

Amendments for the 2023 Valuation Manual
for the Consideration of
the Life Insurance and Annuities (A) Committee
July 20, 2022

LATF VM Amendment	Valuation Manual Reference	Valuation Manual Amendment Proposal Descriptions	LATF Adoption Date	Page Number
2020-12	VM-01, VM-20, VM-21, VM-31	Create consistency between CDHS determination in VM-20 and VM-21. Revise hedge modeling to only require CDHS if modeling future hedging reduces the reserves under VM-20 or TAR under VM-21.	6/9/22	3
2021-11	VM-21, section 12 and various others	Add a section for other assumptions requirement in VM-21 which covers general guidance and requirements for assumptions, and expense assumptions.	2/3/22	22
2021-12	VM-21 Section 6.B.3.a.v, VM-21 Section 6.C.4, VM-21 Section 6.C.10, VM-21 Section 6.C.11	Correct CSMP reference and clarify requirements for VA contracts with no minimum guaranteed benefits in Additional Standard Projection Amount in VM-21 Section 6.C. These three prescribed assumptions are Partial Withdrawal, Account Value Depletion, and Other Voluntary Contract Termination.	12/8/21	33
2021-13	VM-20 Sect. 9.C.6.e, VM-20 Sect. 9.C.7, VM-31 Sect. 3.D.3.o.	It has been observed that adding the prescribed mortality margins for some Life/LTC combination products cause modeled reserves to decrease rather than increase.	11/4/21	40
2022-01	VM-20 Section 8.C.18	Clarifying the Valuation Manual treatment of the per-reinsurance ceded reserve and the reserve credit for retrocessions	3/10/22	44
2022-02	VM-31	Revise language and add an explicit cross-reference to the VM-21 section since it has further details on how to demonstrate compliance	3/31/22	47
2022-03	VM-20, VM-21, VM-31	General cleanup, including updating cross-references, better consistency between VM-20 and VM-21, where reasonable, and making clarifying edits.	3/31/22	49
2022-04	VM-20 Section 9.F.8, App 2.F, App 2.G	LIBOR transition to the Secured Overnight Financing Rate (SOFR) - Updated VM-20 prescribed swap spreads guidance to facilitate the LIBOR transition to SOFR.	6/30/22	55
2022-05	VM-51 App 1, App 4	Add dividend plan code & Covid-19 indicator; change field identifier; correct Appendix 1 reference.	5/12/22	61

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Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

Hedging Drafting Group of LATF

Title of the Issue:

Reflect all future hedging strategies in VM-20 and VM-21. Revise hedge modeling to increase E factor (VM-21) or residual risk (VM-20) when future hedging strategies are not clearly defined.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM-01, VM-20 Section 6.A.1.b, VM-20 Section 7.E.1.g, VM-20 Section 7.K, VM-20 Section 7.L, VM-21 Section 1.D.2, VM-21 Section 4.A.4, VM-21 Section 4.D.4.b, VM-21 Section 6.B.3.a.ii, VM-21 Section 6.B.3.b.ii, VM-21 Section 6.B.5, VM-21 Section 9, VM-31 Section 3.C.5, VM-31 Section 3.D.6.f, VM-31 Section 3.D.14.a and 3.D.14.b, VM-31 Section 3.E.5, VM-31 Section 3.F.8, VM-31 Section 3.F.12.c, VM-31 Section 3.F.16.a and Section 3.F.16.b

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3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)
 1. Consistent definition of CDHS for use in VM-20 and VM-21.
 2. Add a definition for “future hedging strategy,” consistent with the definition for CDHS and the current VM-01 definition of “derivative program”, which VM-01 notes includes hedging programs.
 3. Add a definition for “hedging transactions,” taken from the APPM but modified slightly to be consistent with Valuation Manual terminology.
 4. Reflect all of a company’s future hedging strategies, but reflect the additional error (VM-21) or residual risk (VM-20) that is presented by a future hedging strategy not being clearly defined.
 5. Remove optionality for liquidating currently held hedges if the company does not have a future hedging strategy. Language has been added for consideration to keep this optionality for the adjusted run for a company that does have a future hedging strategy (which would not be modeled in the adjusted run), as the drafting group is interested in additional input on this item. A reporting item to disclose the impact of any such liquidation is added, to provide additional regulator comfort if this optionality is included in the final adopted edits.
 6. New hedging strategies (those without at least 12 months experience or 3 months of experience and robust mock testing) have an E factor of 1.0 for VM-21, unless they are new hedging strategies backing a newly introduced or newly acquired product or block of business, which may have an E factor as low as 0.3. Moreover, with prior domestic regulator approval, which should mitigate regulator concerns that strategy changes implemented just before year end may allow for manipulation of results, robust

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mock testing is sufficient to allow an E factor lower than 1.0. Note that the current draft VM-22 only allows modeling hedges after they have been in place for 6 months, and we would recommend that be revised to be in line with these changes. When only CDHS were modeled in VM-21, new hedging strategies with no experience had E factors as low as 0.5 even without meaningful analysis. This treatment was much too lenient for new hedging strategies.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

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VM-01

- The term “clearly defined hedging strategy” (CDHS) means a strategy undertaken by a company to manage risks through the future purchase or sale of hedging instruments and the opening and closing of hedging positions future hedging strategy for which the following attributes are clearly documented that meet the criteria specified in the applicable reserve requirement section of the Valuation Manual:
 - a. The specific risks being hedged (e.g., cash flow, fee income, policy interest credits, delta, rho, vega, etc.).
 - b. The hedging objectives.
 - c. The material risks that are not hedged (e.g., variation from expected mortality, withdrawal, and other utilization or decrement rates assumed in the hedging strategy, etc.).
 - d. The financial instruments used to hedge the risks.
 - e. The hedging strategy’s trading rules, including the permitted tolerances from hedging objectives.
 - f. The metrics, criteria, and frequency for measuring hedging effectiveness.
 - g. The conditions under which hedging will not take place and for how long the lack of hedging can persist.
 - h. The group or area, including whether internal or external, responsible for implementing the hedging strategy.
 - i. Areas where basis, gap or assumption risk related to the hedging strategy have been identified.
 - j. The circumstances under which hedging strategy will not be effective in hedging the risks.

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

Guidance Note: For purposes of the CDHS documented attributes, “effectiveness” need not be measured in a manner as defined in *SSAP No. 86—Derivatives* in the AP&P Manual.

- The term “future hedging strategy” is a derivative program undertaken by a company to manage risks through one or more future hedging transactions, including the future purchase or sale of hedging instruments and the opening and closing of hedging positions.

A future hedging strategy may be dynamic, static or a combination thereof. A strategy involving the offsetting of the risks associated with products falling under the scope of different requirements within the *Valuation Manual* (e.g., VM-20, VM-21, or VM-22) does not qualify as a future hedging strategy.

- The term “hedging transaction” means a derivative(s) transaction which is entered into and maintained to reduce:
 - a. The risk of a change in the fair value, the value on a statutory, GAAP, or other basis, or cash flow of assets and liabilities which the company has acquired or incurred or has a firm commitment to acquire or incur or for which the company has a forecasted acquisition or incurrence; or
 - b. The currency exchange rate risk or the degree of foreign currency exposure in assets and liabilities which the company has acquired or incurred or has a firm commitment to acquire or incur or for which the company has forecasted acquisition or incurrence.

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VM-20 Section 6.A.1.b

A company may not exclude a group of policies for which there is one or more [future hedging strategies supporting the policies](#)~~clearly defined hedging strategies~~ from SR requirements, except in the case where all [future hedging strategies supporting the policies](#)~~clearly defined hedging strategies~~ are solely associated with product features that are determined to not be material under Section 7.B.1 due to low utilization.

VM-20 Section 7.E.1.g

Notwithstanding the above requirements, the modeled reserve shall be the higher of that produced by the modeled company investment strategy and that produced by substituting an alternative investment strategy in which the fixed income reinvestment assets have the same weighted average life (WAL) as the reinvestment assets in the modeled company investment strategy and are all public non-callable corporate bonds with gross asset spreads, asset default costs and investment expenses by projection year that are consistent with a credit quality blend of 50% PBR credit rating 6 (A2/A) and 50% PBR credit rating 3 (Aa2/AA).

Policy loans, equities and derivative instruments associated with the execution of [a future hedging strategy](#)~~a clearly defined hedging strategy~~ [future hedging strategies supporting the policies](#) ~~(in compliance with Section 7.L)~~ are not affected by this requirement.

VM-20 Section 7.K

K. Modeling of Derivative Programs

1. When determining the DR and the SR, the company shall 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. The company shall also include the appropriate costs and benefits of anticipated future derivative instrument transactions associated with the execution of [a future hedging strategies supporting the policies](#)~~clearly defined hedging strategy~~, as well as 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.

