quarterly, annually).

(18) "Projection period" means the period over which the cash flow model is run to produce the Stochastic and Deterministic Reserves.

(19) "Projection start date" means the date on which the projection period begins.

(20) "Projection year" means a 12-month period starting on the projection start date or an anniversary of the projection start date.

(21) "Qualified actuary" means an actuary who meets the qualifications in Section [ ] of the Valuation Manual to certify that the reserves for the policies subject to these requirements have been calculated following all applicable laws, regulations, actuarial guidelines and Actuarial Standards of Practice. The qualified actuary shall be referred to throughout these requirements as "the actuary."

(22) "Revenue sharing" means 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 these requirements shall be included in the definition of revenue sharing.

(23) "Risk factor" means an aspect of future experience that is not fully predictable on the valuation date.

(24) "Starting assets" means the assets assigned to a Model Segment prior to the calculation of the Reported Reserve, and valued as of the projection start date.

(25) "Valuation date" means the date for which the Reported Reserve is to be valued as required by the Standard Valuation Law.

(26) "Valuation mortality table" means a NAIC-approved mortality table (with valuation margins) that is to be used as the Prudent Estimate Assumption for mortality.

Subsection 4. Reserve Methodology

A. Summary.

(1) The requirements defined in this Section apply the principles of risk management, asset adequacy analysis and stochastic modeling to establish the minimum reserve for the products within their scope, as defined in [insert applicable section of the Valuation Manual]. For some products, using only a deterministic, single scenario approach may be adequate to capture the risks. For products with material tail risk, a stochastic modeling approach is required (although an exception to this requirement may be made if certain conditions are met, as described in Subsection 4D(5) below). However, the stochastic modeling approach does not require that all assumptions be stochastically modeled.

(2) The Reported Reserve for policies falling within the scope of this Section shall equal an amount calculated using a stochastic method (Stochastic Reserve) but not less than an amount calculated using a seriatim, deterministic method (Deterministic Reserve), where the Reported Reserve is calculated as the Deterministic Reserve plus the excess, if any, of the Stochastic Reserve over the Deterministic Reserve.). Both the Deterministic Reserve and the Stochastic Reserve shall be determined by projecting net cash flows as described below.

(3) The company may calculate reserves on a date no 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.

(4) The Deterministic Reserve is calculated using a seriatim approach based on a projection of net cash flows over a single scenario, using Prudent Estimate Assumptions for assumptions that are not prescribed.

(5) The Stochastic Reserve is calculated in the aggregate based on a projection of net cash flows over a broad range of stochastically generated Scenarios, using Prudent Estimate Assumptions for all assumptions that are not prescribed or are not stochastically modeled, and then applying a prescribed CTE level. A company may exclude certain policies from the stochastic modeling requirement if the policies meet the conditions described in Subsection 4D(6). A Modified Deterministic Reserve shall be calculated for policies excluded from the stochastic modeling requirement, and then added to the amount determined for those polices that are subject to the stochastic model requirement.

(6) Treatment of Supplemental Benefits. Reserves for supplemental benefits may be calculated separately when calculating the Deterministic Reserve and the Stochastic Reserve.

B. The Reported Reserve.

(1) The Reported Reserve shall equal the Stochastic Reserve as described in Subsection 4D, but not less than the Deterministic Reserve as described in Subsection 4C, where the Reported Reserve is calculated as the Deterministic Reserve plus the excess, if any, of the Stochastic Reserve over the Deterministic Reserve.

(2) If there is separate account business, the Reported Reserve shall be allocated between the general and separate accounts as follows:

(a) 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.

(b) 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 work is needed to determine the method to allocate the Reported Reserve between the general account and the separate account.

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(3) The Reported Reserve for each contract shall equal the Per Policy Reserve as described in Subsection 4C(5) plus the Policy's portion of the excess, if any, of the Stochastic Reserve over the Deterministic Reserve.

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. Further work is needed to determine the method to allocate the excess of the Stochastic Reserve over the Deterministic Reserves to each Policy.

C. The Deterministic Reserve.

(1) The purpose of the Deterministic Reserve is to produce a reserve under a single scenario that meets the objectives of statutory reporting for policies without material tail risk.

(2) Use the following steps to calculate the Deterministic Reserve:

(a) Determine Prudent Estimate Assumptions as defined in Subsection 4E.

(b) Project cash flows for each Policy and calculate the path of Net Asset Earned Rates for each Model Segment as described in Subsections 4F, 4G, 4H, and 4I.

(c) Calculate the Seriatim Reserve for each Policy using the methodology described in Subsection 4C(3).

(d) Calculate the cash surrender value adjusted for reinsurance for each Policy using the methodology described in Subsection 4C(4)(d).

(f) Calculate the Per Policy Reserve for each Policy as described in Subsection 4C(5).

(g) The Deterministic Reserve equals the sum of the Per Policy Reserve for all policies.

(3) Calculation of the Seriatim Reserve for Each Policy.

(a) Use the cash flow model to project Items (i) through (ix) below for each Policy. Use the path of Net Asset Earned Rates as appropriate to determine benefits, expenses and

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revenue that depend on earned rates. For example, earned rates may be needed to determine the level of cash surrender benefits.

(i) The future benefits for each Policy (before netting the repayment of any policy loans), 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 variable subaccounts, and any revenue sharing income;

(v) The future net cash flows to or from the general account from or to the separate account for each Policy;

(vi) If policy loans are explicitly modeled per paragraph 4.F.5.(c), the future cash flows related to any policy loans, including loan interest paid in cash, additional loan principal, and repayments of principal including repayments occurring at death or surrender (note that the future benefits in (i) above are before consideration of policy loans);

(vii) The future net Reinsurance Discrete Cash Flows for each Policy;

(viii) The portion of the future net Reinsurance Aggregate Cash Flows allocable to each Policy, where such allocation shall be performed using the method described in Subsection 4C(4)(e); and

(ix) The portion of the aggregate derivative liability program net cash flows allocable to each Policy, where such allocation shall be performed by the company in a manner that is reasonable and practical.

(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 Model Segment; plus

(ii) The present value of future expenses, determined by discounting the future expenses using the path of discount rates for the corresponding Model Segment; plus

(iii) The policy account value invested in the separate account at the valuation date; plus

(iv) If policy loans are explicitly modeled per paragraph 4.F.5.(c), the policy loan balance at the valuation date with appropriate reflection of any relevant due, accrued, or unearned loan interest; minus

(v) 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 Model Segment; minus

(iv) The present value of future net cash flows to or from the general account from or to the separate account, determined by discounting these future net cash flows using the path of discount rates for the corresponding Model Segment; minus

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(vii) If policy loans are explicitly modeled per paragraph 4.F.5.(c), the present value of future net policy loan cash flows determined by discounting these future net cash flows using the path of discount rates for the corresponding Model Segment; minus

(viii) The present value of future net Reinsurance Discrete Cash Flows, determined by discounting these future net cash flows using the path of discount rates for the corresponding Model Segment; minus

(ix) The present value of the future net Reinsurance Aggregate Cash Flows allocated to such Policy as described in Subsection 4C(4)(e), determined by discounting these future net cash flows using the path of discount rates for the corresponding Model Segment; minus

(x) The present value of the future derivative liability program net cash flows (i.e., cash received minus cash paid) that are allocated to such Policy, determined by discounting these future net cash flows using the path of discount rates for the corresponding Model Segment.

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(4) Allocation of net Reinsurance Aggregate Cash Flows and adjustment of the cash surrender value floor for reinsurance.

(a) For each policy *x* that the company has reinsured under a given reinsurance agreement, define the following values:

H(x) Is the value computed in item (vi) of Subsection 4C(3)(b), namely the present value of the Reinsurance Discrete Cash Flows under the agreement.

C(x) Is the policy's cash surrender value without taking into account the reinsurance.

D(x) Is the Reinsurance Discrete Cash Flow payable to the company by the reinsurer upon policy surrender.

P(x) Is the greater of H(x) and D(x).

(b) Define the following values as sums over all policies x covered by the agreement:

E = Σ D(x)

Q = Σ P(x)

(c) Define the following value that takes into account all features of the reinsurance agreement for the entire group of policies covered by the agreement:

F = the present value of all future net Reinsurance Cash Flows if all covered policies surrender.

(d) The cash surrender value adjusted for reinsurance for each policy x shall be equal to:

$$C(x) - \left(D(x) + (F - E) \times \frac{P(x)}{Q} \right)$$

(e) The portion of the future net Reinsurance Aggregate Cash Flows allocable to each Policy, shall be equal to P(x)/Q.

(f) If a policy is covered by more than one reinsurance agreement, then the company shall allocate to the policy the impacts of all such agreements upon Reinsurance Cash Flows and cash surrender value in a manner that is reasonable, practical and consistent with the approach described in items (a) through (e) above.

(g) For assumed reinsurance, the company shall calculate reserves consistent with the allocation procedures in (a) through (f) above.

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Drafting Note: Additional guidance is needed to address aggregate agreements that do not have Reinsurance Discrete Cash Flows.

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(5) The Per Policy Reserve for each Policy is equal to the greater of the Seriatim Reserve and the cash surrender value for the Policy adjusted for reinsurance as described in Subsection 4C(4)(d).

D. The Stochastic Reserve.

(1) The purpose of the Stochastic Reserve is to produce a reserve over a broad range of stochastically generated Scenarios that meets the objective of statutory reporting for policies with material tail risk. It is meant to capture all material reserve risks within the scope of these requirements. 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) Determine the Stochastic Reserve using the following steps:

(a) Determine policy grouping as defined in Subsection 4D(4);

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(b) Determine which polices, if any, will be excluded from the stochastic modeling requirement as described in Subsection 4D(6), and calculate the Modified Deterministic Reserve for these policies;

(c) For policies not excluded from the stochastic modeling requirement:

(i) Determine Prudent Estimate Assumptions as defined in Subsection 4E;

(ii) Project cash flows and calculate the path of Net Asset Earned Rates and discount rates for each Model Segment for each Scenario as described in Subsections 4F, 4G, 4H, and 4I;

(iii) Calculate the Scenario Reserve for each Scenario using the methodology described in Subsection 4D(5);

(iv) Rank the Scenario Reserves from lowest to highest;

(v) Take the average of highest (100-CTE risk level) % of the Scenario Reserves, where the CTE risk level is 65.

Deleted: <insert CTE risk level determined by the NAIC>

(vi) If necessary, add an amount to subparagraph (v) to capture any material risk included in the scope of these requirements but not already reflected in subparagraph (v) using a method and supporting rationale determined by the company;

(d) The Stochastic Reserve equals the amount determined in subparagraph D2(c) plus the Modified Deterministic Reserve for all policies that are subject to the stochastic modeling exclusion.

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Drafting Note: If Proprietary Scenarios Sets are used, the derivation of the amount determined in subparagraph D2(c) will be calculated using a different method defined by the NAIC rather than the process defined above. Also, further work is needed to define acceptable methods to determine the amount in subparagraph D2(c)(vi). It is expected that guidance will be given in practice notes and/or Actuarial Standards of Practice.

(3) Alternatively, the Stochastic Reserve may be calculated by applying the methodology in Paragraph D(2) separately to subsets of policies as defined by the company, and then summing the standalone results together for each subset of policies.

(4) 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 may not be done in a manner that intentionally produces a Stochastic Reserve less than what would result with no grouping. An appropriate rationale may be used to satisfy this requirement, in lieu of an explicit seriatim calculation.

(5) Calculation of each Scenario Reserve.

(a) For each Scenario, calculate the Scenario Reserve as follows:

(i) For each Model Segment at the end of each projection year and at the projection start date calculate;

(I) The net accumulated asset amount as described in Paragraph (b) below (note that the net accumulated asset amount can be either positive or negative);

(II) The Accumulated Deficiency by taking the negative of the net accumulated asset amount for the Model Segment (note that the Accumulated Deficiency can be either positive or negative); and

(III) The discounted value of the Accumulated Deficiency that was calculated in Item (II). Calculate the discounted value using the path of discount rates for the Model Segment from the projection start date to the end of the respective projection year.

(ii) Determine the aggregate discounted value of the Accumulated Deficiency at the end of each projection year and at the projection start date by adding together the discounted values of the Accumulated Deficiency across all Model Segments at each duration.

(iii) Determine the Scenario Reserve as the sum of (a) the statement value of the starting assets across all Model Segments and (b) the maximum of the values calculated in Item (ii). Note that the amount described in (b) can be either positive or negative.

(b) For all Scenarios, the net accumulated asset amount for a Model Segment at the projection state date is the statement value of starting assets for that Model Segment. For each Scenario the net accumulated asset amount for a Model Segment at the end of each projection year is equal to the projected statement value of general and separate account assets for that Model Segment. The net accumulated asset amount can be either positive or negative.

(6) Stochastic Modeling Exclusion.

(a) The company may elect to exclude certain groups of policies from the stochastic modeling requirement by:

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(4) . Aggregation of policies across all Model Segments is permitted when calculating the Stochastic Reserve. Alternatively, the Stochastic Reserve may be calculated separately for subsets of the policies on

Deleted: standalone basis following the methodology in Paragraph D(2) for each subset of policies. If this approach is followed, the comparison of the Deterministic Reserve to the Stochastic Reserve to determine the Reported Reserve shall be made after summing together the Stochastic Reserve on a standalone basis for each subset of policies.