Guidance Note: ~~The requirements stated here for handling hedging strategies are essentially consistent with those included in the CTE methodology of VM-21 and the five principles spelled out there. The prohibition in these modeled 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 listed in VM-21. 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, because 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 modeled 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~~

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~~may be more theoretically consistent with Principle 2. It is recommended that as greater experience is gained by actuaries and state insurance regulators with the principle-based approach and as industry hedging programs mature, the various requirements of this section be reviewed.~~

2. For each derivative program that is modeled, the company shall 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 future hedging strategies supporting the policies~~clearly defined hedging strategies~~, the company may not assume that residual risks and frictional costs have a value of zero, unless the company demonstrates in the PBR Actuarial Report that "zero" is an appropriate expectation. VM-21 Section 1.B Principle 5 applies as a general principle for the modeling of future hedging strategies.
3. In circumstances where one or more material risk factors related to a derivative program are not fully captured within the cash-flow model used to calculate CTE 70, the company shall reflect such risk factors by increasing the SR as described in Section 5.E.
4. In circumstances where documentation outlining the future hedging strategies is incomplete, the company shall reflect the future hedging strategies not being clearly defined by increasing the SR as described in Section 5.E. To support no increase to the SR, there should be very robust documentation outlining each future hedging strategy. In particular, the SR shall be at least as great as the SR that would result if a future hedging strategy were not reflected in the SR, if the documentation is materially incomplete for any of the individual CDHS attributes (a) through (j), as listed in VM-01.

Any increases required to the SR to reflect that documentation is not available to support that the future hedging strategies are clearly defined shall be in addition to increases to the SR pursuant to Section 7.K.3 above.

Guidance Note: Section 5.E requires that the company "Determine any additional amount needed to capture any material risk included in the scope of these requirements but not already reflected in the cash-flow models using an appropriate and supportable method and supporting rationale." In the case of a derivative program that is a future hedging strategy, Section 7.K.3 requires such an increase for disconnects between the hedge modeling and the future hedging strategy, while Section 7.K.4 requires such an increase for disconnects between the loosely defined future hedging strategy and what may actually take place.

VM-20 Section 7.L (Remove entire Section 7.L)

~~L. Clearly Defined Hedging Strategy~~

- ~~1. A clearly defined hedging strategy must identify:~~

- ~~—The specific risks being hedged (e.g., cash flow, policy interest credits, delta, rho, vega, etc.).~~
- ~~a. The hedge objectives.~~

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- ~~b. The risks that are not hedged (e.g., variation from expected mortality, withdrawal, and other utilization or decrement rates assumed in the hedging strategy, etc.).~~
- ~~b. The financial instruments used to hedge the risks.~~
- ~~b. The hedge trading rules, including the permitted tolerances from hedging objectives.~~
- ~~b. The metrics for measuring hedging effectiveness.~~
- ~~b. The criteria used to measure hedging effectiveness.~~
- ~~b. The frequency of measuring hedging effectiveness.~~
- ~~b. The conditions under which hedging will not take place.~~
- ~~b. The person or persons responsible for implementing the hedging strategy.~~
- ~~b. Areas where basis, gap or assumption risk related to the hedging strategy have been identified.~~
- ~~b. The circumstances under which hedging strategy will not be effective in hedging the risks.~~

Hedging strategies involving the offsetting of the risks associated with other products outside of the scope of these requirements is not a clearly defined hedging strategy.

Guidance Note: For purposes of the above criteria, “effectiveness” need not be measured in a manner as defined in *SSAP No. 86—Derivatives* in the AP&P Manual.

VM-21 Section 1.D.2 (Delete entire definition and renumber subsequent sections VM-21 Section 1.D.3 and VM-21 Section 1.D.4)

The term “clearly defined hedging strategy” (CDHS) is defined in VM-01. In order to be designated as a CDHS, the strategy must meet the principles outlined in Section 1.B (particularly Principle 5) and shall, at a minimum, identify:

- ~~— The specific risks being hedged (e.g., delta, rho, vega, etc.).~~
- ~~— The hedge objectives.~~
- ~~— The risks not being hedged (e.g., variation from expected mortality, withdrawal, and other utilization or decrement rates assumed in the hedging strategy, etc.).~~
- ~~— The financial instruments that will be used to hedge the risks.~~
- ~~— The hedge trading rules, including the permitted tolerances from hedging objectives.~~
- ~~— The metric(s) for measuring hedging effectiveness.~~
- ~~— The criteria that will be used to measure hedging effectiveness.~~
- ~~— The frequency of measuring hedging effectiveness.~~
- ~~— The conditions under which hedging will not take place.~~
- ~~— The person or persons responsible for implementing the hedging strategy.~~

Guidance Note: It is important to note that strategies involving the offsetting of the risks associated with VA guarantees with other products outside of the scope of these requirements (e.g., equity-indexed annuities) do not currently qualify as a clearly defined hedging strategy under these requirements.

VM-21 Section 4.A.4

Modeling of Hedges

- a. For a company that does not have a CDHS future hedging strategy supporting the contracts:

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- i. The company shall not consider the cash flows from any future hedge purchases or any rebalancing of existing hedge assets in its modeling, since they are not included in the company's investment strategy supporting the contracts.
- ii. Existing hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the starting assets. ~~The hedge assets may then be considered in one of two ways:~~
 - ii. ~~Include the asset cash flows from any contractual payments and maturity values in the projection model; or~~
 - ~~No hedge positions in which case the hedge positions held on the valuation date are replaced with cash and/or other general account assets in an amount equal to the aggregate market value of these hedge positions.~~

~~**Guidance Note:** If the hedge positions held on the valuation date are replaced with cash, then as with any other cash, such amounts may then be invested following the company's investment strategy.~~

~~A company may switch from method a) to method b) at any time, but it may only change from b) to a) with the approval of the domiciliary commissioner.~~
- b. For a company with a one or more CDHS future hedging strategies supporting the contracts, the detailed requirements for the modeling of hedges are defined in Section 9. The following paragraphs are a high-level summary and do not supersede the detailed requirements.
 - i. The appropriate costs and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the projections used in the determination of the SR.
 - ii. The projections shall take into account the appropriate costs and benefits of hedge positions expected to be held in the future through the execution of the CDHS future hedging strategies supporting the contracts. Because models do not always accurately portray the results of hedge programs, the company shall, through back-testing and other means, assess the accuracy of the hedge modeling. The company shall determine a SR as the weighted average of two CTE values; first, a CTE70 ("best efforts") representing the company's projection of all of the hedge cash flows, including future hedge purchases, and a second CTE70 ("adjusted") which shall use only hedge assets held by the company on the valuation date and no future hedge purchases. These are discussed in greater detail in Section 9. The SR shall be the weighted average of the two CTE70 values, where the weights reflect the error factor ~~(E)~~ determined following the guidance of Section 9.C.4.
 - iii. The company is responsible for verifying compliance with CDHS requirements and any other all requirements in Section 9 for all hedging instruments included in the projections.
 - iv. The use of products not falling under the scope of these requirements (e.g., equity-indexed annuities) as a hedge shall not be recognized in the determination of accumulated deficiencies.

VM-21 Section 4.D.4.b

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Notwithstanding the above requirements, the SR shall be the higher of that produced by the modeled company investment strategy and that produced by substituting an alternative investment strategy in which the fixed income reinvestment assets have the same weighted average life (WAL) as the reinvestment assets in the modeled company investment strategy and are all public non-callable corporate bonds with gross asset spreads, asset default costs, and investment expenses by projection year that are consistent with a credit quality blend of 50% PBR credit rating 6 (A2/A) and 50% PBR credit rating 3 (Aa2/AA).

Policy loans, equities and derivative instruments associated with the execution of ~~a~~ [future hedging strategies supporting the contracts](#) ~~clearly defined hedging strategy~~ are not affected by this requirement.

VM-21 Section 6.B.3.a.ii – Footnote (Footnote at Bottom of Page 21-23)

Throughout this Section 6, references to CTE70 (adjusted) shall also mean the SR for a company that does not have a [future hedging strategy supporting the contracts](#) ~~CDHS~~ as discussed in Section 4.A.4.a.

VM-21 Section 6.B.3.b.ii

Calculate the Prescribed Projections Amount as the CTE70 (adjusted) using the same method as that outlined in Section 9.C (which is the same as SR following Section 4.A.4.a for a company that does not have a [future hedging strategy supporting the contracts](#) ~~CDHS~~) but substituting the assumptions prescribed by Section 6.C. The calculation of this Prescribed Projections Amount also requires that the scenario reserve for any given scenario be equal to or in excess of the cash surrender value in aggregate on the valuation date for the group of contracts modeled in the projection.

VM-21 Section 6.B.5

Cash flows associated with hedging shall be projected in the same manner as that used in the calculation of the CTE70 (adjusted) as discussed in Section 9.C or Section 4.A.4.a for a company without a [future hedging strategy supporting the contracts](#) ~~CDHS~~.

VM-21 Section 9

Section 9: Modeling of Hedges under a [CDHS-Future Hedging Strategy](#)

A. Initial Considerations

1. Subject to Section 9.C.2, the appropriate costs and benefits of hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements shall be included in the calculation of the SR, determined in accordance with Section 3.D and Section 4.D.
2. If the company is following ~~a~~ [one or more future hedging strategies supporting the contracts](#) ~~CDHS~~, in accordance with an investment policy adopted by the board of directors, or a committee of board members, the company shall take into account the costs and benefits of hedge positions expected to be held by the company in the future along each scenario based on the execution of the hedging strategy, and it is eligible

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to reduce the amount of the SR using projections otherwise calculated. The investment policy must clearly articulate the company's hedging objectives, including the metrics that drive rebalancing/trading. This specification could include maximum tolerable values for investment losses, earnings, volatility, exposure, etc. in either absolute or relative terms over one or more investment horizons vis-à-vis the chance of occurrence. Company management is responsible for developing, documenting, executing and evaluating the investment strategy, including the hedging strategy, used to implement the investment policy.

- For this purpose, the investment assets refer to all the assets, including derivatives supporting covered products and guarantees. This also is referred to as the investment portfolio. The investment strategy is the set of all asset holdings at all points in time in all scenarios. The hedging portfolio, which also is referred to as the hedging assets, is a subset of the investment assets. The hedging strategy is the hedging asset holdings at all points in time in all scenarios. There is no attempt to distinguish what is the hedging portfolio and what is the investment portfolio in this section. Nor is the distinction between investment strategy and hedging strategy formally made here. Where necessary to give effect to the intent of this section, the requirements applicable to the hedging portfolio or the hedging strategy are to apply to the overall investment portfolio and investment strategy.
- This particularly applies to restrictions on the reasonableness or acceptability of the models that make up the stochastic cash-flow model used to perform the projections, since these restrictions are inherently restrictions on the joint modeling of the hedging and non-hedging portfolio. To give effect to these requirements, they must apply to the overall investment strategy and investment portfolio.

~~4. Before either a new or revised hedging strategy can be used to reduce the amount of the SR otherwise calculated, the hedging strategy should be in place (i.e., effectively implemented by the company) for at least three months. The company may meet the time requirement by having evaluated the effective implementation of the hedging strategy for at least three months without actually having executed the trades indicated by the hedging strategy (e.g., mock testing or by having effectively implemented the strategy with annuity products for at least three months).~~

B. Modeling Approaches

- The analysis of the impact of the hedging strategy on cash flows is typically performed using either one of two types of methods as described below. Although a hedging strategy normally would be expected to reduce risk provisions, the nature of the hedging strategy and the costs to implement the strategy may result in an increase in the amount of the SR otherwise calculated. [Particular attention should be given to VM-21 Section 1.B Principle 5 for the modeling of future hedging strategies.](#)
- The fundamental characteristic of the first type of method, referred to as the "explicit method," is that hedging positions and their resulting cash flows are included in the stochastic cash-flow model used to determine the scenario reserve, as discussed in Section 3.D, for each scenario.
- The fundamental characteristic of the second type of method, referred to as the "implicit method," is that the effectiveness of the current hedging strategy on future cash flows is evaluated, in part or in whole, outside of the stochastic cash-flow model. There are multiple ways that this type of modeling can be implemented. In this case, the reduction to the SR otherwise calculated should be commensurate with the degree of effectiveness of the hedging strategy in reducing accumulated deficiencies otherwise calculated.
- Regardless of the methodology used by the company, the ultimate effect of the current hedging strategy (including currently held hedge positions) on the SR needs to recognize all risks, associated costs,

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imperfections in the hedges and hedging mismatch tolerances associated with the hedging strategy. The risks include, but are not limited to: basis, gap, price, parameter estimation and variation in assumptions (mortality, persistency, withdrawal, annuitization, etc.). Costs include, but are not limited to: transaction, margin (opportunity costs associated with margin requirements) and administration. In addition, the reduction to the SR attributable to the hedging strategy may need to be limited due to the uncertainty associated with the company's ability to implement the hedging strategy in a timely and effective manner. The level of operational uncertainty varies indirectly with the amount of time that the new or revised strategy has been in effect or mock tested.

Guidance Note: No hedging strategy is perfect. A given hedging strategy may eliminate or reduce some but not all risks, transform some risks into others, introduce new risks, or have other imperfections. For example, a delta-only hedging strategy does not adequately hedge the risks measured by the "Greeks" other than delta. Another example is that financial indices underlying typical hedging instruments typically do not perform exactly like the separate account funds, and hence the use of hedging instruments has the potential for introducing basis risk

4.—A safe harbor approach is permitted for [CDHS-reflection of future hedging strategies supporting the contracts](#) for those companies whose modeled hedge assets comprise only linear instruments not sensitive to implied volatility. For companies with option-based hedge strategies, electing this approach would require representing the option-based portion of the strategy as a delta-rho two-Greek hedge program. The normally modeled option portfolio would be replaced with a set of linear instruments that have the same first-order Greeks as the original option portfolio.

C. Calculation of SR (Reported)

1. The company shall calculate CTE70 (best efforts)—the results obtained when the CTE70 is based on incorporating the [future hedging strategies supporting the contracts CDHS](#) (including both currently held and future hedge positions) into the stochastic cash-flow model on a best efforts basis, including all of the factors and assumptions needed to execute the [future hedging strategies supporting the contracts CDHS](#) (e.g., stochastic implied volatility). The determination of CTE70 (best efforts) may utilize either explicit or implicit modeling techniques.
2. The company shall calculate a CTE70 (adjusted) by recalculating the CTE70 assuming the company has no [future hedging strategies supporting the contracts CDHS](#), therefore following the requirements of Section 4.A.4.a.

[However, for a company with a future hedging strategy supporting the contracts, existing hedging instruments that are currently held by the company in support of the contracts falling under the scope of these requirements may be considered in one of two ways for the CTE70 \(adjusted\):](#)

- a) [Include the asset cash flows from any contractual payments and maturity values in the projection model; or](#)
- b) [No hedge positions – in which case the hedge positions held on the valuation date are replaced with cash and/or other general account assets in an amount equal to the aggregate market value of these hedge positions.](#)

[Guidance Note: If the hedge positions held on the valuation date are replaced with cash, then as with any other cash, such amounts may then be invested following the company's investment strategy.](#)

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A company may switch from method a) to method b) at any time, but it may only change from b) to a) with the approval of the domiciliary commissioner.

3. Because most models will include at least some approximations or idealistic assumptions, CTE70 (best efforts) may overstate the impact of the hedging strategy. To compensate for potential overstatement of the impact of the hedging strategy, the value for the SR is given by:

$$SR = \text{CTE70 (best efforts)} + E \times \max[0, \text{CTE70 (adjusted)} - \text{CTE70 (best efforts)}]$$
4. The company shall specify a value for E (the “error factor”) in the range from 5% to 100% to reflect the company’s view of the potential error resulting from the level of sophistication of the stochastic cash-flow model and its ability to properly reflect the parameters of the hedging strategy (i.e., the Greeks being covered by the strategy), as well as the associated costs, risks and benefits. The greater the ability of the stochastic model to capture all risks and uncertainties, the lower the value of E . The value of E may be as low as 5% only if the model used to determine the CTE70 (best efforts) effectively reflects all of the parameters used in the hedging strategy. If certain economic risks are not hedged, yet the model does not generate scenarios that sufficiently capture those risks, E must be in the higher end of the range, reflecting the greater likelihood of error. Likewise, simplistic hedge cash-flow models shall assume a higher likelihood of error.
5. The company shall conduct a formal back-test, based on an analysis of at least the most recent 12 months, to assess how well the model is able to replicate the hedging strategy in a way that supports the determination of the value used for E .
6. Such a back-test shall involve one of the following analyses:
 - a. For companies that model hedge cash flows directly (“explicit method”), replace the stochastic scenarios used in calculating the CTE70 (best efforts) with a single scenario that represents the market path that actually manifested over the selected back-testing period and compare the projected hedge asset gains and losses against the actual hedge asset gains and losses – both realized and unrealized – observed over the same time period. For this calculation, the model assumptions may be replaced with parameters that reflect actual experience during the back-testing period. In order to isolate the comparison between the modeled hedge strategy and actual hedge results for this calculation, the projected liabilities should accurately reflect the actual liabilities throughout the back-testing period; therefore, adjustments that facilitate this accuracy (e.g. reflecting actual experience instead of model assumptions, including new business, etc.) are permissible.

To support the choice of a low value of E , the company should ascertain that the projected hedge asset gains and losses are within close range of 100% (e.g., 80–125%) of the actual hedge asset gains and losses. The company may also support the choice of a low value of E by achieving a high R-squared (e.g., 0.80 or higher) when using a regression analysis technique.

b. For companies that model hedge cash flows implicitly by quantifying the cost and benefit of hedging using the fair value of the hedged item (an “implicit method” or “cost of reinsurance method”), calculate the delta, rho and vega coverage ratios in each month over the selected back-testing period in the following manner:

- i. Determine the hedge asset gains and losses—both realized and unrealized—incurred over the month attributable to equity, interest rate, and implied volatility movements.
- ii. Determine the change in the fair value of the hedged item over the month attributable to equity, interest rate, and implied volatility movements. The hedged item should be defined in a manner that reflects the proportion of risks hedged (e.g., if a company elects to hedge 50% of a contract’s

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market risks, it should quantify the fair value of the hedged item as 50% of the fair value of the contract).

iii. Calculate the delta coverage ratio as the ratio between (i) and (ii) attributable to equity movements.

iv. Calculate the rho coverage ratio as the ratio between (i) and (ii) attributable to interest rate movements.

v. Calculate the vega coverage ratio as the ratio between (i) and (ii) attributable to implied volatility movements.

vi. To support the company's choice of a low value of E, the company should be able to demonstrate that the delta and rho coverage ratios are both within close range of 100 % (e.g., 80–125%) consistently across the back-testing period.

vii. In addition, the company should be able to demonstrate that the vega coverage ratio is within close range of 100 % in order to use the prevailing implied volatility levels as of the valuation date in quantifying the fair value of the hedged item for the purpose of calculating CTE70 (best efforts). Otherwise, the company shall quantify the fair value of the hedged item for the purpose of calculating CTE70 (best efforts) in a manner consistent with the realized volatility of the scenarios captured in the CTE (best efforts).

c. Companies that do not model hedge cash flows explicitly, but that also do not use the implicit method as outlined in Section 9.C.6.b above, shall conduct the formal back-test in a manner that allows the company to clearly illustrate the appropriateness of the selected method for reflecting the cost and benefit of hedging, as well as the value used for E.