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(i) Providing a reasonable demonstration that the Modified Deterministic Reserve for those policies will adequately provide for all material risks underlying such policies (the Modified Deterministic Reserve is described in Paragraph (6)(e) below), or

(ii) Passing the Material Tail Risk Test defined in Paragraph (6)(c) below.

(b) If the company elects the stochastic modeling exclusion following the approach described in Subparagraph 6(a)(i) above, a complete demonstration supporting the exclusion must be provided in the PBR Actuarial Report in the initial exclusion year and at least once every three (3) calendar years subsequent to the initial exclusion.

(i) Any demonstration shall take into account whether changing conditions over the current and two (2) 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 company determines the Modified Deterministic Reserve for the group of policies no longer adequately provides for all material risks, the exclusion shall be discontinued and the policies shall be included in the stochastic modeling calculations.

(ii) The demonstration may be based on analysis from a date that precedes the initial or subsequent exclusion period.

(iii) An acceptable demonstration shall

(I) Provide a reasonable assurance that if the amount described in Subparagraph 4D(2)(c) was calculated on a standalone basis for only those polices subject to the stochastic modeling exclusion, this amount would not be greater than the Modified Deterministic Reserve for such policies;

(II) Provide sufficient supporting information that an experienced independent actuarial reviewer can assess the reasonableness of the conclusion to exclude the group of policies; and

(III) Provide an effective evaluation of the residual risk exposure resulting from risk mitigation techniques such as derivative programs and reinsurance.

(iv) Examples of acceptable methods to demonstrate that the exclusion requirements are met for a group of policies include, but are not limited to:

(I) Calculating the amount described in Subparagraph 4D(2)(c) on a standalone basis and comparing this amount to the Modified Deterministic Reserve;

(II) Comparing the Modified Deterministic Reserve to a set of Scenario Reserves resulting from a sufficient number of adverse deterministic scenarios;

(III) Comparing the Modified Deterministic Reserve to the amount described in Subparagraph 4D(2)(c) on a standalone basis, but using a representative sample of policies in the stochastic modeling calculations;

(IV) Demonstrating that any risk characteristics that would otherwise cause the amount described in Subparagraph 4D(2)(c) on a standalone basis

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to exceed the Modified Deterministic Reserve are not present or have been substantially eliminated through actions such as: a) hedging; b) investment strategy; c) reinsurance; or d) passing the risk on to the policyholder by contract provision.

(c) Material Tail Risk Test

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Drafting Note: The requirements to pass the Material Tail Risk Test are under development

(d) A group of policies for which there is one or more Clearly Defined Hedging Strategy(s) shall not be eligible for the stochastic modeling exclusion except:

(i) If each Clearly Defined Hedging Strategy serves as [insert a list of acceptable exceptions], or

(ii) If approved by the domiciliary commissioner.

In addition, future transactions associated with non-hedging derivative programs may not be reflected in the reserve calculation for groups of policies for which the stochastic modeling exclusion is elected.

Drafting Note: The list of acceptable exceptions could include a description of a cash flow hedge (e.g. an asset swap) and a hedge of interest credits on a group of equity indexed universal life policies that satisfy Actuarial Guideline XXXVI requirements for policies eligible for a book value reserving method.

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(e) The Modified Deterministic Reserve for the policies to be excluded shall equal the sum of the amounts in (i) and (ii) below:

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(i) The greater of:

(I) An amount calculated in the aggregate for all policies using the method described in Subsection 4D(5), but using the valuation assumptions and cash flows used to determine the Deterministic Reserve.

(II) The sum of the Per Policy reserves for these polices.

(ii) An additional reserve amount that the company may decide to include for the purpose of the stochastic modeling exclusion.

(7) Reporting and documentation requirements related to the Stochastic Reserve calculation.

The following items shall be included in the PBR Actuarial Report:

(a) A description of any material risks that are not fully reflected in the Cash Flow Model used to calculate the Stochastic Reserve, as described in Subparagraph D.2.(c)(vi). Such disclosure should include at least the following:

(i) A description of each element of the Cash Flow Model for which this provision has been made in the Stochastic Reserve (e.g., Risk Factors, policy benefits, asset classes, investment strategies, risk mitigation strategies, etc.);

(ii) A description of the approach used by the company to provide for these risks in the Stochastic Reserve outside the Cash Flow Model, and a summary of the rationale for selecting this approach, and the key assumptions justifying the underlying the approach;

(iii) If there is more than one model element included in this provision, clarify whether a separate provision was determined for each element, or collectively for groups of two or more elements. Explain the methodology, supporting rationale and key assumptions for how separate provisions were combined.

(b) A summary of the impact of aggregation on the Stochastic Reserve, that is, the degree of risk offsets reflected in the Stochastic Reserve due to aggregating groups of policies when performing the Stochastic Reserve calculation.

(i) The impact of aggregation on the Stochastic Reserve shall be determined by:

(I) Subdividing the total block of policies subject to these requirements into subgroups that reflect similar risk characteristics that will likely create risk offsets when aggregated together. Acceptable risk characteristics that can be used by the company to define the number of subgroups include, but are not limited to:

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a. Separate account vs. general account policies;

b. Flexible premium vs. fixed premium policies;

c. Policies with cash values vs. policies with little or no cash values;

(II) Determining the Stochastic Reserve for each subgroup of policies; and

(III) Summing the Stochastic Reserves for each subgroup of polices, and subtracting the actual Reported Reserve for all policies.

(ii) Disclose the impact of aggregation at least once every three (3) years, and in the current year regardless of the three (3) 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 a reinsurance arrangement covering the policies subject to these requirements.

(iii) Disclose the nature of any approximations used and the rationale for why the approximations are appropriate.

(iv) If the company uses a date that precedes the valuation date to perform this demonstration, explain why the use of such date will not produce a material change in the results if the results were based on the valuation date. Such explanation shall address the nature of any adjustments made to the data and the rationale for why the adjustments are appropriate.

E. Valuation Assumptions.

(1) The company shall determine Prudent Estimate Assumptions for each risk factor that is not prescribed or is not stochastically modeled. A Prudent Estimate Assumption is developed by applying a Margin to the Anticipated Experience Assumption for the risk factor. As the company determines is appropriate, the Prudent Estimate Assumptions shall vary from Scenario to Scenario within the Stochastic Reserve calculation. The Prudent Estimate Assumption for each risk factor shall be:

(a) Based on available, relevant and credible experience, including, but not limited to, the company's own experience studies and industry experience studies;

(b) Set to produce, together with all other valuation assumptions, an overall value for the Reported Reserve that is consistent with the objectives of statutory reserve reporting; and

(c) Reviewed periodically and updated as appropriate in accordance with these requirements

(2) Deterministic Reserve Assumptions.

(a) Use the prescribed Deterministic Reserve assumptions given in Subsection 9C and 9D for the following risk factors:

(i) Interest rate movements (i.e., Treasury interest rate curves);

(ii) Net spreads (net of default costs and investment expenses) over Treasuries for reinvestment assets;

(iii) Equity performance (i.e., S&P 500 returns and other returns of other equity investments).

(b) Use Prudent Estimate Assumptions for all other significant risk factors not listed in Subparagraph (a), taking into account the effects of the Scenario underlying the Deterministic Reserve, following the principles in Subparagraph E(1) above.

(3) Stochastic Reserve Assumptions.

(a) Model the following risk factors stochastically:

(i) Interest rate movements (i.e., Treasury interest rate curves)

(ii) Equity performance (i.e., S&P 500 returns and returns of other equity investments).

(b) The company may elect to stochastically model other risk factors in addition to those listed in (a) above. If so modeled, the requirements in this Section for determining Prudent Estimate Assumptions for these risk factors would not apply.

(c) Use the assumptions prescribed in Subsection 9C for net spreads (net of default costs and investment expenses) over Treasuries for reinvestment assets.

(d) For all other significant risk factors use Prudent Estimate Assumptions that are consistent with those used for the Deterministic Reserve, modified for each Scenario following the principles in Subparagraph E(1) above to take account of the effects of the Scenario.

(4) Anticipated Experience Assumptions. The company shall use its own experience, if relevant and credible, to establish an Anticipated Experience Assumption for any risk factor. To the extent that company experience is not available or credible, the company may use industry experience or other data to establish the Anticipated Experience Assumption, making modifications as needed to reflect the circumstances of the company.

Drafting Note: Additional guidance via an ASOP may be needed to clarify how the company determines the modifications that may be needed to reflect the circumstances of the company.

(5) Aggregate Margin.

(a) The choice of an appropriate Margin for each assumption may result in a distorted measure of the total risk. Conceptually, the choice of Margins should be made so that the final result approximates what would be obtained for the Reported Reserve at the required CTE level if it were possible to calculate results over the joint distribution of all future outcomes. In applying this concept to the actual calculation of the Reported Reserve, the actuary shall be guided by evolving practice and expanding knowledge base in the measurement and management of risk.

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Deleted: Although Principle 5 discusses the concept of determining the level of margins in the aggregate, it notes that the application of this concept shall be guided by evolving practice and expanding knowledge.

(b) From a practical standpoint, it may not be possible to completely apply this concept to determine the level of Margins in the aggregate for all risk factors. Therefore, the company shall determine Margins for each risk factor independently (e.g., mortality, lapse, premium patterns, etc.) using the requirements and guidance given in Subsection 4E(6) below, unless the company can demonstrate that an appropriate method was used to jointly determine the Margin for two or more risk factors in combination.

Drafting note: Due to the difficulty in determining margins in the aggregate, it is expected that jointly determining margins for 2 or more risk factors will be rare, at least in the initial years following the effective date of these requirements. As emerging practice and techniques in this area continue to evolve, this may become a more common practice in future years.

(6) Margin for each Risk Factor.

(a) Include a Margin to provide for adverse deviations and estimation error in the Prudent Estimate Assumption for each risk factor, or combination of risk factors as allowed in subsection (5)(b), that is not stochastically modeled or not prescribed.

Drafting Note. For prescribed assumptions, the Margin is implicitly specified in these requirements. Thus, determining Margins for prescribed assumptions does not require any action on the part of the company.

(b) The greater the uncertainty in the Anticipated Experience Assumption, the larger the required Margin, with the Margin added or subtracted as needed to produce a larger Reported Reserve than would otherwise result. For example, use a higher Margin when:

(i) The experience data are either not relevant or not credible;

(ii) The experience data are of lower quality, such as incomplete, internally inconsistent, or not current;

(iii) There is doubt about the reliability of the Anticipated Experience Assumption, such as, but not limited to recent changes in circumstances or changes in company policies; or

(iv) There are constraints in the modeling that limit an effective reflection of the risk factor.

(c) Greater analysis and more detailed justification is needed for risk factors that produce greater sensitivity on the Reported Reserve for changes in assumptions.

(d) Margins do not need to be established for risk factors when variations in the assumptions do not have a material impact on the Reported Reserve.

(e) Margins should reflect the magnitude of fluctuations in historical experience of the company for the risk factor, as appropriate.

(f) Margins do not need to take into account the possibility of catastrophic events.

(g) Apply the method used to determine the Margin consistently on each valuation date. Document any changes in the method or amounts of Margin including the reason for the change.

(7) Reporting and documentation requirements related to assumption Margins.

(a) The following items shall be included in the PBR Actuarial Report:

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Drafting Note: Further wording will be added to these requirements to address concerns on how the requirement above for the aggregate Margin will impact the determination of Margins on each risk factor. The American Academy of Actuaries' Life Reserves Work Group and other principles-based reserve groups need the NAIC's Life and Health Actuarial Task Force'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, PBA Review Actuary and actuary are then able to reach conclusions regarding the appropriateness of Margins on each risk factor.¶

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(i) Disclose an estimate of the impact of the Margin on the Deterministic Reserve for each risk factor, or group of risk factors, that has a material impact on the Deterministic Reserve: This shall be determined for each Model Segment by subtracting (I) from (II):

(I) The sum of the Seriatim Reserves for all policies, but with the Seriatim Reserves calculated based on the Anticipated Experience Assumption for the risk factor and Prudent Estimate Assumptions for all other risk factors.

(II) The sum the Seriatim Reserves as reported.

(ii) Disclose an estimate of the aggregate impact of all Margins on the Deterministic Reserve for each Model Segment. This shall be determined for each Model Segment by subtracting (I) from (II):

(I) The sum of the Seriatim Reserves for all policies, but with the Seriatim Reserves calculated based on Anticipated Experience Assumptions for all risk factors prior to the addition of any Margins.

(II) The sum of the Seriatim Reserves for all policies as reported.

(b) Since the company is not required to determine an Anticipated Experience Assumption or a Prudent Estimate Assumption for assumptions that are prescribed for the Deterministic Reserve (i.e., interest rates movements, equity performance, and net spreads on reinvestment assets), when determining the impact on margins in paragraph (a) above, the prescribed assumption shall be deemed to be the Prudent Estimate Assumption, and the equivalent of an Anticipated Experience Assumption for these risk factors will be prescribed for the purpose of determining the impact of assumption Margins, and found in subsection 9.F.