4.—7. A company that does not have 12 months of experience to date shall set E to a value that reflects the amount of experience available, and the degree and nature of any change to the hedge program. For a material change in strategy, with less than 12 months of experience and without robust mock testing, E should be 1.0. For a material change in strategy, with ~~no less than 3 months of~~ history, E should be ~~at least 0.50~~ 1.0. However, when a material change in hedging strategy with less than 3 months history is the introduction of hedging for a newly introduced product or newly acquired block of business and is supplemented by robust mock testing, E should instead be at least 0.3. Moreover, with prior approval from the domestic regulator, material changes in hedge strategy with less than 3 months history but with robust mock testing may have error factors less than 1.0, though still subject to the minimum error factor specified in Section 9.C.4 and with an appropriate prudent estimate to account for additional uncertainty in anticipated hedging experience beyond that of a robust hedging program already in existence. ~~However, E may also be lower than 0.50~~ 1.0 ~~if some reliable experience is available and/or if the change in strategy is a minor refinement rather than a substantial-material change in strategy, though still subject to the minimum error factor specified in Section 9.C.4 and with an appropriate prudent estimate to account for any additional uncertainty associated with the refinement.~~

Guidance Note: The following examples are provided as guidance for determining the E factor when there has been a change to the hedge program. These examples are not intended to be exhaustive, and a company must support the determination of whether a hedge methodology change is material based on a review of the company's specific change in methodology.

•

• The error factor should be temporarily ~~large (e.g., ≥ 50~~ 100%) for ~~substantial-material~~ changes in hedge methodology (e.g., moving from a fair-value based strategy to a stop-loss strategy) without robust mock

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~~testing where the company has not been able to provide a meaningful simulation of hedge performance based on the new strategy.~~

- ~~An increase in the error factor may not always be needed for minor refinements to the hedge strategy (e.g., moving from swaps to Treasury futures).~~
- ~~A temporary moderate increase (e.g., 15-30%) in error factor should be used for substantial modifications to hedge programs or CDHS modeling where meaningful simulation has not been created (e.g., adding second-order hedging, such as gamma or rate convexity).~~
- ~~No increase in the error factor may be used for incremental modifications to the hedge strategy (e.g., adding death benefits to a program that previously covered only living benefits, or moving from swaps to Treasury Department futures).~~

8. The company shall set the value of E reflecting the extent to which the hedging program is clearly defined. To support a value of E below 1.0, there should be very robust documentation outlining all future hedging strategies. To the extent that documentation outlining any of the future hedging strategies is incomplete, the value of E shall be increased. In particular, the value of E shall be 1.0 if documentation is materially incomplete for any of the individual CDHS attributes (a) through (j), as listed in VM-01.

Any increases required to the value of E to reflect that documentation is not available to support that the future hedging strategies are clearly defined shall be in addition to increases to the value of E to reflect a lack of historical experience or to reflect the back-testing results, subject to an overall ceiling of 1.0 for E.

Guidance Note: Companies must use judgment both in determining an E factor and in applying this requirement in the case where there are multiple future hedging strategies, particularly where some may be CDHS and some may not be CDHS. In this case, the SR should be ensured to be no less than the CTE(70) reflecting the future hedging strategies that are CDHS and not reflecting those that are not CDHS. Companies with multiple future hedging strategies with very different levels of effectiveness or with multiple future hedging strategies that include both CDHS and non-CDHS should discuss with their domestic regulator.

D. Additional Considerations for CTE70 (best efforts)

If the company is following ~~a one or more future hedging strategies supporting the contracts~~CDHS, the fair value of the portfolio of contracts falling within the scope of these requirements shall be computed and compared to the CTE70 (best efforts) and CTE70 (adjusted). If the CTE70 (best efforts) is below both the fair value and CTE70 (adjusted), the company should be prepared to explain why that result is reasonable.

For the purposes of this analysis, the SR and fair value calculations shall be done without requiring the scenario reserve for any given scenario to be equal to or in excess of the cash surrender value in aggregate for the group of contracts modeled in the projection.

E. Specific Considerations and Requirements

1. As part of the process of choosing a methodology and assumptions for estimating the future effectiveness of the current hedging strategy (including currently held hedge positions) for purposes of reducing the SR, the company should review actual historical hedging effectiveness. The company shall evaluate the appropriateness of the assumptions on future trading, transaction costs, other elements of the model, the strategy, the mix of business and other items that are likely to result in materially adverse results. This includes an analysis of model assumptions that, when combined with the reliance on the hedging strategy, are likely to result in adverse results relative to those modeled. The parameters and assumptions shall be

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adjusted (based on testing contingent on the strategy used and other assumptions) to levels that fully reflect the risk based on historical ranges and foreseeable future ranges of the assumptions and parameters. If this is not possible by parameter adjustment, the model shall be modified to reflect them at either anticipated experience or adverse estimates of the parameters.

2. A discontinuous hedging strategy is a hedging strategy where the relationships between the sensitivities to equity markets and interest rates (commonly referred to as the Greeks) associated with the guaranteed contract holder options embedded in the variable annuities and other in-scope products and these same sensitivities associated with the hedging assets are subject to material discontinuities. This includes, but is not limited to, a hedging strategy where material hedging assets will be obtained when the variable annuity account balances reach a predetermined level in relationship to the guarantees. Any hedging strategy, including a delta hedging strategy, can be a discontinuous hedging strategy if implementation of the strategy permits material discontinuities between the sensitivities to equity markets and interest rates associated with the guaranteed contract holder options embedded in the variable annuities and other in-scope products and these same sensitivities associated with the hedging assets. There may be scenarios that are particularly costly to discontinuous hedging strategies, especially where those result in large discontinuous changes in sensitivities (Greeks) associated with the hedging assets. Where discontinuous hedging strategies contribute materially to a reduction in the SR, the company must evaluate the interaction of future trigger definitions and the discontinuous hedging strategy, in addition to the items mentioned in the previous paragraph. This includes an analysis of model assumptions that, when combined with the reliance on the discontinuous hedging strategy, may result in adverse results relative to those modeled.
3. A strategy that has a strong dependence on acquiring hedging assets at specific times that depend on specific values of an index or other market indicators may not be implemented as precisely as planned.
4. The combination of elements of the stochastic cash-flow model—including the initial actual market asset prices, prices for trading at future dates, transaction costs and other assumptions—should be analyzed by the company as to whether the stochastic cash-flow model permits hedging strategies that make money in some scenarios without losing a reasonable amount in some other scenarios. This includes, but is not limited to:
 - a. Hedging strategies with no initial investment that never lose money in any scenario and in some scenarios make money.
 - b. Hedging strategies that, with a given amount of initial money, never make less than accumulation at the one-period risk-free rates in any scenario but make more than this in one or more scenarios.
5. If the stochastic cash-flow model allows for such situations, the company should be satisfied that the results do not materially rely directly or indirectly on the use of such strategies. If the results do materially rely directly or indirectly on the use of such strategies, the strategies may not be used to reduce the SR otherwise calculated.
6. In addition to the above, the method used to determine prices of financial instruments for trading in scenarios should be compared to actual initial market prices. In addition to comparisons to initial market prices, there should be testing of the pricing models that are used to determine subsequent prices when scenarios involve trading financial instruments. This testing should consider historical relationships. For example, if a method is used where recent volatility in the scenario is one of the determinants of prices for trading in that scenario, then that model should approximate actual historic prices in similar circumstances in history.
- 6-7. The company may also consider historical experience for similar current or past hedging programs on similar products to support the error factor determined for the projection.

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VM-31 Section 3.C.5

Assets and Risk Management – A brief description of the asset portfolio, and the approach used to model risk management strategies, such as hedging, and other derivative programs, including a description of any ~~clearly defined hedging strategies~~ future hedging strategies supporting the policies, and any material changes to the hedging strategies from the prior year.

VM-31 Section 3.D.6.f

Risk Management – Detailed description of model risk management strategies, such as hedging and other derivative programs, including any ~~future hedging strategies supporting the policies~~ clearly defined hedging strategies and any adjustments to the SR pursuant to VM-20 Section 7.K.3 and VM-20 Section 7.K.4, specific to the groups of policies covered in this sub-report and not discussed in the Life Summary Section 3.C.5. Documentation of any future hedging strategies should include documentation addressing each of the CDHS documentation attributes.

VM-31 Section 3.D.14.a and 3.D.14.b

- a. Investment Officer on Investments – A certification from a duly authorized investment officer that the modeled company investment strategy, including any future hedging strategies supporting the policies, is representative of and consistent with the company’s investment policy and that documentation of the CDHS attributes for any future hedging strategies supporting the policies are accurate.
- b. Qualified Actuary on Investments – A certification by a qualified actuary, not necessarily the same qualified actuary that has been assigned responsibility for the PBR Actuarial Report or this sub-report, that the modeling of any ~~future hedging strategies supporting the policies is consistent with the company’s actual future hedging strategies and clearly defined hedging strategies~~ was performed in accordance with VM-20 and in compliance with all applicable ASOPs, and the alternative investment strategy as defined in VM-20 Section 7.E.1.g reflects the prescribed mix of assets with the same WAL as the reinvestment assets in the company investment strategy.

VM-31 Section 3.E.5

Assets and Risk Management – A brief description of the general account asset portfolio, and the approach used to model risk management strategies, such as hedging and other derivative programs, including a description of any future hedging strategies supporting the contracts ~~clearly defined hedging strategies~~, and any material changes to the hedging ~~strategy~~ strategies from the prior year.

VM-31 Section 3.F.8

Hedging and Risk Management – The following information regarding the hedging and risk management assumptions used by the company in performing a principle-based valuation under VM-21:

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- a. Strategies – Detailed description of risk management strategies, such as hedging and other derivative programs, including any [future hedging strategies supporting the contracts](#)CDHS, specific to the groups of contracts covered in this sub-report.
 - i. Descriptions of basis risk, gap risk, price risk and assumption risk.
 - ii. Methods and criteria for estimating the a priori effectiveness of the strategy.
 - iii. Results of any reviews of actual historical hedging effectiveness.
- b. CDHS – Documentation [addressing each of the CDHS documentation attributes](#) for any [future hedging strategies supporting the contracts](#)~~hedging strategy that meets the requirements to be a~~CDHS.
- c. Strategy Changes – Discussion of any changes to the hedging strategy during the past 12 months, including identification of the change, reasons for the change, and the implementation date of the change.
- d. Hedge Modeling – Description of how the hedge strategy was incorporated into modeling, including:
 - i. Differences in timing between model and actual strategy implementation.
 - ii. For a company that does not have a [future hedging strategy supporting the contracts](#)CDHS, ~~disclosure of the method used to consider~~[confirmation that currently held](#) hedge assets ~~were~~ included in the starting assets, ~~either (1) including the asset cash flows in the projection model; or (2) replacing the hedge positions with cash and/or other general account assets in an amount equal to the market value of the hedge positions, as discussed in VM-21 Section 4.A.4.a.~~
 - ~~iii.~~ [Evaluations of the appropriateness of the assumptions on future trading, transaction costs, other elements of the model, the strategy, and other items that are likely to result in materially adverse results.](#)
 - ~~iii-iv.~~ [Discussion of the projection horizon for the future hedge strategy as modeled and a comparison to the timeline for any anticipated future changes in the company's hedge strategy.](#)
 - ~~iv-v.~~ [If residual risks and frictional costs are assumed to have a value of zero, a demonstration that a value of zero is an appropriate expectation.](#)
 - ~~v-vi.~~ [Any discontinuous hedging strategies modeled, and where such discontinuous hedging strategies contribute materially to a reduction in the SR, any evaluations of the interaction of future trigger definitions and the discontinuous hedging strategy, including any analyses of model assumptions that, when combined with the reliance on the discontinuous hedging strategy, may result in adverse results relative to those modeled.](#)
 - ~~vi-vii.~~ [Disclosure of any situations where the modeled hedging strategies make money in some scenarios without losing a reasonable amount in some other scenarios, and an explanation of why the situations are not material for determining the CTE 70 \(best efforts\).](#)
 - ~~vii-viii.~~ [Results of any testing of the method used to determine prices of financial instruments for trading in scenarios against actual initial market prices, including how the testing considered historical relationships. If there are substantial discrepancies, disclosure of the substantial discrepancies and documentation as to why the model-based prices are appropriate for determining the SR.](#)
 - ~~viii-ix.~~ [Any model adjustments made when calculating CTE 70 \(adjusted\), in particular, any liquidation or substitution of assets for currently held hedges. \[If there is liquidation or substitution of assets for currently held hedges, disclosure of the impact on the adjusted run.\]\(#\)](#)
- e. Error Factor (E) and Back-Testing – Description of *E*, the error factor, and formal back-tests performed, including:
 - i. The value of *E*, and the approach and rationale for the value of *E* used in the reserve calculation.
 - ii. For companies that model hedge cash flows using the explicit method, as described in VM-21 Section 9.C.6.a, and have 12 months of experience, an analysis of at least the most recent 12 months of experience and the results of a back-test showing that the model is able to replicate the hedging results experienced in a way that justifies the value used for *E*. Include at least a ratio of the actual

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change in market value of the hedges to the modeled change in market value of the hedges at least quarterly.

- iii. For companies that model hedge cash flows using the implicit method, and have 12 months of experience, as described in VM-21 Section 9.C.6.b, the results of a back-test in which (a) actual hedge asset gains and losses are compared against (b) proportional fair value movements in hedged liability, including:

- a) Delta, rho and vega coverage ratios in each month over the back-testing period, which may be presented in a chart or graph.
- b) The implied volatility level used to quantify the fair value of the hedged item, as well as the methodology undertaken to determine the appropriate level used.

- iv. For companies that do not model hedge cash flows using either the explicit method or the implicit method, as described in VM-21 Section 9.C.6.c, and have 12 months of experience, the results of the formal back-test conducted to validate the appropriateness of the selected method and value used for E.

v. For companies that do not have 12 months of experience, the basis for the value of *E* that is chosen based on the guidance provided in VM-21 Section 9.C.7, considering the actual history available, mock testing performed, and the degree and nature of any changes made to the hedge strategy.

~~v.~~vi. The basis for the magnitude of adjustment or lack of adjustment for the value of E chosen based on the robustness of the documentation outlining the future hedging strategy.

- f. Safe Harbor for Future Hedging Strategies CDHS— If electing the safe harbor approach for a future hedging strategy supporting the contractsCDHS, as discussed in VM-21 Section 9.C.8, a description of the linear instruments used to model the option portfolio.

- g. Hedge Model Results – Disclosure of whether the calculated CTE 70 (best efforts) is below both the fair value and CTE 70 (adjusted), and if so, justification for why that result is reasonable, as discussed in VM-21 Section 9.D.

VM-31 Section 3.F.12.c

CTEPA – If using the CTEPA method, a summary including:

- i. Disclosure (in tabular form) of the scenario reserves using the same method and assumptions as those used by the company to calculate CTE 70 (adjusted) as outlined in VM-21 Section 9.C (or the SR following VM-21 Section 4.A.4.a for a company that does not have a future hedging strategy supporting the contractsCDHS), as well as the corresponding scenarios reserves substituting the assumptions prescribed by VM-21 Section 6.C.
- ii. Summary of results from a cumulative decrement projection along the scenario whose reserve value is closest to the CTE 70 (adjusted), as outlined in VM-21 Section 9.C (or the SR following VM-21 Section 4.A.4.a for a company that does not have a future hedging strategy supporting the contractsCDHS), under the assumptions outlined in VM-21 Section 6.C. Such a cumulative decrement projection shall include, at the end of each projection year, the projected proportion (expressed as a percent of the total projected account value) of persisting contracts as well as the allocation of projected decrements across death, full surrender, account value depletion, elective annuitization, and other benefit election.
- iii. Summary of results from a cumulative decrement projection, identical to (ii) above, but replacing all assumptions outlined in VM-21 Section 6.C with the corresponding assumptions used in calculating the SR.

VM-31 Section 3.F.16.a and Section 3.F.16.b

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- a. Investment Officer on Investments – A certification from a duly authorized investment officer that the modeled asset investment strategy, including any future hedging strategies supporting the contractsCDHS, is consistent with the company’s current investment strategy except where the modeled reinvestment strategy may have been substituted with the alternative investment strategy, and ~~also any CDHS meets the~~that documentation of the requirements of a CDHS attributes for any future hedging strategies supporting the contracts are accurate.

- b. Qualified Actuary on Investments – A certification by a qualified actuary, not necessarily the same qualified actuary that has been assigned responsibility for the PBR Actuarial Report or this sub-report, that the modeling of any future hedging strategies supporting the contracts~~clearly defined hedging strategies is consistent with the company’s actual future hedging strategies and~~ was performed in accordance with VM-21 and in compliance with all applicable ASOPs.

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**Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force
Amendment Proposal Form***

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

PBR Staff of Texas Department of Insurance

Title of the Issue:

Add a section for other assumptions requirement in VM-21 which covers general guidance and requirements for assumptions, and expense assumptions.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM-21 Section 1.C.2.b, VM-21 Section 12, VM-21 Section 13, VM-21 Section 1.B, VM-21 Section 10.A, VM-31 Section 3.F.3.d, VM-31 Section 3.F.13.d

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3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

A new section is needed in VM-21 to provide general guidance and requirements for assumptions, similar to VM-20, to address assumption reporting issues identified in VM-21 PBR report reviews, e.g., some companies don’t discuss regular assumption reviews for any necessary updates. In addition, this section provides the specific requirements for assumptions that have not been covered in previous sections of VM-21, i.e., the expense assumptions. VM-21 is not very explicit about expenses (e.g., whether they are fully allocated or include one-time expenses). For VM-20, we have had some material impacts from how companies treat one-time expenses that may be multi-year but temporary. Companies could understate expenses if there is no adjustment for periodic or other recurrent expenses in expense study years where they do not occur. This APF is to make the VM-21 expense assumption requirement explicit and consistent with what is specified in VM-20 Section 9.E. The new section can also be used to cover any other assumptions requirements that need to be addressed in the future. The reporting requirement of the sensitivity testing and the impact of margin analysis is added to VM-31 to help regulators better understand how companies comply with the newly added assumption guidance and requirements.