F. Cash Flow Models.

(1) Both the Stochastic Reserve and Deterministic Reserve calculations require the use of cash flow models for each Model 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 each Model Segment.

(2) Model Structure.

(a) Assign each policy subject to these requirements to one and only one Model Segment. Use a separate cash flow model for each Model Segment.

(b) The company may use a grouped liability model to calculate the path of Net Asset Earned Rates for the Deterministic Reserve and then perform the Seriatim Reserve calculation for each Policy based on those Net Asset Earned Rates.

(c) The projection period shall be sufficiently long so that no materially greater value of the Reported Reserve would result from a longer projection period.

(d) Simplified approaches may be acceptable if they can be shown to produce reserves that are no less than those produced by a more robust cash flow model.

(e) Asset adequacy analysis principles and techniques as defined by applicable regulations, actuarial guidelines and Actuarial Standards of Practice may be relied on for many of the detailed aspects encountered in projecting cash flows.

(3) Starting and Projected Assets.

(a) For each Model Segment, select starting assets such that their aggregate annual statement value at the projection start date is equal to the estimated value of the Reported Reserve allocated to the policies in the Model Segment.

(i) Include in the starting asset values the relevant balance of any due, accrued or unearned investment income.

(ii) For an asset portfolio of the company that supports both policies that are subject and not subject to these requirements, determine an equitable method to apportion the total amount of assets between the subject and non-subject policies.

(iii) If for all Model Segments combined, the aggregate annual statement value of starting assets is less than 98% or greater than 102% of the final aggregate Reported Reserve, provide documentation in the PBR Actuarial Report which provides reasonable assurance that the aggregate Reported Reserve is not materially understated as a result of the estimate of the amount of starting assets.

(b) The starting assets for each Model Segment shall consist of the following:

(i) All of the separate account assets supporting the policies;

(ii) All policy loans supporting the policies (if policy loan are explicitly modeled per paragraph 4.F.5.(c));

(iii) All derivative instruments currently held at the projection start date that are part of a derivative program and are allocable to the Model Segment;

(iv) The negative of any Pretax Interest Maintenance Reserve liability allocable to each Model Segment at the projection start date.

(I) The amount of PIMR allocable to each Model Segment shall be the approximate statutory Interest Maintenance Reserve liability that would have developed for the Model Segment without regard to any applicable capital gains taxes. The allocable PIMR liability may be either positive or negative, resulting in either a decrease or increase to starting assets.

(II) In performing the allocation to each Model Segment, the company shall use a reasonable approach to allocate any portion of the total company balance that is disallowable under statutory accounting procedures (i.e., when the total company balance is an asset rather than a liability).

(III) A simplified approach to allocate the PIMR is permissible where the impact of the PIMR on the Reported reserve is minimal.

(v) An amount of other general account assets such that the aggregate value of starting assets meets the conditions in subparagraph (a) above. These assets shall generally be selected on a consistent basis from one reserve valuation to the next. Any material change in the selection methodology shall be documented in the PBR Actuarial Report.

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Drafting Note: The percentage X will be established by the NAIC.¶
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(b) . For Model Segments in which a substantial portion of policyholder funds are allocated to separate accounts, 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 to the next.¶
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Drafting Note: Additional clarification may be needed on the approach to model future cash flows on general account assets with a negative balance. ¶
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(e) . Any positive IMR balance allocable to the business being valued may b ... [7]

(c) The aggregate value of general account starting assets, which is equal to the sum of items (ii) through (v) of subparagraph (b) above, may be negative. This may occur for example for Model Segments in which a substantial portion of policyholder funds are allocated to separate accounts. The assets in item (v) above may include negative assets or short-term borrowing, resulting in a projected interest expense

(d) Determine the projected values of starting assets in a manner consistent with their values at the start of the projection.

(e) When calculating the projected statement value of assets at any date, always include the negative of any outstanding PIMR liability. For purposes of these requirements, the projected PIMR liabilities for any Model Segment and for all Model Segments combined are allowed to be negative.

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(4) General Description of Cash Flow Projections. For the Deterministic Reserve and for each Scenario for the Stochastic Reserve, project cash flows ignoring federal income taxes and reflecting the dynamics of the expected cash flows for the entire Model Segment. The effect of all material product features, both guaranteed and non-guaranteed shall be reflected. Cash flow projections include, but are not limited to:

(a) Actual gross premiums received from the policyholder as revenue in the cash flow projection. Project amounts charged to account values on general accounts business (such as cost of insurance and expense charges) in order to determine any effects on future policy benefits, but do not include these as revenue in the cash flow projections.

(b) All material benefits paid to policyholders, including but not limited to, death claims, surrender benefits, and withdrawal benefits, reflecting the impact of all material guarantees.

(c) Net cash flows between the general account and separate account for variable products. (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.

(d) Insurance company expenses (including overhead expenses), commissions, fund expenses, contractual fees and charges, and taxes (excluding federal income taxes). Exclude expenses paid to provide fraternal benefits in lieu of federal income taxes.

(e) Revenue sharing income received by the company (net of applicable expenses) and other applicable revenue and fees associated with the policies. Adjustments shall be made to reflect the uncertainty of revenue sharing income that is not guaranteed.

(f) Net cash flows associated with any reinsurance on a basis consistent with the requirements herein.

(g) Cash flows from derivative liability and derivative asset programs, as described in Paragraph (10) below.

(h) Cash receipts or disbursements associated with investment income, realized capital gains and losses, principal repayments, appropriate asset default costs, investment expenses, asset prepayments, and asset sales. Cash flows related to policy loans are handled in the reserve calculation in a manner similar to cash flows to and from separate accounts. Policy loan investment yields are not included in the Net Asset Earned Rates.

Drafting Note: Since the projection of cash flows reflect premium mode directly, deferred premiums are zero under this approach.

(5) Cash Flows from Starting Assets. Select assets at the beginning of the projection from the company's actual assets backing the policies associated with each Model Segment using the method to determine the amount of starting assets described in Paragraph (3) above. Determine cash flows on general account starting assets for each projection interval as follows:

(a) Fixed income investments (e.g., public bonds, convertible bonds, preferred stocks, private placements, asset backed securities, commercial mortgage loans, residential mortgage loans, mortgage backed securities, and collateralized mortgage obligations) including derivative asset programs associated with these assets.

(i) Model gross investment income and principal repayments in accordance with the contractual provisions of each asset and in a manner consistent with each Scenario. Grouping of assets is allowed if the company can demonstrate that grouping does not result in materially lower reserves than would have been obtained using a seriatim approach.

(ii) Reflect appropriate asset default costs and investment expenses through a deduction to the gross investment income using Prudent Estimate Assumptions.

(iii) Model the proceeds arising from modeled asset sales and determine the portion representing any realized capital gains and losses.

Drafting Note: Additional requirements may be needed to determine projected market values on sales of starting assets using the prescribed net spreads in Subsection 9C. For instance, it would be inappropriate to use net-after-default spreads in the discounting of pre-default cash flows to determining market values.

(iv) Reflect any uncertainty in the timing and amounts of asset cash flows related to the paths of interest rates, equity returns, or other economic values directly in the projection of asset cash flows.

(b) Equity investments (i.e., non-fixed income investments having substantial volatility of returns such as common stocks and real estate investments) including derivative programs associated with these assets.

(i) Determine 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.) as described in Paragraph (8) below.

(ii) Project the gross investment return (including realized and unrealized capital gains) for each investment category 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.

Drafting Note: 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, Subsection 4G(1) prescribes the projected S&P 500 total return assumptions. For the Stochastic Reserve, Subsection 4G(2) prescribes the stochastic modeling of the projected Standard & Poor's (S&P) 500 return for each Scenario

(iv) Model the timing of an asset sale in a manner that is consistent with the investment policy of the company for that type of asset. Reflect expenses

through a deduction to the gross investment return using Prudent Estimate Assumptions.

(c) Policy loan assets. Model existing loan balances either explicitly, or by substituting assets that are a proxy for policy loans (e.g., bonds, cash, etc.), provided the latter approach meets the requirements for simplified approaches stated in Subsection 4(F)(2)(d) and the policyholder behavior requirements stated in Subsection 7(A)(3). If loans are explicitly modeled, follow these requirements:

(i) Treat policy loan activity as an aspect of policyholder behavior subject to the requirements of Subsection 7.

(ii) For both the Deterministic Reserve and the Stochastic Reserve, assign loan balances either to exactly match each policy's utilization or to reflect average utilization over a Model Segment or subsegments thereof.

(iii) Model policy loan interest in a manner consistent with policy provisions and with the Scenario. In calculating the Deterministic Reserve, include interest paid in cash as a loan cash flow in that projection interval, but do not include interest added to the loan balance as a loan cash flow (the increased balance will require increased repayment cash flows in future projection intervals).

(iv) Model principal repayments, including those which occur automatically upon death or surrender.

(v) Model any investment expenses allocated to policy loans and include them either with loan cash flows or insurance expense cash flows.

(d) All other assets. Model Asset cash flows on other assets that are not described in Subparagraphs (a) through (c) using methods consistent with the methods described in Subparagraphs (a) and (b). This includes assets that are a hybrid of fixed income and equity investments.

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(6) Cash Flows from Reinvestment Assets. Model any purchase of general account reinvestment assets with available net asset and liability cash flows in a manner that is representative of and consistent with the company's investment policy for each Model Segment. Determine the value in a manner consistent with the value of starting assets that have similar investment characteristics. Model any disinvestment in a manner consistent with the company's investment policy and that reflects the cost of borrowing. Determine asset cash flows from general account reinvestment assets for each projection interval based on the following:

(a) Fixed income investments including derivative asset programs associated with these assets.

(i) At purchase of each asset, determine an appropriate combination of market price and future contractual cash flow provisions for which the resulting purchase yield appropriately reflects the then-current Treasury interest rate curve plus the prescribed net spread requirements in Subsection 9C.

Drafting Note: The NAIC shall define the structure and levels of the prescribed net spreads over Treasuries. One recommendation being considered is that only the option-adjusted net spreads be prescribed. In such case, the company could add an appropriate option premium to the purchase yield as long as it also fully models the associated cash flow risks such as calls or prepayments.

(ii) After purchase, model the cash flows using the contractual provisions determined in (i) and following the same methodology as described in Subparagraph 5(a), except that no deduction for default costs and investment expenses is necessary since they are implicit in the prescribed net spreads.

(b) Equity investments. Model the cash flows following the same methodology as described in Subparagraph 5(b).

(c) Policy loan assets. Model the cash flows for new policy loans following the same methodology as described in Subparagraph 5(c).

(d) All other assets. Model the cash flows following the same methodology as described in Subparagraph 5(d).

(7) Future Pretax Interest Maintenance Reserve Amounts. Realized capital gains and losses arising from changes in interest rates shall be spread out over future projection intervals by establishing a new PIMR amount and future amortization schedule in a manner that is reasonably consistent with statutory accounting procedures under the assumption that capital gains tax is zero.

(8) Grouping of Equity Investments in the General Account.

(a) The portion of the general account starting assets that are equity investments (e.g., common stocks, real estate investments) may be grouped for modeling using an approach that establishes various equity investment categories with each investment category defined to reflect the different types of equity investments in the portfolio.

(b) Design a proxy for each equity investment category 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. 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.

(9) Grouping of Variable Funds and Subaccounts for Separate Accounts.

(a) Similar to the approach used for general account equity investments, 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, reflect the fundamental characteristics of the fund and assure that the parameters shall have the appropriate relationship to the required calibration points of the S&P 500. Reflect the characteristics of the efficient frontier (i.e., returns generally cannot be increased without assuming additional risk) in the grouping.

Drafting Note: This approach is similar to what is required for the RBC C3 Phase 2 requirements.

(b) Similar to the approach used for general account equity investments, design an appropriate proxy for each variable subaccount 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. 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.

(10) Modeling of Derivative Programs.

(a) When determining the Deterministic Reserve and the Stochastic Reserve include in the projections the appropriate costs and benefits of derivative instruments that are currently held by the company in support of the policies subject to these requirements. Except as

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provided in Subsection 4D(6)(f), also include the appropriate costs and benefits of anticipated future derivative instrument transactions associated with the execution of a Clearly Defined Hedging Strategy. Except as provided in Subsection 4D(6)(f), also include the appropriate costs and benefits of anticipated future derivative instrument transactions associated with non-hedging derivative programs (e.g. replication, income generation) undertaken as part of the investment strategy supporting the policies provided they are normally modeled as part of the company's risk assessment and evaluation processes.

Drafting Note: The prohibition in these minimum reserve requirements against projecting future hedging transactions other than those associated with a Clearly Defined Hedging Strategy is intended to address initial concerns expressed by various parties that reserves could be unduly reduced by reflection of programs whose future execution and performance may have greater uncertainty. The prohibition appears however to be in conflict with Principle 2 of these requirements. Companies may actually execute and reflect in their risk assessment and evaluation processes hedging strategies similar in many ways to clearly defined hedging strategies but lack sufficient clarity in one or more of the qualification criteria. By excluding the associated derivative instruments, the investment strategy that is modeled may also not reflect the investment strategy the company actually uses. Further, since the future hedging transactions may be a net cost to the company in some scenarios and a net benefit in other scenarios, the exclusion of such transactions can result in a Reported Reserve that is either lower or higher than it would have been if the transactions were not excluded. The direction of such impact on the reserves could also change from period to period as the actual and projected paths of economic conditions change. A more graded approach to recognition of non-qualifying hedging strategies may be more theoretically consistent with Principle 2. The requirements stated here for handling hedging strategies are essentially consistent with those included in the CTE methodology portion of the September 2006 exposure draft of Actuarial Guideline VACARVM for variable annuity reserving. It is recommended that, as greater experience is gained by actuaries and regulators with the principles-based approach, and as industry hedging programs mature, the various requirements of this Subsection be reviewed.