VM-21 Section 1.C.2.b

- a) Liability risks
 - i. Reinsurer default, impairment or rating downgrade known to have occurred before or on the valuation date.
 - ii. Mortality/longevity, persistency/lapse, partial withdrawal and premium payment risks.
 - iii. Utilization risk associated with guaranteed living benefits.
 - iv. Anticipated mortality trends based on observed patterns of mortality improvement or deterioration, where permitted.
 - v. Annuitization risks.
 - vi. Additional premium dump-ins (high interest rate guarantees in low interest rate environments).
 - ~~vi.~~ vii. Applicable expense risks, including fluctuation in maintenance expenses directly attributable to the business, future commission expenses, and expense inflation/growth.

VM-21 Section 12 (new)

Section 12: Other Guidance and Requirements for Assumptions

A. Overview

This section provides guidance and requirements in general for setting prudent estimate assumptions when determining either the stochastic reserve or the reserve for any contracts determined using the Alternative Methodology. It also provides specific guidance and requirements for expense assumptions.

B.

General Assumption Requirements

1. The company shall use prudent estimate assumptions for risk factors that are not stochastically modeled by applying margins to the anticipated experience assumptions if such risk factors have been categorized as material risks by following Section 1.B Principle 3 and requirements in Section 12.C.
2. The company shall establish the prudent estimate assumptions for risk factors in compliance with the requirements in Section 12 of Model #820 and must periodically review and update the assumptions as appropriate in accordance with these requirements.
3. The company shall model the following risk factors stochastically unless the company

elects the Alternative Methodology defined in Section 7:

- a. Interest rate movements (i.e., Treasury interest rate curves).
- b. Equity performance (e.g., Standard & Poor's 500 index [S&P 500] returns and returns of other equity investments).

4. If the company elects to stochastically model risk factors in addition to the economic scenarios, the requirements in this section for determining prudent estimate assumptions for these risk factors do not apply.

It is expected that companies will not stochastically model risk factors other than the economic scenarios, such as contract holder behavior or mortality, until VM-21 has more specific guidance and requirements available. Companies shall discuss with domiciliary regulators if they wish to stochastically model other risk factors.

5. 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.

- a. For risk factors (such as mortality) to which statistical credibility theory may be appropriately applied, the company shall establish anticipated experience assumptions for the risk factor by combining relevant company experience with industry experience data, tables or other applicable data in a manner that is consistent with credibility theory and accepted actuarial practice.

- b. For risk factors (such as utilization of guaranteed living benefits) that do not lend themselves to the use of statistical credibility theory, and for risk factors (such as some of the lapse assumptions) to which statistical credibility theory can be appropriately applied but cannot currently be applied due to lack of industry data, the company shall establish anticipated experience assumptions in a manner that is consistent with accepted actuarial practice and that reflects any available relevant company experience, any available relevant industry experience, or any other experience data that are available and relevant. Such techniques include:

- i. Adopting standard assumptions published by professional, industry or regulatory organizations to the extent they reflect any available relevant company experience or reasonable expectations.

- ii. Applying factors to relevant industry experience tables or other relevant data to reflect any available relevant company experience and differences in expected

Commented [RH1]: Regarding ACLI comment (EDIT):
Make not a guidance note since includes instruction for a specific case.

experience from that underlying the base tables or data due to differences between the risk characteristics of the company experience and the risk characteristics of the experience underlying the base tables or data.

iii. Blending any available relevant company experience with any available relevant industry experience and/or other applicable data using weightings established in a manner that is consistent with accepted actuarial practice and that reflects the risk characteristics of the underlying contracts and/or company practices.

c. For risk factors that have limited or no experience or other applicable data to draw upon, the assumptions shall be established using sound actuarial judgment and the most relevant data available, if such data exists.

d. For any assumption that is set in accordance with the requirements of Section 12.B.5.c, the qualified actuary to whom responsibility for this group of contracts is assigned shall use sensitivity testing and disclose the analysis performed to ensure that the assumption is set at the conservative end of the plausible range.

e. The qualified actuary, to whom responsibility for this group of contracts is assigned, shall annually review relevant emerging experience for the purpose of assessing the appropriateness of the anticipated experience assumption. If the results of statistical or other testing indicate that previously anticipated experience for a given factor is inadequate, then the qualified actuary shall set a new, adequate, anticipated experience assumption for the factor.

6. The company shall sensitivity test material risk factors that are not stochastically modeled and examine the impact on the stochastic reserve. The company shall update the sensitivity tests periodically as appropriate. The company may update the tests less frequently, but no less than every 3 years, when the tests show less sensitivity of the stochastic reserve to changes in the assumptions being tested or the experience is not changing rapidly. Providing there is no material impact on the results of the sensitivity testing, the company may perform sensitivity testing:

a. Using samples of the contracts in force rather than performing the entire valuation for each alternative assumption set.

b. Using data from prior periods.

Guidance Note: Sensitivity testing every risk factor on an annual basis is not required. For some risk factors, it may be reasonable, in lieu of sensitivity testing, to employ statistical measures for margins, such as adding one or more standard deviations to the anticipated experience assumption.

Commented [RH2]: Regarding ACLI comment (unrelated EDIT):

Having an understanding both of uncertainty and the impacts of different types of variation are necessary in margin development (and reviewing the appropriateness of margin development). See, just for example, VM-21 Section 10.C. No change is needed for ACLI comment.

However, while reviewing we saw that adding "material" before "risk factors" would be a good clarifying edit in the first sentence.

7. The company shall vary the prudent estimate assumptions from scenario to scenario within the stochastic reserve calculation in an appropriate manner to reflect the scenario-dependent risks.

C. Assumption Margins

The company shall include margins to provide for adverse deviations and estimation error in the prudent estimate assumptions for each risk factors that ~~is~~ are not stochastically modeled or prescribed, subject to the following:

1. The level of margin applied to the anticipated experience assumptions may be determined in aggregate or independently as discussed in Section 1.B Principle 3. It is not permissible to set a margin less toward the conservative end of the spectrum to recognize, in whole or in part, implicit or prescribed margins that are present, or are believed to be present, in other risk factors.

Risks that are stochastically modeled (e.g., interest rates, equity returns) or have prescribed margins or guardrails (e.g., assets, revenue sharing) shall be considered material risks. Other risks generally considered to be material include, but are not limited to, mortality, contract holder behavior, maintenance and overhead expenses, inflation and implied volatility. In some cases, the list of material risks may also include acquisition expenses, partial withdrawals, policy loans, annuitizations, account transfers and deposits, and/or option elections that contain an element of anti-selection.

2. 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 modeled TAR than would otherwise result. For example, the company shall use a larger margin when:

a. The experience data have less relevance or lower credibility.

b. The experience data are of lower quality, such as incomplete, internally inconsistent or not current.

c. 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.

d. There are constraints in the modeling that limit an effective reflection of the risk factor.

3. In complying with the sensitivity testing requirements in Section 12.B.6 above, greater analysis and more detailed justification are needed to determine the level of uncertainty when establishing margins for risk factors that produce greater sensitivity on the stochastic reserve.

Commented [RH3]: Regarding ACLI comment (EDIT): In case the ACLI comment should have been on this language instead of 12.C.1, I can see how this could have been read to mean a margin on each assumption rather than having some margin provide for all risk factors, whether directly on the individual risk factor or not.

Commented [RH4]: Regarding ACLI comment (no edit): Nowhere here does it say you can't set margins for more than one assumption - in fact this says the opposite. If the comment was indirectly about not being able to offset prescribed elements, we believe that preserves regulatory intent.

4. A margin is permitted but not required for assumptions that do not represent material risks.
5. A margin should reflect the magnitude of fluctuations in historical experience of the company for the risk factor, as appropriate.
6. The company shall apply the method used to determine the margin consistently on each valuation date but is permitted to change the method from the prior year if the rationale for the change and the impact on the stochastic reserve is disclosed.

D. Expense Assumptions

1. General Prudent Estimate Expense Assumption Requirements

In determining prudent estimate expense assumptions, the company:

- a. May spread certain information technology development costs and other capital expenditures over a reasonable number of years in accordance with accepted statutory accounting principles as defined in the Statements of Statutory Accounting Principles.

Guidance Note: Care should be taken with regard to the potential interaction with the inflation assumption below.

- b. Shall assume that the company is a going concern.
- c. Shall choose an appropriate expense basis that properly aligns the actual expense to the assumption. If values are not significant, they may be aggregated into a different base assumption.

Guidance Note: For example, death benefit expenses should be modeled with an expense assumption that is per death incurred.

- d. Shall reflect the impact of inflation.
- e. Shall not assume future expense improvements.
- f. Shall not include assumptions for federal income taxes (and expenses paid to provide fraternal benefits in lieu of federal income taxes) and foreign income taxes.
- g. Shall use assumptions that are consistent with other related assumptions.

h. Shall use fully allocated expenses.

Guidance Note: Expense assumptions should reflect the direct costs associated with the block of contracts being modeled, as well as indirect costs and overhead costs that have been allocated to the modeled contracts.

i. Shall allocate expenses using an allocation method that is consistent across company lines of business. Such allocation must be determined in a manner that is within the range of actuarial practice and methodology and consistent with applicable ASOPs. Allocations may not be done for the purpose of decreasing the stochastic reserve.

j. Shall 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.