(b) For each derivative program that is modeled, reflect the company's established investment policy and procedures for that program, project expected program performance along each Scenario, and recognize all benefits, residual risks, and associated frictional costs. The residual risks include, but are not limited to: basis, gap, price, parameter estimation, and variation in assumptions (mortality, persistency, withdrawal, etc.). Frictional costs include, but are not limited to: transaction, margin (opportunity costs associated with margin requirements) and administration. For Clearly Defined Hedging Strategies, do not assume that residual risks and frictional costs have a value of zero unless the company can demonstrate in the PBR Actuarial Report that "zero" is an appropriate expectation.

(c) In circumstances where one or more material risk factors related to a derivative program is not fully captured within the cash flow model used to calculate the CTE amount in subparagraph 4D(2)(c)(v), reflect such risk factors by increasing the Stochastic Reserve as described in subparagraph 4D(2)(c)(vi) .

Drafting Note: The previous two paragraphs address a variety of possible situations. Some hedging programs may truly have zero or minimal residual risk exposure, such as when the hedge program exactly replicates the liability being hedged. With dynamic hedging strategies, residual risks are typically expected; however, in some cases the cash flow model supporting the CTE calculation may be able to adequately reflect such risks through margins in program assumptions, adjustments to costs and benefits, etc. In other cases, reference to additional external models or analyses may be necessary where such results cannot be readily expressed in a format directly amenable to a CTE calculation. In such cases, the company will need to combine the results of such models by some method that is consistent with the objectives of these requirements. Emerging actuarial practice will be relied on to provide approaches for a range of situations that may be encountered.

(d) These requirements do not supersede any statutes, laws or regulations of any state or jurisdiction related to the use of other 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.

(11) Requirements of a Clearly Defined Hedging Strategy.

(a) In order to qualify as a Clearly Defined Hedging Strategy, the strategy must identify:

(i) The specific risks being hedged (e.g., cash flow, policy interest credits, delta, rho, vega, etc.);

(ii) The hedge objectives;

(iii) The risks not being hedged (e.g., variation from expected mortality, withdrawal, and other utilization or decrement rates assumed in the hedging strategy, etc.);

(iv) The financial instruments that will be used to hedge the risks;

(v) The hedge trading rules including the permitted tolerances from hedging objectives;

(vi) The metrics for measuring hedging effectiveness;

(vii) The criteria that will be used to measure effectiveness;

(viii) The frequency of measuring hedging effectiveness;

(ix) The conditions under which hedging will not take place;

(x) The person or persons responsible for implementing the hedging strategy;

(xi) Areas where basis, gap or assumption risk related to the hedging strategy have been identified; and

(xii) The circumstances under which hedging strategy will not be effective in hedging the risks.

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

(c) Strategies involving the offsetting of the risks associated with other products outside of the scope of these requirements do not currently qualify as a Clearly Defined Hedging Strategy.

Drafting Note: For purposes of the above criteria, "effectiveness" need not be measured in a manner as defined in NAIC Accounting Practices and Procedures.

G. Description of Scenarios.

(1) The Deterministic Reserve Scenario.

(a) The cash flow projections for the Deterministic Reserve shall 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).

(b) 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 are described in Subsection 9D(1).

(c) The method to determine the single path of S&P 500 returns and future fund performance is described in Subsection 9D(2).

Drafting Note: It is anticipated that specific parameters associated with the deterministic paths of these underlying indices will be updated from time to time.

(2) Stochastic Reserve Scenarios.

(a) The cash flow projections for the Stochastic Reserve shall 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) Prescribed stochastic generators and model parameters as described in Subsection 9E; or

(ii) Pre-packaged scenarios generated from stochastic generators and model parameters as described in Subsection 9E; or

(iii) Proprietary Scenario Sets developed by the company for the purpose of calculating the Stochastic Reserve for policies within the scope of these requirements; or

Drafting Note: The Proprietary 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 regarding developing and justifying the use of appropriate Proprietary Scenario Sets.

(iv) Stochastic models developed by the company if prescribed calibration criteria standards are met, as described in Subsection 9E(3). 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 prescribed scenario calibration criteria. If the company chooses to use a fully integrated interest rate and equity return model, the equity return scenarios must satisfy the prescribed equity return calibration criteria and the interest rate scenarios must satisfy the prescribed interest rate calibration criteria, as described in Subsection 9E(5).

(b) 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 or more robust range of additional Scenarios, is not material.

Drafting Note: More guidance is needed regarding how to determine whether a sufficient number of Scenarios has been used.

H. Net Asset Earned Rates and Discount Rates.

(1) For calculating both the Deterministic Reserve and the Stochastic Reserve, use cash flow models to determine a path of Net Asset Earned Rates for each Model Segment and for each Scenario that reflects the net general account portfolio rate in each projection interval (i.e., monthly, quarterly, annually). Do not include either separate account returns and assets or policy loan interest and assets in the calculation of Net Asset Earned Rates. This path of Net Asset Earned Rates will depend on, among other things:

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(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) Compute the net asset earned rate for each projection interval in a manner that is consistent with the timing of cash flows and length of the projection interval of the related cash flow model. The net asset earned rate equals the ratio of net investment earnings divided by invested assets. It excludes the impact of separate accounts and policy loans. The following requirements apply to the calculation of this ratio:

(a) Net investment earnings shall include:

(i) investment income plus capital gains and losses (excluding capital gains and losses that are included in the PIMR), minus appropriate default costs and investment expenses; and

(ii) income from derivative asset programs; and

(iii) amortization of the PIMR.

(b) Determine invested assets in a manner that is consistent with the timing of cash flows within and the length of the projection interval of the cash flow model.

(d) Adjust invested assets to reflect the negative of the outstanding PIMR liability.

(e) Include the annual statement value of derivative instruments or a reasonable approximation thereof in invested assets.

(f) Assure that all items reflected in the ratio are consistent with statutory asset valuation and accrual accounting, including reflection of due, accrued, or unearned investment income where appropriate.

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Deleted: Include policy loan interest (net of investment expenses) and policy loan balances in the ratio calculation.¶ ¶ (c) .

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Drafting Note: Subsection 4F(2)(d) 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 Subsection 4F(2)(d).

(3) The path of discount rates for each Model Segment shall be equal to the path of Net Asset Earned Rates.

I. Treatment of Non-Guaranteed Elements.

(1) Include Non-guaranteed elements in the models used to project future cash flows for both the Deterministic Reserve and the Stochastic Reserve. Where NGE are based on some aspect of experience, reflect future changes in the level of NGE in the cash flow models based on the experience assumed in each Scenario. The intent is to model the determination of NGE 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, do not assume that the projected NGE 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, 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) Establish a Margin on the NGE assumption that increases the Reported Reserve compared to the Reported Reserve 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 of 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;

(5) Report any liability for dividends declared but not yet paid that has been established according to statutory accounting principles as of the valuation date separately from the Reported Reserve. Accordingly, where such a separate liability is reported on the statutory balance sheet as of the valuation date, exclude any dividends that are included in the separate liability from the reserve cash flow projection.

Drafting Note: The LRWG is considering a procedure whereby the treatment of non-guaranteed elements outlined above would apply only to policies that have material tail risk, as defined by a test. A simplified procedure is under development for policies that do not have material tail risk.

Subsection 5. Requirements for Reinsurance

A. General Considerations.

(1) The terms "reinsurance" and "assuming company" in this Section include retrocession and retrocessionaire respectively.

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(2) The assumptions used to determine the Reported Reserve and the Notional Gross Reserve shall be appropriate for each party to a reinsurance agreement and need not be the same as those used by the other party 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.

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(3) Assume that current laws and regulations in place as of the valuation date regarding credit for reinsurance will remain in effect.

(4) One party of a reinsurance transaction may rely on elements of the reserve calculations performed by the other party. However, appropriate adjustments to these calculations must be made, if necessary, to reflect the circumstances of the first party.

(5) A reinsurance agreement or amendment shall be considered inforce and included in calculating the Reported Reserve if:

(a) the agreement or amendment has been duly executed by both parties no later than the "as of date" of the financial statement; or

(b) a binding letter of intent has been duly executed by both parties no later than the "as of date" of the financial statement unless no final agreement or amendment has been executed more than 90 days after the execution date of the letter of intent; or

(c) if neither (a) nor (b), but the company has determined after review of the relevant facts and circumstances that it is likely to have legal obligations under the agreement or amendment and including the agreement or amendment would decrease the surplus of

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the company (i.e.,. the Reported Reserves plus other liabilities minus other assets related to the agreement or amendment would increase).

(6) There are certain provisions of reinsurance agreements where a single deterministic valuation assumption for the related risk factor or factors will not adequately capture the risk. Examples of such provisions include stop-loss reinsurance and maximum limits on benefits receivable. For these features, the company shall make provision for these risk factors by either:

(a) stochastically modeling the risk factor(s) directly in the cash flow model when calculating the Stochastic Reserve, or

(b) performing a separate stochastic analysis outside the cash flow model to quantify the impact on reinsurance cash flows to and from the company. The results of this analysis shall be used to adjust Prudent Estimate Assumptions or to determine an amount to adjust the Stochastic Reserve to adequately make provision for the risks of the reinsurance feature(s).

Drafting Note: Additional guidance in an ASOP may be needed to explain further what features give rise to this stochastic modeling requirement.

B. Reinsurance Ceded.

(1) Cash Flows for Reinsurance Ceded.

(a) The cash flows used in calculating the Deterministic and Stochastic Reserves shall include the effect of cash flows projected to be received from or paid to assuming companies under the terms of ceded reinsurance agreements.

(b) If cash flows received from or paid to assuming companies under the terms of any reinsurance agreement are dependent upon cash flows received from or paid to assuming companies under other reinsurance agreements, then reinsurance cash flows shall first be determined for reinsurance agreements with no such dependency. The resulting reinsurance cash flows from these independent agreements shall then be used as an input in order to determine reinsurance cash flows for the remaining dependent agreements.

(2) Assumptions for Reinsurance Ceded. The assumptions used to project cash flows to and from assuming companies shall be consistent with other assumptions used by the ceding company in calculating the Reported Reserve for the reinsured policies, and reflect the terms of the reinsurance agreements.

(3) Credit for Reinsurance. While it is recognized that the company'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 ceded reinsurance. The credit for reinsurance ceded shall be the excess, if any, of the Notional Gross Reserve over the Reported Reserve. 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 assuming company, 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.

C. Reinsurance Assumed.

(1) Cash Flows for Reinsurance Assumed.

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Deleted: **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.¶

(a) The cash flows used in calculating the Deterministic Reserve and the Stochastic Reserve shall include the effect of cash flows projected to be received from and paid to ceding companies under the terms of assumed reinsurance agreements.

(b) If cash flows received from and paid to ceding companies under the terms of any reinsurance agreement are dependent upon cash flows received from or paid to ceding companies under other reinsurance agreements, then reinsurance cash flows shall first be determined for reinsurance agreements with no such dependency. The resulting Reinsurance Cash Flows from these independent agreements shall then be used as an input in order to determine reinsurance cash flows for the remaining dependent agreements.

(2) If a policy is assumed under more than one reinsurance agreement, then treat each cession separately for the purposes of calculating the Deterministic Reserve.

(3) Assumptions for Reinsurance Assumed. The assumptions used to project cash flows to and from ceding companies shall reflect the assuming company's experience for the business segment to which the reinsured policies belong, and reflect the terms of the reinsurance agreement.

D. Reinsurance Assumptions.

(1) Actions by Counterparty.

(a) Knowledgeable counterparties. Assume that the counterparties to a reinsurance agreement are knowledgeable about the contingencies involved in the agreement and thus likely to exercise the terms of the agreement to their respective advantage, taking into account the context of the agreement in the entire economic relationship between the parties. Items that should be considered when setting assumptions for the non-guaranteed elements in reinsurance cash flows shall include but not be limited to:

(i) The usual and customary practices associated with such agreements,

(ii) Past practices by the parties concerning the changing of terms, in an economic environment similar to that projected,

(iii) Any limits placed upon either party's ability to exercise contractual options in the reinsurance agreement,

(iv) The ability of the direct-writing company to modify the terms of its policies in response to changes in reinsurance terms, and

(v) Actions that might be taken by a party if the counterparty is in financial difficulty.

(b) Consideration of ceding company actions. The assumptions used to determine the Reported Reserve shall take into account any actions that the ceding company and, if different, the direct-writing company have taken or are likely to take that could affect the expected cash flows of the reinsured business. Examples of actions that could be taken by the direct-writing company include, but are not limited to

(i) internal replacement programs or special underwriting programs, both of which could change expected mortality rates, and

(ii) changes in non-guaranteed elements in the reinsured policies, which could affect mortality, policyholder behavior, and possibly expense and investment assumptions.