Guidance Note: 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.

k. Shall reflect the direct costs associated with the contracts being modeled, as well as an appropriate portion of indirect costs and overhead (i.e., expense assumptions representing fully allocated expenses should be used), including expenses categorized in the annual statement as “taxes, licenses and fees” (Exhibit 3 of the annual statement) in the expense assumption.

l. Shall 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.

m. For contracts sold under a new policy form or due to entry into a new product line, the company shall use expense factors that are consistent with the expense factors used to determine anticipated experience assumptions for contracts from an existing block of mature contracts taking into account:

i. Any differences in the expected long-term expense levels between the block of new contacts and the block of mature contracts.

ii. That all expenses must be fully allocated as required

under Section 12.D.1.h above.

2. Margins for Prudent Estimate Expense Assumptions

The company shall determine margins for expense assumptions following Section 12.C.

VM-21 Section 13

Section 13: Allocation of the Aggregate Reserve to the Contract Level

VM-21 Section 1.B

Principle 3: The implementation of a model involves decisions about the experience assumptions and the modeling techniques to be used in measuring the risks to which the company is exposed. Generally, assumptions are to be based on the conservative end of the confidence interval. The choice of a conservative estimate for each assumption may result in a distorted measure of the total risk. Conceptually, the choice of assumptions and the modeling decisions should be made so that the final result approximates what would be obtained for the stochastic 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 stochastic reserve, the company should be guided by evolving practice and expanding knowledge base in the measurement and management of risk.

Guidance Note: The intent of Principle 3 is to describe the conceptual framework for setting assumptions. Section 10 provides the requirements and guidance for setting contract holder behavior assumptions and includes alternatives to this framework if the company is unable to fully apply this principle. More guidance and requirements for setting assumptions in general are provided in Section 12.

VM-21 Section 10.A

Section 10: Contract Holder Behavior Assumptions

A. General

Contract holder behavior assumptions encompass actions such as lapses, withdrawals, transfers, recurring deposits, benefit utilization, option election, etc. Contract holder behavior is difficult to predict accurately, and variance in behavior assumptions can significantly affect the results. In the absence of relevant and fully credible empirical data, the company should set behavior assumptions as guided by Principle 3 in Section 1.B and Section 12.

VM-31 Section 3.F.3.d

3. Liability Assumptions and Margins – A listing of the assumptions and margins used in the projections to determine the stochastic reserve, including a discussion of the source(s) and the rationale for each assumption:
 - a. Premiums and Subsequent Deposits – Description of premiums and subsequent deposits.

- b. Interest Crediting Strategy – Description of the interest crediting strategy.
- c. Commissions – Description of commissions, including any commission chargebacks.
- d. Expenses Other than Commissions – Description and listing of insurance company expenses other than commissions, such as overhead, including:
 - i. Method used to allocate expenses to the contracts included in a principle- based valuation under VM-21 and a statement confirming that expenses have been fully allocated in accordance with VM-21 Section 12.D.1.h.
 - ii. Method used to apply the allocated expenses to model segments or sub- segments within the cash-flow model.
 - iii. Identification of types of costs that were spread, and for how many years, if any cost spreading was done pursuant to VM-21 Section 12.D.1.a.
 - iv. Method used to determine margins.

VM-31 Section 3.F.13.c (new)

c. Sensitivity Tests - For each distinct product type for which margins were established:

- i. List the specific sensitivity tests performed for each risk factor or combination of risk factors, other than those discussed in Section 3.F.3.h.vi and 3.F.3.i.ii.
- ii. Indicate whether the reserve was calculated based on the anticipated experience assumptions or prudent estimate assumptions for all other risk factors while performing the tests.
- iii. Provide the numerical results of the sensitivity tests for both reserves and capital.
- iv. Explain how the results of sensitivity tests were used or considered in developing assumptions.

Commented [RH5]: EDIT: Added back these cross-references that were removed during verbal discussion of the first draft, with corrected section references. The goal is to avoid duplicate reporting for these sensitivities.

VM-31 Section 3.F.13.d (new)

d. Impact of Margin

- i. Company can perform the impact of margin analysis using off-cycle data. The analysis can be done less frequently than annual unless there is change or update in the margins, but not less frequently than every 3 years.
- ii. Impact of Margins for Each Risk Factor – The impact of margins on the stochastic reserve for each risk factor, or group of risk factors, that has a material impact on the stochastic reserve, determined

by subtracting (i) from (ii), expressed in both dollar amounts and percentages. For the purposes of this analysis, calculate the CTE without requiring that the scenario reserve for any scenario be no less than the cash surrender value:

- (1) The CTE70(best efforts), as outlined in VM-21 Section 9.C, but with the reserve calculated based on the anticipated experience assumption for the risk factor and prudent estimate assumptions for all other risk factors.
- (2) The CTE70(best efforts), as outlined in VM-21 Section 9.C, for that group of contracts as reported.
- (3) Repeat the impact analysis using the same method on CTE(98) levels.

Commented [RH6]: Regarding ACLI comment (EDIT):

While we were not implying CTE(98) is equal to TAR, we acknowledge that since the directional impacts on CTE(70) and CTE(98) may differ, it is not true that the impact on CTE(98) must be positive. Delete guidance note. Request regulator input on whether they want a full TAR impact analysis or whether they are ok following up if the CTE(70) and CTE(98) directional impacts differ and the combined impact is unclear.

iii. Aggregate Impact of Margins – the aggregate impact of all margins on the stochastic reserve for that group of contracts determined by subtracting (1) from (2), expressed in both dollar amounts and percentages. For the purposes of this analysis, calculate the CTE without requiring that the scenario reserve for any scenario be no less than the cash surrender value:

- (1) The CTE70(best efforts), as outlined in VM-21 Section 9.C, for that group of contracts, but with the reserve calculated based on anticipated experience assumptions for all risk factors prior to the addition of any margins.
- (2) The CTE70(best efforts), as outlined in VM-21 Section 9.C, for that group of contracts as reported.
- (3) Repeat the impact analysis using the same method on CTE(98) levels.

iv. Impact of Implicit Margins – For purposes of the disclosures required in 13.d.ii and 13.d.iii above:

- (1) If the company believes the method used to determine anticipated experience assumptions includes an implicit margin, the company can adjust the anticipated experience assumptions to remove this implicit margin for this reporting purpose only. If any such adjustment is made, the company shall document the rationale and method used to determine the anticipated experience assumption.
- (2) Since the company is not required to determine an anticipated experience assumption or a prudent estimate assumption for risk factors that are prescribed (i.e., interest rates movements, equity performance, default costs and net spreads on reinvestment assets), when determining the impact of margins, the prescribed assumption shall be deemed to be the prudent estimate assumption for the risk factor, and the company can elect to determine an anticipated experience assumption for the risk factor, based on the company's anticipated experience for the risk factor. If this is elected, the company shall document the rationale and method used to determine the anticipated experience assumption.

APF 2021-12

Dates: Received	Reviewed by Staff	Distributed	Considered
9/8/21	RM		
Notes: APF 2021-12			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

PBR Staff of Texas Department of Insurance

Title of the Issue:

1. Correct a section reference for the CSMP method in-force modeling requirement in VM-21.

2. Three prescribed assumptions do not have clear requirements for VA contracts with no minimum guaranteed benefits in Additional Standard Projection Amount in VM-21 Section 6.C. These three prescribed assumptions are Partial Withdrawal, Account Value Depletion, and Other Voluntary Contract Termination.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM-21 Section 6.B.3.a-~~v~~, [VM-21 Section 6.B.6.a](#), [VM-21 Section 6.B.6.b](#), VM-21 Section 6.C.4, VM-21 Section 6.C.10, VM-21 Section 6.C.11

January 1, 202~~2~~⁴ NAIC *Valuation Manual*

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

1. VM-21 requires the CSMP method for Additional Standard Projection Amount be applied to a seriatim in-force to capture the impact of model offices under a few deterministic scenarios. There is an incorrect section reference for the in force method required for the prescribed amounts calculation in the CSMP method. [There are also other incorrect section references that need to be corrected.](#)

2. VM-21 does not make clear what requirements should be used for VA contract with no minimum guaranteed benefit for the prescribed assumptions for partial withdrawal, account value depletion and other voluntary contract termination. The requirements for these three prescribed assumptions for VA contracts with no minimum guaranteed benefits should be added to VM-21 Section 6.C.

For Partial Withdrawal assumption, it is reasonable to set the partial withdrawal rate at 3.5% or greater for VA contract with no minimum benefit since the prescribed partial withdrawal rate is 3.5% for GMDB only without guaranteed growth in the benefit basis. For Account Value Depletion assumption, the termination is assumed when the Contract’s account value reaches zero. For Other Voluntary Contract Terminations

Dates: Received	Reviewed by Staff	Distributed	Considered
9/8/21	RM		
Notes: APF 2021-12			

assumption, the requirement should be clearly referred to Table 6.3 defined in Full Surrenders of Section 6.C.6.

VM-21 Section 6.B.3

3. Calculation Methodology

a. CSMP Method:

~~i. The company shall apply this method to a seriatim in force.~~

~~ii.i.~~ Calculate the scenario reserve, as defined in VM-01 and discussed further in Section 4.B, for each of the prescribed market paths outlined in Section 6.B.6 using the same method and assumptions as those that the company uses to calculate scenario reserves for the purposes of determining the CTE70 (adjusted),² as outlined in Section 9.C. These scenario reserves shall collectively be referred to as a Company Standard Projection Set.