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Examples of actions that could be taken by the ceding company include, but are not limited to

(i) the exercise of contractual options in a reinsurance agreement to influence the setting of non-guaranteed elements in the reinsured policies, and

(ii) the ability to participate in claim decisions.

For actions taken by the ceding company, and, if different, the direct-writing company, set assumptions in a manner consistent with Subsection 7. Note that these assumptions are in addition to, rather than in lieu of, assumptions as to the behavior of the underlying policyholders.

(c) Consideration of assuming company actions. The assumptions used to determine the Reported Reserve shall take into account any actions that the assuming company has taken or is likely to take that could affect the expected cash flows of the reinsured business. Examples of such actions include, but are not limited to

(i) changes to the current scale of reinsurance premiums and

(ii) changes to expense allowances.

The ability of an assuming company to change such rates or allowances in a reinsurance agreement may be thought of as comparable to the ability of a direct-writing company to change non-guaranteed elements on policies. Thus, assumptions for such actions shall be set in a manner consistent with Subsection 4J. Appropriate assumptions for this option may depend on the scenario being tested (analogous to changes in Cost of Insurance Charges) and take into account all likely consequences of such actions, including any potential impact on the probability of recapture by the ceding company.

(d) Treatment of ceding company recapture options. The assumptions used to determine the Reported Reserve shall take into account any ceding company option to recapture reinsured business, setting assumptions in a manner consistent with subparagraph (b) above. The right of a ceding company to recapture is comparable to policyholder surrender options for a direct-writing company. Thus, appropriate assumptions for this option may depend on the scenario being tested (analogous to interest-sensitive lapses). When a recapture is assumed, take all associated cash flows into account, including the payment or receipt of any recapture fees or other termination settlements.

(e) Treatment of assuming company termination options. The assumptions used to determine the Reported Reserve shall take into account an assuming company's right to terminate in-force reinsurance business, setting assumptions in a manner consistent with subparagraph (c) above. In many cases, the assuming company's right to terminate is limited to cases of non-payment of amounts due by the ceding company or other specific, limited circumstances. In such cases, this termination option would be expected to have insignificant value to either party and may be ignored in the calculations. However, if a reinsurance agreement contains other termination provisions with material impact, the company should set appropriate assumptions for these provisions, perhaps dependent on the particular scenario being tested.

(2) Modeling when assets are not in the possession of the company.

(a) Assets held by another party. If under the terms of the reinsurance agreement, some of the assets supporting the reserve are held by the counterparty or by another party, the company must determine whether to model such assets in order to determine projected cash flows. In some situations, it may not be necessary to model the assets held by the other party. An example would be modeling by an assuming company of a reinsurance agreement containing provisions, such as experience refund provisions, under which the

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cash flows and effective investment return to the assuming company are the same under all Scenarios. Consider the following to determine if modeling of the assets is necessary:

(i) The degree of linkage between the portfolio performance, and the calculation of the reinsurance cash flows, and

(ii) The sensitivity of the valuation result to the asset portfolio performance.

(b) If the company concludes that modeling is unnecessary, the company should document the testing and logic leading to that conclusion.

(c) If the company concludes that modeling is necessary, follow the requirements in Subsection 4C(4) and Subsection 9, taking into account the following:

(i) The investment strategy of the company holding the assets, as codified in the reinsurance agreement or otherwise based on current documentation provided by that company.

(ii) Actions that may be taken by either party that would affect the net reinsurance cash flows (e.g. a conscious decision to alter the investment strategy within the guidelines).

Drafting Note: Special considerations for modified coinsurance. Although the modified coinsurance (Modco) reserve is called a reserve, it is substantively different from other reserves. It is a fixed liability from the ceding company to the assuming company in an exact amount, rather than an estimate of a future obligation. The Modco reserve is analogous to a deposit. This concept is clearer in the economically identical situation of .funds withheld. Therefore, the value of the modified coinsurance reserve will generally not have to be determined by modeling. However, the projected modified coinsurance interest may have to be modeled. In many cases, the modified coinsurance interest is determined by the investment earnings of an underlying asset portfolio, which in some cases will be a segregated asset portfolio or in others the ceding company's general account. Some agreements may use a rate not tied to a specific portfolio.

(3) Credit Risk

(a) Ceded Reinsurance. If an assuming company is known to have a financial impairment, the company shall determine a Margin for default by the ceding company. In cases without a known financial impairment, no Margin for default is required.

(b) Assumed Reinsurance. If a ceding company is known to have a financial impairment, the assuming company shall determine whether a Margin for default by the ceding company is necessary. If the assuming company may terminate the reinsurance upon non-payment by the ceding company, the Margin may be reduced or eliminated. In cases without a known financial impairment, no Margin for default is required.

(c) In setting Margins to reflect potential uncertainty regarding the receipt of cash flows from a counterparty, take into account the ratings, risk-based capital ratio or other available information bearing on the probability of default by the counterparty, together with the impact on cash flows. In determining the impact on cash flows, take into account any security or other factor limiting such impact.

E. Prescribed Treatment of Certain Reinsurance Provisions

(1) Certain reinsurance provisions are difficult to appropriately reflect in the cash flow model with an appropriate level of conservatism. Therefore, specified treatment of these reinsurance provisions in the cash flow model is prescribed.

(2) Reinsurance agreements with the following provisions are subject to the requirement of paragraph (1) above:

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(a) Settlements under a reinsurance agreement are made less frequently than quarterly or payments due are not payable in cash within ninety days of the settlement date.

Drafting Note: Although the Life Reinsurance Work Group believes that any risks relative to infrequent settlements and delayed payments would be captured in the modeling and therefore in the reserve calculation, further guidance is needed as to whether a Margin is needed and whether the current risk transfer requirement was originally put in place for reasons other than concerns with liquidity risk or counterparty default risk.

(b) The ceding company is required to make representations or warranties in a reinsurance agreement not reasonably related to the business reinsured or about the future performance of the business reinsured.

(i) The assumptions used to determine the Reported Reserve shall include the effect on cash flows resulting from such representations or warranties when possible. For example, if the ceding company warrants that the ceded reinsurance will be profitable to the assuming company, cash flows under scenarios that would otherwise result in a loss to the assuming company must be adjusted to reflect the warranty.

(ii) If the impact of such a representation or warranty is not possible to include in projected cash flows, the company should determine the legal consequence of breaching the representation or warranty under the agreement. The Reported Reserve is the greater of the calculation assuming the breach of the representation or warranty has occurred or the calculation assuming the breach has not occurred. For example, if the ceding company warrants that it will remain solvent during the term of the agreement, and the consequence of a breach will be immediate termination of the reinsurance, such immediate termination shall be assumed in the model if doing so will decrease the company's surplus.

Drafting Note: Consider adding more guidance on when it is possible or not possible to include the impact of these representations or warranties in cash flow models.

(c) A reinsurance agreement does not contain provisions:

(i) acknowledging the entire agreement between the parties with respect to the business being reinsured, or

(ii) that any changes to the agreement shall be null and void unless made by amendment to the agreement signed by both parties.

In this case, each company shall use assumptions for such agreements that reflect the company's obligations under the agreement but do not reflect the obligations of the other party. For example, the ceding company will assume that it has outgoing cash flows for reinsurance premiums and other amounts due to the assuming company but no incoming cash flows for benefit reimbursements or other amounts due from the assuming company.

(d) A reinsurance agreement contains automatic or optional triggers relating to financial deterioration of one of the parties, such as a ratings downgrade or a declaration of conservatorship or insolvency.

In this case the assumptions used to determine the Reported Reserve shall reflect a conservative valuation for the trigger. If the trigger results in the automatic occurrence of an event or the occurrence of the event at the option of the other party, the Reported Reserve is the greatest of the calculation assuming the event caused by the trigger has occurred, or the calculation assuming the event has not occurred but will occur at some future date, or the calculation assuming the event has not occurred and will never occur. There is neither penalty nor benefit to the other party which has the option. Examples of

critical trigger events include termination, recapture, an increase in amounts due under the reinsurance agreement, and immediate payment of funds withheld.

Drafting Note: Consider whether results should vary depending on how remote the trigger is on the valuation date. For example, if a ratings trigger is several notches below the current rating, should the answer be the same as if the ratings trigger is only one notch below the current rating?

F. Special reporting and documentation requirements related to reinsurance assumptions.

The PBR Actuarial Report shall include the following:

(1) A description of each reinsurance provision where a stochastic analysis is required per subsection 5.A.(6), along with a description of the stochastic approach used and a summary of the results.

(2) A description of each reinsurance provision in subsection 5.E.(2), along with a summary of the approach used to satisfy the requirements of subsection 5.E.(2).

Subsection 6. Requirements for Setting Mortality Assumptions

A. Background.

The valuation mortality table will be the current Commissioners' Standard (CS) Mortality Table for the class of business being valued based on company experience, adjusted for the credibility of this experience as described below and further adjusted with a margin. The company shall use the approach described in this Subsection to determine the valuation mortality table used as the prudent estimate mortality assumption for the Deterministic Reserve and the Stochastic Reserve.

B. Overview.

(1) A mortality segment is defined as a grouping of policies used to determine experience mortality rates. The company may define one mortality segment to include all policies subject to these requirements, or may define multiple mortality segments for subsets of policies.

(2) Determine the valuation mortality table for each mortality segment by applying steps (a) to (e) below.

(a) Using the guidance and requirements specified in Subsection 6C below, develop experience mortality rates based on either a company's own available experience or other relevant experience.

(b) Blend the experience mortality rates with an industry mortality table as provided in Subsection 6D below to reflect the level of credibility of the mortality experience. Mortality improvement may be reflected up to, but not beyond, the projection start date.

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Drafting Note: There are two types of tables which the NAIC will need to approve for use. The first are CS tables. These are Valuation Tables that include valuation margins. The second are industry mortality tables that reflect experience prior to the addition of Margins. Industry mortality tables are used to select the valuation mortality table to be used.

(c) Adjust the credibility adjusted mortality rates in step (b) to include a Margin as provided in Subsection 6E.

(d) Adjust the rates produced in step (c) for impaired lives or to reflect any reasonable expectation that policyholder behavior will lead to mortality results which vary from underlying mortality table as determined in step (c). An example of the latter would be increased mortality due to high lapses following a significant increase in policyholder costs. Subsection 6F below provides guidance and requirements for making these adjustments.

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Drafting Note: Steps c and d assume that the CS tables are constructed by applying an appropriate margin formula to the weighted average of a set of industry mortality tables, with each industry mortality table reflecting the mortality of a specified risk class. If the procedure ultimately adopted for the construction of the CS table is different than assumed, steps (c) and (d) should be appropriately revised.

(e) Choose the valuation table that produces the sum of the Seriatim Reserves closest to, but not less than, the sum of the Seriatim Reserves calculated using the adjusted experience mortality rates produced in step d, as provided in Subsection 6G.

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C. Determination of Experience Mortality Rates.

(1) Actual Experience Data.

(a) Determine experience mortality rates using the company's actual experience data directly applicable to the mortality segment (i.e., the company's actual data) if it is available. If the company's directly applicable experience data is not available, then the company may use data other than directly applicable experience as described in paragraph (2) below. Finally, if there are no data, the company shall use the applicable industry mortality table, as defined in subsection 6D(2) below.

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(b) The company shall measure and update actual directly applicable experience at least every 3 years. Whenever experience data are updated, the company shall reflect changes in experience promptly if the changes are significant, and are expected to continue into the future.

(c) The following shall apply when using the company's directly applicable experience:

(i) Actual experience data may be determined by individual risk class or aggregated for multiple risk classes. The latter would typically result in higher overall credibility for the study. The industry mortality table rates must be consistent with the choice of aggregation. Once a method is chosen the company may change the methodology (or parameters used in the methodology) for aggregating experience, but must disclose the rationale and the impact on reserve levels of such change.

(ii) The company may group experience by issue age group, gender, risk class and policy duration. Grouping by issue age groups can be no broader than 10-year age groupings. Grouping by policy duration can be no broader than 5 years.

Drafting Note: The purpose is to use a company's experience when significant, yet require the use of industry experience where little or no experience exists. Further guidance may be given in an ASOP regarding how to determine these groupings, subject to approval by ASB.

(2) Using other than Directly Applicable Actual Experience.

A company may use experience data from another source instead of the actual experience directly applicable to the mortality segment (whether or not the data source is from the company), if the mortality segment and the data source have similar characteristics such that mortality experience would be expected to be similar for the two. Only rates developed through direct measurement of mortality data may be used: rates developed from extrapolation of other mortality data or studies may not be used. For example, if mortality data have been developed with extrapolated rates beyond a certain age, this portion of the data may not be used in developing the experience mortality rates.

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(3) In the situation were little or no experience exists, set the experience mortality rates equal to the industry mortality table rates appropriate for the underlying business reflecting the underwriting associated with the risk classes.

(4) The company may apply the effects of risk selection and underwriting practices not yet supported in the underlying experience to the mortality segment when supported by relevant published medical and clinical studies if:

(a) the adjustments only reflect the incremental change and effectiveness of new risk selection practices to past experience from prior risk selection techniques and shall not ignore past experience in setting the assumption;

(b) the actuary has reviewed the underlying techniques used to develop the study and concluded that the study is appropriate for use. The actuary must disclose the rationale used to reach this conclusion;

(c) the rationale and support for the use of the study and for the adjustment are disclosed in the PBR Actuarial Report; and

(d) the adjustment has been approved for use by the commissioner.

Drafting Note: It is anticipated that such adjustments to experience will rarely be made. Since these adjustments are expected to be rare, and since it is difficult to anticipate the nature of these adjustments, the commissioner shall determine the level of documentation or analysis that would be required to approve such adjustments. The NAIC may want to consider whether approval by a centralized examination office would be preferable to approval by the commissioner.

D. Determination of Credibility Adjusted Mortality Rates.

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(1) Credibility adjusted mortality rates shall be determined using a credibility procedure that meets the requirements of subparagraph D(4)(a) below, applied in accordance with subparagraphs D(4)(b) and D(4)(c) below.

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(2) The industry mortality table to be used for credibility weighting shall be the 2001 Valuation Basic Table (or other tables adopted by the NAIC for this purpose) adjusted in a manner approved for use by the NAIC to reflect the most recent Society of Actuaries intercompany study approved for use by the NAIC, adjusted for mortality improvement from the effective date of the industry mortality table to the experience weighted average date underlying the data used to develop the experience mortality rates.

Drafting Note: It is anticipated that the NAIC will adopt sets of rates reflecting a range of underwriting criteria associated with the industry mortality table. Also, this approach requires the NAIC to periodically approve a set of mortality improvement factors. Currently, there are no such approved factors.

(3) The method used to identify the Industry Mortality Table rates for credibility weighting shall be prescribed.

Drafting Note: The Joint American Academy of Actuaries/Society of Actuaries preferred mortality group is developing a methodology which, once finalized will be incorporated into these requirements to facilitate the selection of the appropriate Industry Mortality Table rates. It is anticipated that for a given industry mortality table there will be sets of rates reflecting a range of underwriting criteria as well as the methodology for selection of the industry mortality table rates. It is anticipated that industry mortality table rates may be selected for each risk class, or at the option of the actuary, industry mortality table rates may be selected for individual or combinations or risk classes. The latter approach would typically be used when the company experience data has been compiled by combined risk class.

(4) Credibility Procedure.

(a) The credibility procedure shall meet the following requirements:

(i) The credibility procedure shall establish a full credibility measure which provides in the aggregate an X% probability of being correct within a Y% margin of error.

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(ii) The credibility procedure shall be recognized as acceptable practice in actuarial literature subject to professional peer review, such as actuarial publications, other scientific journals, textbooks, and Actuarial Standards of Practice

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(iii) The credibility methodology addresses application of partial credibility.

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(iv) Insofar as all or some of the experience mortality rates are determined to be fully credible, the credibility adjusted mortality rates shall not be blended with an industry table, but rather shall equal the experience mortality rates.

Drafting Note: The NAIC must specify the factors X and Y above for the probability of being correct and the margin of error respectively. The NAIC may wish to require state of domicile approval for any change in credibility method.

(b) If experience data by age/duration only exist for a portion of the mortality segment, after determining the credibility adjusted mortality rates by age/duration for the portion of the mortality segment where data exist, the resulting credibility adjusted mortality rates shall be graded into the industry mortality table rates over 10 years (i.e., over 10 attained ages or over 10 durations during the select period, as applicable). The grading must be reasonable and consistent with accepted actuarial practice and shall be documented. The grading shall take into account the level of partial credibility, the trend in actual to expected ratios, the shape and level of the resulting mortality rates, and the reasons for differences in mortality results relative to industry mortality rates due to underwriting, market, selection and other factors

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(c) The company may separate the credibility adjusted mortality rates by risk class to develop separate mortality rates for each risk class if the company discloses the underwriting differential used to develop rates for each class and conserves the total number of deaths in the aggregate. For practical purposes and for consistency across companies, lapses and surrenders shall be ignored in this process.

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Drafting Note: Further discussion and analysis is needed to determine whether the grading period should be prescribed using a straight line grade-in over "n" years rather than being determined by the company. ¶

Drafting Note: Further guidance on how to split the Credibility Adjusted Mortality Table rates by risk class is needed.

(d) Further adjust the credibility-adjusted mortality rates for mortality improvement up to the projection start date based on applicable published industry-wide experience when such adjustment increases the Reported Reserve. An adjustment may be made for mortality improvement up to the projection start date based on applicable published industry-wide experience when such adjustment decreases the Reported Reserve. The adjustment made shall be for the period from the experience weighted average date underlying the company experience used in the credibility process to the projection start date.

(e) Any adjustment for mortality improvement shall not be allowed beyond the projection start date unless such an adjustment would serve to increase the resulting Reported Reserve.

(f) The set of rates after applying the adjustments in Subsection 6D(4)(b), (c) and (d) above is defined as the credibility adjusted mortality table.

E. Margins.

(1) Add a Margin consistent with the requirements of Subsection 4.E.(6) to the credibility adjusted mortality table rates. Express the Margin as a constant divided by the curtate expectation of life, where the curtate expectation of the life is calculated without the expectation of future mortality improvements. This constant may vary by business segment or policy type to reflect differences in benefits or policyholder behavior.

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Drafting Note: The decision to require the use of a single constant is to provide one framework to facilitate the review of the Margin by regulators and the PBR Review Actuary.

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(2) Use a higher Margin to the experience mortality rates in situations of greater uncertainty including but not limited to the following:

(a) The credibility of the company's experience studies is low.

(b) The underwriting or risk selection risk criterion have changed.

(c) The underlying data being used lack homogeneity.

(d) Unfavorable environmental or health developments are unfolding and are expected to have a material and sustained impact on the insured population.

(e) The company's marketing and/or administrative practices or market forces (for example, the secondary market for life insurance policies) exposes the company to the risk of anti-selection.

F. Additional Adjustment to the Credibility Adjusted Mortality Table Rates.

(1) Adjust the credibility adjusted mortality table rates to reflect the mortality differences associated with impaired lives or mortality differences due to policyholder behavior not reflected in the underlying experience. These include adjustments for policy provisions or policyholder behavior that suggest mortality anti-selection, for example, :term conversions, table shave programs, level of premiums and changes in premium patterns, exchange programs, and high withdrawal rates to the extent not reflected in the underlying experience. These adjustments will typically be made within the projection since the adjustments may vary by Scenario.

(2) Such adjustments to the credibility adjusted mortality table rates may only be made when the adjustment increases the Reported Reserve.

G. Valuation Mortality Assumption.

(1) The valuation mortality table shall be the most recent Commissioner's Standard Table.

Drafting Note: For Principles-Based reserves, the valuation mortality rates should closely reflect company experience to the extent credible. Given the large number of risk classes available on current life insurance products and qualification and underwriting requirements that vary significantly by company, having sub-tables of a Commissioner's Standard Table which provide for varying company experience is preferred. Only a single sub-table will be used for all issue ages and durations within a defined block of business. However, different sub-tables may be used for each block of business such as gender, risk class, plan type.

(2) Use the valuation mortality rates (or sub-table rates) which result in the sum of the Seriatim Reserves being closest to, but not less than the sum of the Seriatim Reserves using the credibility adjusted mortality rates determined in Subsection F with all other assumptions the same. The determination of the valuation mortality table rates (or sub-table rates) to be used shall be updated at least once every three years or more often if significant changes to the credibility adjusted mortality table were made.

H. Anticipated Experience Mortality Assumption for the Purpose of Margin Disclosure Amount.

Subsection 4.E.7(a) requires the disclosure of Margins for each material risk factor and in the aggregate. For purposes of these disclosures the Anticipated Experience Assumption for mortality will be set equal to the credibility adjusted mortality table rates determined in Subsection 7F above without the Margins determined in Subsection 7E above and reflecting future mortality trends beyond the projection start date not to exceed 1% improvement per year through age 60, grading linearly to zero by attained age 85.

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(3) . The method and factors used to determine the Margin shall be consistently applied on each valuation date. Any changes in the method or factors used shall be documented, including the reason for the change.¶
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Drafting Note: The 1% prescribed cap on mortality improvement to determine the Margin disclosure amount needs further discussion and analysis.

I. Special Reporting and Documentation Requirements Related to Mortality Assumptions

The following items shall be included in the PBR Actuarial Report:

(1) If experience mortality rates for any mortality segment are not based on the experience directly applicable to the mortality segment (whether or not the data source is from the company), then provide a summary containing the following:

(a) The source of data including a detailed explanation of the appropriateness of the data, and the underlying source of data, including how the mortality rates were developed, graduated and smoothed;

(b) Similarities or differences noted between policies in the mortality segment and the polices from the data source (e.g., type of underwriting, marketing channel, average policy size, etc.);

(c) Adjustments made to the mortality rates to account for differences between the mortality segment and the data source;

(d) The number of deaths and death claim amounts by major grouping no broader than those allowed for direct company data and including: age, gender, risk class, policy duration and other relevant information.

(2). A summary of the rationale to support the use of Additional Adjustments to Mortality Curves as described in paragraph E.4. above. The summary shall include:

(a) The rationale for any adjustment;

(b) Description and summary of any studies used to support an adjustment;

(c) Documentation of the mathematics used to adjust the mortality;

(d) Certification that the company has received approval from the commissioner; and

(d) Summary of any other relevant information concerning any adjustments to the experience mortality that impacted the mortality assumption.

(3) A summary of the following items that support the use of the credibility method used:

(a) Description and rationale for the credibility methodology used;

(b) Description of how partial credibility was applied to subcategories;

(c) Description of the method used to grade to the industry mortality table rates for ages/durations where the company has no experience data.

(d) Explanation of the credibility analysis used to adjust experience mortality rates;

(e) Disclosure of the underwriting differentials used by class.

(f) To the extent the company has changed the credibility methodology (or procedures and values for determining partial credibility) from the prior valuation date, disclosure of the rationale for the change and an estimate of the impact on the Reported Reserve of the change.

(4) A summary of the rationale and results of the analysis used in the selection of the Industry mortality table(s) used for credibility weighting (if applicable).

(5) A summary of the additional adjustments to the Credibility Adjusted Mortality Table Rates as described in paragraph F above:

(a) Disclose the rationale and support for any adjustment to mortality for the effects of risk selection and underwriting practices not reflected in underlying experience.

(b) Disclose the rationale used to conclude that a mortality study is appropriate for use.

(6) A description of the rationale and results of the analysis used in the selection of the Commissioner's Standard Mortality Table.

(7) An actual to expected analysis every three years.

Subsection 7. Requirements for Setting Policyholder Behavior Assumptions

A. Anticipated Experience Policyholder Behavior Assumptions for policyholder behavior risk factors include, but are not limited to, assumptions for premium payment patterns, premium persistency, surrenders, withdrawals, allocations between available investment and crediting options, benefit utilization, and other option elections. For fixed premium products, many of the premium payment patterns, premium persistency and partial withdrawal behavior assumptions may not apply and do not need to be considered. These assumptions:

(1) Shall reflect expectations regarding variations in anticipated policyholder behavior relative to characteristics that have a significant impact on the Reported Reserve, which, for example, may include such things as gender, attained age, issue age, policy duration, time to maturity, tax status, level of account and cash value, surrender charges, transaction fees or other policy charges; distribution channel, product features and whether the policyholder and insured are the same person or not;

(2) Shall be appropriate for the block of business being valued, giving due consideration to other assumptions used in conjunction with the cash flow model and to the Scenarios whose results are likely to contribute to the Reported Reserve;

(3) Shall be based on actual experience data directly applicable to the block of business being valued (i.e., direct data) if such are available. In the absence of directly applicable data, the company should next use available data from any other block of business that is similar to the block of business being valued, whether or not that block of business is directly written by the company. If data from a similar block of business is used, the Anticipated Experience Assumption shall be adjusted to reflect material differences between the business being valued and the similar block of business. The company shall document any significant similarities or differences between the two blocks of business, the data quality of the experience data used, and the adjustments applied;

(4) Shall reflect the outcomes and events exhibited by historical experience only to the extent such experience is relevant to the risk being modeled;

(5) Shall reflect the likelihood that policyholder behavior will be affected by any significant increase in the value of a product option, such as term conversion privileges or policy loans; and

(6) Shall be assigned to policies in a manner that provides an appropriate level of granularity

B. Dynamic Assumptions.

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B. . Lack of Relevant and/or Credible Data. ¶
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(1) . When relevant and/or fully credible data do not exist, determine what action will maximize the financial value of the Policy from the point of view of the policyholder (i.e. lapse the Policy, persist, take out a loan, etc.). ¶
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(2) . Estimate the percentage of policyholders who will take that action. Assume some policyholders will act to maximize the financial value of the Policy and therefore, assume this percentage is greater than zero. Conversely, some policyholders may place value on factors other than maximizing the Policy's financial value (for example, convenience of level premiums, personal budget choices, etc.) and since the Policy's full economic value to the policyholder depends, in some cases, on factors not available for analysis (such as the health of the insured and the financial circumstances of the beneficiaries and policyholder, including their tax status) it is permissible to assume that the percentage is less than 100. ¶
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Drafting Note: When there is no relevant, credible data available, the NAIC may want to prescribe an assumption for this percentage.¶
(3) . Test the sensitivity of the Reported Reserve to changes in policyholder behavior assumptions to understand the materiality of making alternate assumptions.¶
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C. .

(1) Use a dynamic model or other scenario-dependent formulation for anticipated policyholder behavior unless the behavior can be appropriately represented by static assumptions.

(2) Risk factors that are modeled dynamically should encompass the reasonable range of future expected behavior consistent with the economic scenarios and other variables in the model.

(3) In the absence of evidence to the contrary, it is not necessary to model extreme or "catastrophic" forms of behavior.

C. Margins for Policyholder Behavior Assumptions shall be established according to the requirements of Subsection 4.E.(6) and the requirements below.

(1) To the extent that there is an absence of relevant and fully credible data, the Margin shall be determined such that the policyholder behavior assumption is shifted toward the conservative end of the plausible range of behavior, that is, the end of the range that serves to increase the Reported Reserve.

(2) Sensitivity testing of assumptions is required to establish the Margin, as discussed in subsection D below. These tests should include, but are not limited to, premium payment patterns, premium persistency, surrenders, partial withdrawals, allocations between available investment and crediting options, benefit utilization, and other option elections if relevant to the risks in the product.

(3) Margins for policyholder behavior assumptions shall assume, without relevant and credible experience or clear evidence to the contrary, that policyholders' efficiency will increase over time.

(4) Margins shall reflect the data uncertainty associated with using data from a similar but not identical block of business to determine the Anticipated Experience Assumption.

(5) A higher Margin is appropriate for partial withdrawal and surrender assumptions where the company's marketing and /or administrative practices encourages anti-selection.

D. Sensitivity Testing.

(1) The company is required to examine the sensitivity of results to understand the materiality of making alternate policyholder behavior assumptions on the Reported Reserve. Sensitivity testing may be performed using samples of the policies in force; it is not required that the entire valuation be done for each alternate assumption set. Sensitivity testing may be done using data from prior periods when appropriate.

(2) The company should update the sensitivity tests when appropriate, considering the materiality of the results of the tests and trends in experience data. Less frequent updating of these tests is appropriate when the tests show less sensitivity of Reported Reserve to changes in the assumptions being tested or the experience is not changing rapidly.

(3) With respect to policies which give policyholders flexibility in the timing and amount of premium payments, the company must examine, but not be limited by the following, premium scenarios:

(a) Minimum premium scenario;

(b) No further premium payment scenario;

(c) Pre-payment of premiums – Single premium scenario; and

(d) Pre-payment of premiums – Level premium scenario.

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Deleted: (5) . The Margin applied to the withdrawal assumption shall take into account the application of any dynamic behavior adjustment, if such adjustment is made, to have the intended effect. After application of the Margin and any dynamic behavior adjustment the resulting withdrawal assumption should be reasonable (e.g., greater than or equal to zero and less than 100%).
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E. Special Reporting and Documentation Requirements Related to Policyholder Behavior Assumptions

The following items shall be included in the PBR Actuarial Report:

(1) An actual to expected analysis every three years.

(2) A summary of the required sensitivity tests that underlie the premium payment assumptions described in paragraph D(3) above.

(3) A description of the Scenario-dependent mechanism, if any, for varying withdrawal assumptions.

(4) A description of the Scenario-dependent mechanism, if any, for varying premium assumptions.

(5) A description of the changes in premium payment assumptions and withdrawal assumptions related to the treatment of non-guaranteed elements in the reserve calculations.

(6) An explanation of how assumptions were determined for periods that were based on less than fully credible and /or relevant data.

Subsection 8. Requirements for Setting Expense Assumptions

A. Anticipated Experience Assumptions.

(1) The expense assumption shall reflect all costs associated with the policies subject to the principles-based reserve valuation requirements. In other words, the expense assumption should reflect the direct costs associated with the policies being modeled as well as an appropriate portion of indirect costs and overhead (i.e. expense assumptions representing fully allocated expenses should be used.)

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(2) Include expenses categorized in the annual statement as 'taxes, licenses and fees' (Exhibit 3 of the Annual Statement) in the expense assumption.

(3) Include acquisition expenses associated with business in force as of the valuation date and significant non-recurring expenses expected to be incurred after the valuation date in the expense assumption.

(4) Certain information technology development costs and other capital expenditures may be spread over a reasonable number of years in accordance with accepted statutory accounting principles as defined in the Statements of Statutory Accounting Principles (care should be taken with regards to the potential interaction with the considerations above).

(5) Expense assumptions shall assume that the company is a going-concern.

(6) Choose an appropriate expense basis that properly aligns the actual expense to the assumption. For example, death benefit expenses should be modeled with an expense assumption that is per death incurred. If values are not significant they may be aggregated into a different base assumption.

(7) Expenses shall reflect the impact of inflation. Expense assumptions for the deterministic and stochastic Scenarios are expected to be the same except for differences arising from application of inflation rates.

(8) Expense assumptions shall not assume future expense improvements.

(9) Since reserves are calculated on a pre-tax basis, assumptions for federal income taxes (and expenses paid to provide fraternal benefits in lieu of federal income taxes) and foreign income taxes are not required.

(10) Expense assumptions shall be consistent with other related assumptions. For example, the manner that investment expenses are handled should be consistent with the manner that asset returns are reflected in the model.

(11) The expense factors used to determine anticipated experience assumptions for polices sold under a new policy form or due to entry into a new product line shall be consistent with the expense factors used to determine anticipated experience assumptions for policies from an existing block of mature policies after taking into account:

(a) any differences in the expected long term expense levels between the block of new policies and the block of mature policies, and

(b) that all expenses must be fully allocated as required by paragraph (12) below

(12) Use fully allocated expenses, e.g., the expense assumptions should reflect the direct costs associated with the block of policies being modeled as well as indirect costs and overhead costs that have been appropriately allocated to the modeled policies.

(13) Allocate expenses in a manner that is within the range of actuarial practice and methodology and that is consistent with applicable Actuarial Standards of Practice. Use an allocation method consistently across company lines of business. Allocations may not be done for the purpose of decreasing the Reported Reserve.

(14) Mergers and Acquisitions: Reflect expense efficiencies that are derived and realized from the combination of blocks of business due to a business acquisition or merger in the expense assumption only when any future costs associated with achieving the efficiencies are also recognized. For example, the combining of two similar blocks of business on the same administrative system may yield some expense savings on a per unit basis, but any future cost of the system conversion should also be considered in the final assumption. If all costs for the conversion are in the past then there would be no future expenses to reflect in the valuation.

B. Margins for Expense Assumptions shall be determined according to the requirements given in subsection 4.E.(6).

Subsection 9. Requirements for Setting Asset Assumptions

A. Overview.

The requirements in this Subsection apply for setting valuation assumptions related to the projection of asset cash flows and net investment earnings for starting assets and reinvestment assets when determining the Stochastic Reserve and the Deterministic Reserve. Modeling of both general account and separate account assets are addressed, as well as modeling of hedge instruments.

B. Default Costs and Other Uncertainty in Timing and Amounts of Cash Flows.

For both the Stochastic Reserve and Deterministic Reserve calculations:

(1) Default cost assumptions for starting assets subject to credit default risk, including both cash market assets and derivative instruments under which the company buys or sells credit default protection, shall reflect prudent estimates of default costs over a lifetime of the assets consistent with the type of asset and quality rating. Default cost assumptions for reinvestment assets are already implicit in the prescribed net spreads and do not need to be explicitly modeled. Default cost assumptions for starting assets are subject to the following requirements:

(a) The Anticipated Experience Assumption for default cost for a particular asset class shall take into consideration the company's own experience, to the extent credible and

Deleted: (11) . Anticipated Experience Assumptions are based on a company's own experience and derived from careful study that is within the range of actuarial practice. ¶

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(a) . Most significant, non-IT related expenditures are expected to occur prior to the projection start date and would therefore not be included in the reserve calculation. However, there may be some types of non-recurring expenses that are expected to occur beyond the projection start date. An example of this kind of cost would be severance costs anticipated in the next year or legal costs associated with class action suits. Reflect these expenses in the assumption for the future period that they are anticipated to occur. ¶
¶
(b) . Follow statutory accounting principles to determine whether or not to capitalize significant expenses due to IT-related investment. ¶
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(c) . The commissioner may approve alternate approaches to allocating expenses.¶
¶
(15) .

Deleted: (1) . A lower Margin may be appropriate where expense assumptions are supported by credible historical company experience or for a line of business that is growing quickly (thereby spreading the fixed costs).

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(2) . A higher Margin is required where:¶
¶
(a) . Allocation methods create uncertainty regarding line of business splits - especially as it concerns overhead expenses;¶
¶
(b) . The company's expense experience is not credible;¶
¶
(c) . The economic outlook is unstable;¶
¶
(d) . The company's expenses have not been quantified by a study which follows accepted actuarial practice and principles;¶
¶
(e) . Sensitivity testing determines that the reserve is sensitive to the expense assumption; or¶
¶
(f) . The regulatory environment is ... [8]

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appropriate, and available insurance industry and broad financial market experience. In general, broader market default cost experience shall be a substantial consideration for assets traded in more public and liquid markets.

(b) As default cost experience is generally observed to be cyclical in nature, Anticipated Experience Assumptions shall be related to historical experience over a period of time long enough to cover both favorable and unfavorable experience years, such that the average historical experience reasonably constitutes an unbiased long-term historical average. The company shall use a consistent method from one reserve valuation to the next in developing the supporting historical experience. When changes in method are made, the company shall disclose them in the PBR Actuarial Report.

(c) If the company consolidates quality rating categories for purposes of setting the default cost assumptions, the resulting default costs shall be consistent with those that would have resulted had the more refined recognition of rating categories been used.

(d) The company may use level default cost assumptions over time that are equivalent to the expected default costs over the projected lives of the corresponding assets.

(e) Add a Margin to the Anticipated Experience Assumption for each asset class. Use higher Margins (when expressed as a percentage of the credit exposure on the corresponding assets, commonly known as a "basis points charge") in situations of greater uncertainty including but not limited to the following:

(i) Greater historical variability in the default rates, recovery rates, or both. Generally, the expectation is that lower quality assets will have higher Margins than higher quality assets with similar maturities.

(ii) Material exposures to newer asset structures that have limited historical experience;

(2) Reflect any uncertainty in the timing and amounts of asset cash flows related to the paths of interest rates, equity returns, or other economic values contained in the various Scenarios directly in the projection of asset cash flows under the various Scenarios within the Stochastic Reserve calculation model and under the deterministic Scenario within the Deterministic Reserve calculation model. For example, model the impact on cash flows of embedded prepayment, extension, call and put options in a manner consistent with current asset adequacy analysis practice.

C. Prescribed Net Spreads on Reinvestment Assets.

<<insert requirements>>

Drafting Note: Further research and analysis is in process to determine these prescribed net spreads.

D. The Deterministic Scenario.

(1) Prescribed U.S. Treasury Interest Rates Path. The path of U.S. Treasury rates used to determine the Deterministic Reserve will begin with the market yield curve on the projection start date (based on Treasury yields reported by <<insert source>>). The yield curve 120 months or more after the projection start date will be the "ultimate" yield curve shown below. The yield curve on any date between the projection start date and 120 months after the projection start date will be linearly interpolated between the starting yield curve and the "ultimate" yield curve.

These rates shall be based on the 65 CTE statistic from the distribution of yield curves obtained from the recalibrated C3 Phase I generator (where the CTE is measured at the low end of the distribution of rates). The yield rates shown below for the ultimate yield curve are annual effective rates (not coupon rates or bond-equivalent yields) for a bond with semi-annual coupons.

1 yr or less	x%	11	x%	21	x%
2	x%	12	x%	22	x%
3	x%	13	x%	23	x%
4	x%	14	x%	24	x%
5	x%	15	x%	25	x%
6	x%	16	x%	26	x%
7	x%	17	x%	27	x%
8	x%	18	x%	28	x%
9	x%	19	x%	29	x%
10	x%	20	x%	30 yrs or more	x%

For example, if the 5-year Treasury rate on the projection start date is 2.85%, and the 5-year ultimate Treasury rate from the above table is 4.05%, then the 5-year Treasury rate assumed in the deterministic Scenario would increase by 0.01% each month for 120 months and then level off at 4.05% for the remainder of the projection. The same linear interpolation would be performed for every point on the yield curve.

Drafting Note: The values in the table above will be determined once the re-calibrated C3 P1 interest rate generator is finalized. Further analysis will be needed to finalize the approach used to determine the interest rates at the CTE 65 level once the C3P1 interest rate generator is finalized. Also, the C3P1 generator is expected to be updated periodically.

(2) Prescribed S&P 500 Returns and Separate Account Fund Performance. The path of equity returns used to determine the Deterministic Reserve will be based on a single path of prescribed returns for both General Account equity assets and Separate Account assets. This path will start with the current 10-year Treasury rate as of the projection start date grading to the ultimate 10-year Treasury rate shown in the table in Subsection 9D(1) over 10 years using linear interpolation, with the prescribed spread over 10-year Treasuries (from Subsection 9C above) added to each rate.

E. Stochastic Scenarios.

(1) Interest Rates Paths. U.S. Treasury rates shall be modeled using:

(a) The American Academy of Actuaries' C3 Phase I interest rate generator, as recalibrated and adopted by the NAIC, or

(b) A prescribed set of <<insert description of pre-packaged interest rate scenarios>>, or

Drafting Note: It is anticipated the LHATF will establish a set of pre-packaged set of interest rate scenarios similar to those used for C3 Phase II RBC requirements, and will update them from time to time.

(c) Proprietary Scenario Sets, or

Drafting Note: If this option is chosen, then the Stochastic Reserve will be determined using a prescribed weighting of the scenarios determined by the company, rather than using the CTE metric. Additional guidance is needed to determinate the how the proprietary predetermined scenario sets will be established.

(d) An interest rate generator developed by the company as long as the prescribed calibration standards defined in subsection 9.E.(3) are met.

Drafting Note: It is anticipated that the LHATF will establish calibration standards similar to those used for C3 Phase II.

(2) Equity Return Paths. S&P 500 returns and separate account fund performance shall be modeled using:

(a) The << insert prescribed equity return generator and model parameters>>, or

(b) The American Academy of Actuaries' << insert pre-packaged scenarios>>, or

Drafting Note: It is anticipated LHATF will establish a set of pre-packaged set of equity return scenarios similar to those used for C3 Phase II RBC requirements.

(c) Proprietary Scenario Sets, or

Drafting Note: If this option is chosen, then the Stochastic Reserve will be determined using a weighting of the scenarios determined by the company, rather than using the CTE metric. Additional guidance may be needed to determinate the how the Proprietary Scenario Sets will be established.

(d) An equity return model developed by the company as long as the prescribed calibration standards defined in subsection 9.E.(3) are met.

(3) Calibration Standards. Interest rate paths and equity return paths generated under the approach defined in subsection 9.E.(1)(d) and subsection 9.E.(2)(d) must meet the following prescribed calibration standards.

<<insert calibration standards or reference to an Academy report documenting such standards>>

Drafting Note: It is anticipated that LHATF will establish calibration standards similar to those used for C3 Phase II. Although the calibration points in the C3 Phase II requirement only go out 20 years, the requirement provides some guidance for returns beyond 20 years. As the life insurance policies being valued here can have an expected lifetime well in excess of 20 years, LHATF may wish to consider whether this guidance is appropriate for these products. In addition, the pre-packaged scenarios only go out 30 years. As the life insurance policies being valued here can have an expected lifetime well in excess of 30 years, it may be necessary to develop pre-packaged scenarios with a longer time horizon. Alternatively, the existing pre-packaged scenarios could be extended so that they have the same returns as in the first 30 years.

(4) For considerations as to Other Funds, Correlation of Funds, Number of Scenarios and Efficiency in Estimation, Frequency of Projection and Time Horizon the company will use the following:

<<insert requirements>>

Drafting Note: It is anticipated that LHATF will establish requirements for these items similar to those used for C3 Phase II.

(5) Integrated Scenarios

<<insert requirements>>

Drafting Note: When developing projections for variable products or general account products which are backed in part by equity assets, it will be necessary to project both equity returns and interest rate paths. 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 and 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 U.S. Treasury Fund scenarios within the 10,000 prepackaged scenarios for the C3P2 requirements qualify as meeting these criteria. Although an integrated modeling approach is desirable, a number of simpler approaches are acceptable. LHATF may wish to define acceptable methods for integrating these two types of scenarios, and may want to consider approaches similar to those allowed in C3 Phase II.

F. Anticipated Experience Assumptions for Risk Factors with Prescribed Valuation Assumptions.

The prescribed Anticipated Experience Assumptions needed to quantify the impact of Margins required by subsection 4.E.(7)(a) are shown below.

(1) Anticipated Experience Assumption for the U.S. Treasury Interest Rate Path. The path will begin with the market yield curve on the projection start date (based on Treasury yields reported by

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Deleted: (b) . The calibration standards are as follows:

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<<insert source>>). The yield curve 120 months or more after the projection start date will be the "ultimate" yield curve shown below. The yield curve on any date between the projection start date and 120 months after the projection start date will be linearly interpolated between the starting yield curve and the "ultimate" yield curve.

These rates are based on the mean of the distribution of the recalibrated C3 Phase I generator. The yield rates shown below for the ultimate yield curve are annual effective rates (not coupon rates or bond-equivalent yields) for a bond with semi-annual coupons.

1 yr or less	x%	11	x%	21	x%
2	x%	12	x%	22	x%
3	x%	13	x%	23	x%
4	x%	14	x%	24	x%
5	x%	15	x%	25	x%
6	x%	16	x%	26	x%
7	x%	17	x%	27	x%
8	x%	18	x%	28	x%
9	x%	19	x%	29	x%
10	x%	20	x%	30 yrs or more	x%

For example, if the 5-year Treasury rate on the projection start date is 2.85%, and the 5-year ultimate Treasury rate from the above table is 4.05%, then the 5-year Treasury rate assumed in the deterministic Scenario would increase by 0.01% each month for 120 months and then level off at 4.05%. The same linear interpolation would be performed for every point on the yield curve.

Drafting Note: The values in the table above will be determined once the re-calibrated C3 P1 interest rate generator is finalized.

(2) Anticipated Experience Assumptions for S&P 500 Returns and Separate Account Fund Performance.

<<insert requirements>>

Drafting Note: Further work is needed to define the approach to determine these paths.

(3) Anticipated Experience Assumptions for net spread on reinvestments assets

<<insert requirements>>

Drafting Note: Further research is needed to define the approach to determine these paths.

G. Special Reporting and Documentation Requirements Related to Assets

The following items shall be included in the PBR Actuarial Report:

(1). For each Model Segment, provide a summary of the path of Net Asset Earned Rates calculated for the Deterministic Reserve.

(2). For fixed income investments included in the Starting Assets, the company shall estimate and disclose the embedded spread on Starting Assets for each Model Segment, including the following items:

(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;

(d). The projected average estimated annual default costs expressed as a percent of the approximate average annual market value of such investments;

(e) The net level "option-adjusted" spread over the Treasury yield curve at the Valuation Date (Subparagraph (c) minus Subparagraph (d); and

(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 the PBR Review Actuary 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 the PBR Review Actuary 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.

(3) As a test of the consistency between the discount rates and the investment process being modeled, the company shall perform and disclose the results of the following calculation:

(a) For a selected Scenario and Asset Segment, set the starting asset amount exactly equal to the Scenario Reserve for that Asset Segment (which is likely to be different than the starting asset amount used to determine the Scenario Reserve);

(b) Project the accumulated assets to the end of the projection year that gave rise to the greatest present value of accumulated deficiencies using the same model and assumptions used to calculate the Scenario Reserve;

(c) Discount the value in Paragraph (3)(b) to the valuation date using the path of discount rates used to calculate the Scenario Reserve; and

(d) Provide an explanation if the amount in Paragraph (3)(c) is materially different than zero.

Drafting Note: The NAIC will determine the frequency of the test and the Scenario to be used.

(4) Derivative Programs Documentation and Certification.

(a) Provide documentation for the company's Derivative Programs that affect Model Segments subject to these requirements, starting with a list that identifies and summarizes the purpose of each Derivative Program, that clarifies whether it involves the future purchase or sale of Derivative Instruments, and if so whether it is a Clearly Defined Hedging Strategy, and whether it is a static or dynamic strategy.

(b) For each Clearly Defined Hedging Strategy, document the extent to which the Derivative Program and its associated Risk Factors are fully incorporated into the Cash Flow Model and the extent to which the Cash Flow Model is supplemented by the adjustment to stochastic reserves calculations.

(c) The actuary shall provide a certification and maintain documentation supporting such certification that each Derivative Program modeled as a Clearly Defined Hedging Strategy meets the requirements of a Clearly Defined Hedging Strategy. The certification

shall include a statement to the effect that the implementation of the Derivative Program in the stochastic Cash Flow Model does not include knowledge of events that occur after any action dictated by the Derivative Program (i.e., the model cannot use information about the future that would not be known in actual practice). While clearly defined hedging strategies may change over time, any material change in a Clearly Defined Hedging Strategy shall be documented and include an effective date of the change in strategy.

(d) A financial officer of the company (e.g., Chief Financial Officer, Treasurer or Chief Investment Officer) or a person designated by such financial officer who has direct or indirect supervisory authority over the actual trading of Derivative Instruments shall certify that each Derivative Program that involves anticipated future Derivative Instrument transactions is being used by the actuary in a manner consistent with the company's documentation of the program

Subsection 10. Requirements for Reflecting Revenue Sharing Assumptions

A. Requirements.

Cash flow projections may include income from projected future revenue sharing (as defined in these requirements net of applicable projected expenses (net revenue sharing income) if the following requirements are met:

(1) The company receives and controls the net revenue sharing income;

(2) Signed contractual agreement or agreements are in place as of the valuation date and support the current payment of the net revenue sharing income; and

(3) The net revenue sharing income is not already accounted for directly or indirectly as a company asset.

B. Anticipated Revenue Sharing Amounts.

The Anticipated Experience Assumption for net revenue sharing income to be used shall reflect factors that include but are not limited to the following (not all of these factors will necessarily be present in all situations):

(1) The terms and limitations of the agreement(s), including anticipated revenue, associated expenses and any contingent payments incurred or made by either the company or the entity providing the net revenue sharing as part of the agreement(s);

(2) The relationship between the company and the entity providing the net revenue sharing income that might affect the likelihood of payment and the level of expenses;

(3) The benefits and risks to both the company and the entity paying the net revenue sharing income of continuing the arrangement;

(4) The likelihood that the company will collect the net revenue sharing income during the term(s) of the agreement(s) and the likelihood of continuing to receive future revenue after the agreement(s) has ended;

(5) The ability of the company to replace the services provided to it by the entity providing the net revenue sharing income or to provide the services itself, along with the likelihood that the replaced or provided services will cost more to provide; and

(6) The ability of the entity providing the net revenue sharing income to replace the services provided to it by the company or to provide the services itself, along with the likelihood that the replaced or provided services will cost more to provide.

Include all expenses required or assumed to be incurred by the company in conjunction with the arrangement providing the net revenue sharing income, as well as any expenses assumed to be incurred by the company in conjunction with the assumed replacement of the services provided to it (as discussed in subsection 10B(5) above) in the projections as a company expense. In addition, include expenses incurred by either the entity providing the net revenue sharing income or an affiliate of the company in the applicable expenses that reduce the net revenue sharing income.

C. Margins

The Prudent Estimate of projected net revenue sharing income shall also reflect a Margin (which decreases the assumed net revenue sharing income) related to the uncertainty of the revenue, including uncertainty regarding the creditworthiness of the provider of the net revenue sharing income. The greater the uncertainty, the larger the Margin.

To the extent the agreements(s) guarantees the payment of net revenue sharing income to the company, the net revenue may be included in full over the period for which it is guaranteed.

Drafting Note: Provisions such as one that gives the entity paying the net revenue sharing income the option to stop or change the level of income paid would prevent the income from being guaranteed. However, if such an option becomes available only at a future point in time, and the revenue up to that time is guaranteed, the income is considered guaranteed up to the time the option first becomes available.

Drafting Note: If the agreement allows the company to unilaterally take control of the underlying fund fees that ultimately result in the Net Revenue Sharing Income then the revenue is considered guaranteed up until the time at which the company can take such control. Since it is unknown whether the company can perform the services associated with the revenue sharing arrangement at the same expense level, it is presumed that expenses will be higher in this situation. Therefore, the net revenue sharing income shall be reduced to account for any actual or assumed additional expenses.

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without it;

(b) Consider 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;

(c) Margins do not need to be established for risk factors when alternate assumptions do not have a material impact on the Reported Reserve;

(d) Include analysis of the magnitude of fluctuations in historical experience of the company for the risk factor in determining the Margin;

(e) Reserve margins do not need to take into account the possibility of catastrophic events.

(f) Use

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(i) Experience data are lacking or limited as compared to the case if abundant and relevant experience data are available;

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(iv) An approximation with less precision is being used; or

(v) The experience data are either not relevant or not credible.

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and include them with other general account assets under Subparagraph (a)(ii) above. To the extent the sum of the value of such derivative instruments and the value of assets in Subparagraph (a)(i) above is greater than the estimated value of the Reported Reserve as of the start of the projection, then Subparagraph (a)(ii) above may include enough negative general account assets or cash such that the sum of Subparagraph (a)(i) and (ii) above equals the estimated value of the Reported Reserve as of the start of the projection.

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(e) Any positive IMR balance allocable to the business being valued may be included as a negative asset in the determination of the general account assets under Paragraph (a) 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.

(f)

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(2) A higher Margin is required where:

(a) Allocation methods create uncertainty regarding line of business splits - especially as it concerns overhead expenses;

(b) The company's expense experience is not credible;

(c) The economic outlook is unstable;

(d) The company's expenses have not been quantified by a study which follows accepted actuarial practice and principles;

(e) Sensitivity testing determines that the reserve is sensitive to the expense assumption; or

(f) The regulatory environment is one that creates the likelihood of increased expenses.

(3) The Margin applied to the expense assumption must be identifiable and may be applied in either the dynamic behavior adjustment or the base assumption as appropriate.