~~iii.ii.~~ Identify the market path from the Company Standard Projection Set such that the scenario reserve is closest to the CTE70 (adjusted), designated as Path A. This scenario reserve shall be referred to as Company Amount A.

~~iv.iii.~~ Identify the following four market paths:

- Two paths with the same starting interest rate as Path A, but equity shocks +/- 5% from that of Path A.
- Two paths with the same equity fund returns as Path A, but the next higher and next lower interest rate shocks.

From the four paths, identify Path B whose reserve value is:

- If Company Amount A is lower than CTE70 (adjusted), the smallest reserve value that is greater than CTE70 (adjusted).
- If Company Amount A is greater than CTE70 (adjusted), the greatest reserve value that is less than CTE70 (adjusted).

If none of the four paths satisfy the stated condition, discard the identified Path A, and redo steps (ii~~ii~~) and (iii~~iv~~) using the next closest scenario to CTE70 (adjusted) to be the new Path A in step (ii~~ii~~).

For the path designated as Path B, the scenario reserve shall be referred to as Company Amount B.

~~v.iv.~~ Recalculate the scenario reserves for Path A and Path B using the same method as outlined in step (ii~~ii~~) above, but substitute the assumptions prescribed in Section 6.C and use ~~the modeled in force prescribed by Section 6.B.2a~~ seriatim in force. These scenario reserves shall be referred to as Prescribed Amount A and Prescribed Amount B, respectively.

~~vi.v.~~ Calculate the Prescribed Projections Amount as:

Prescribed Projections Amount

$= \text{Prescribed Amount } A + (\text{CTE70 (adjusted)} - \text{Company Amount } A)$

$$\times \left(\frac{\text{Prescribed Amount } B - \text{Prescribed Amount } A}{\text{Company Amount } B - \text{Company Amount } A} \right)$$

VM-21 Section 6.B.6.a

a. Equity Fund Returns

Eight equity fund return market paths shall be used. These market paths differ only in the prescribed gross return in the first projection year.

The eight prescribed gross returns for equity funds in the first projection year shall be negative 25% to positive 10%, at 5% intervals. These gross returns shall be projected to occur linearly over the full projection year. After the first projection year, all prescribed equity fund return market paths shall assume total gross returns of 3% per annum.

If the eight prescribed equity fund market paths are insufficient for a company to calculate the additional standard projection amount via steps (i) through (viii) outlined in Section 6.B.3.a, then the company shall include additional equity fund market paths that increase or decrease the prescribed gross returns in the first projection year by 5% increments at a time.

VM-21 Section 6.B.6.b

If the five prescribed interest rate market paths are insufficient for a company to calculate the Additional Standard Projection Amount via steps (i) through (viii) outlined in Section 6.B.3.a, then the company shall include additional interest rate market paths that increase or decrease the prescribed starting Treasury Department rates at each point on the term structure by increments equal to 25% of the difference between the Treasury Department rate as of the valuation date and 0.01%. The lowest interest rate to be used in this analysis is 0.01%.

VM-21 Section 6.C.4

4. Partial Withdrawals

jk. For contracts with no minimum guaranteed benefits, the partial withdrawal amount each year shall equal 3.5% of the Account Value.

jl. There may be instances where the company has certain data limitations, (e.g., with respect to policies that are not enrolled in an automatic withdrawal program but have exercised a non-excess withdrawal in the contract year immediately preceding the valuation date [Section 6.C.4.g and

Section 6.C.4.i)]. The company may employ an appropriate proxy method if it does not result in a material understatement of the reserve.

VM-21 Section 6.C.10

10. Account Value Depletions

The following assumptions shall be used when a contract's Account Value reaches zero:

- a. If the contract has a GMWB, the contract shall take partial withdrawals that are equal in amount each year to the guaranteed maximum annual withdrawal amount.
- b. If the contract has a GMIB, the contract shall annuitize immediately. If the GMIB contractually terminates upon account value depletion, such termination provision is assumed to be voided in order to approximate the contract holder's election to annuitize immediately before the depletion of the account value.
- c. If the contract has any other guaranteed benefits, including a GMDB, the contract shall remain in-force. If the guaranteed benefits contractually terminate upon account value depletion, such termination provisions are assumed to be voided in order to approximate the contract holder's retaining adequate Account Value to maintain the guaranteed benefits in-force. At the option of the company, fees associated with the contract and guaranteed benefits may continue to be charged and modeled as collected even if the account value has reached zero. While the contract must remain in-force, benefit features may still be terminated according to contractual terms other than account value depletion provisions.

d. If the contract has no minimum guaranteed benefits, the contract should be terminated according to contractual terms.

VM-21 Section 6.C.11

11. Other Voluntary Contract Terminations

For contracts that have other elective provisions that allow a contract holder to terminate the contract voluntarily, the termination rate shall be calculated based on the Standard Table for Full Surrenders as detailed above in Table 6.3 with the following adjustments:

- a. If the contract holder is not yet eligible to terminate the contract under the elective provisions, the termination rate shall be zero.
- b. After the contract holder becomes eligible to terminate the contract under the elective provisions, the termination rate shall be determined using the "Subsequent years" column of Table 6.3.
- c. In using Table 6.3, the ITM of a contract's guaranteed benefit shall be calculated based on the ratio of the guaranteed benefit's GAPV to the termination value of the contract. The termination value of the contract shall be calculated as the GAPV of the payment stream that the contract holder is entitled to receive upon termination of the contract; if the contract holder has multiple options for the payment stream, the termination value shall be the highest GAPV of these options.

d. For GMWB or hybrid GMIB contracts, for all contract years in which a withdrawal is projected, the termination rate obtained from Table 6.3 shall be additionally multiplied by 60%.

For calculating the ITM of a hybrid GMIB, the guaranteed benefit's GAPV shall be the larger of the Annuitization GAPV or the Withdrawal GAPV.

e. For contracts with no minimum guaranteed benefits, ITM is 0%; for all contract years in which a withdrawal is projected, the termination rate obtained from Table 6.3 shall be the row in the table for ITM < 50% using the "Subsequent years" column of Table 6.3.

APF 2021-13

Dates: Received	Reviewed by Staff	Distributed	Considered
9/16/21	RM		
Notes: APF 2021-13			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Joint submission by:

- Staff of Office of Principle-Based Reserving, California Department of Insurance
- Texas Department of Insurance

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Valuation Manual (January 1, 2022 edition), VM-20 Section 9.C.6.e, VM-20 Section 9.C.7, VM-31 Section 3.D.3.o.

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached Appendix.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

See attached Appendix.

NAIC Staff Comments:

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Appendix

ISSUE:

It has been observed that adding the prescribed mortality margins for some Life/LTC combination products cause modeled reserves to decrease rather than increase.

SECTION:

VM-20 Section 9.C.6.e, VM-20 Section 9.C.7, VM-31 Section 3.D.3.o.

REDLINE:

(New) VM-20 Section 9.C.6.e

e. In the event that the prescribed mortality margins set forth above do not produce a reserve increase of adequate magnitude – and in particular when the prescribed margins produce a decrease in the reserve – the company shall derive and use margins that do produce an appropriately conservative result.

Guidance Note: This can occur, for example, when a rider -- such as a long-term care rider -- is being valued together with the base policy, pursuant to Section II, Subsection 6 of the *Valuation Manual*. Reductions to mortality rates, rather than additions, would potentially be needed in such cases. Such a product/rider combination would likely need to be in its own separate mortality segment. ~~In the case of the product/rider combination, an adequate magnitude for a reserve increase can be thought of in terms of the size of reserve increase that would occur for the product using the tabular prescribed margins if the rider had not been present.~~

VM-20 Section 9.C.7.a

- a. If applicable industry basic tables are used in lieu of company experience as the anticipated experience assumptions, or if the level of credibility of the data as provided in Section 9.C.5 is less than 20%, the prudent estimate assumptions for each mortality segment shall equal the respective mortality rates in the applicable industry basic tables as provided in Section 9.C.3, including any applicable improvement pursuant to Section 9.C.3.g, plus the prescribed margin as provided in Section 9.C.6.c, and further adjusted by ~~plus~~ any applicable ~~additional~~ margin ~~changes~~ pursuant to Section 9.C.6.d.v and/or Section 9.C.6.d.vi and/or Section 9.C.6.e.

VM-20 Section 9.C.7.b.v

- v. For each policy in a given mortality segment, from the start of the projection through policy duration E, the prudent estimate mortality assumptions are the company experience mortality rates (as defined in Section 9.C.2), plus the prescribed margin pursuant to Section 9.C.6.b, and further adjusted by ~~plus~~ any ~~applicable additional~~ margin ~~changes~~ pursuant to Section 9.C.6.d or Section 9.C.6.e.

(New) VM-31 Section 3.D.3.o

o. Adjustments to Prescribed Margins - Description and rationale for any adjustments made to prescribed mortality margins pursuant to VM-20 Section 9.C.6.d or 9.C.6.e.

REASONING:

We want to make sure that mortality margins always increase, rather than decreased, the modeled reserve.

APF 2022-01

Dates: Received	Reviewed by Staff	Distributed	Considered
Notes:			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

Rachel Hemphill, Texas Department of Insurance
Ben Slutsker, Minnesota Department of Commerce

Title of the Issue:

Clarify retrocessions of YRT business.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

VM-20 Section 8.C.18

January 1, 2022 NAIC Valuation Manual

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

In reviewing companies filing PBR in 2020 for retrocessions of YRT business, companies appropriately treated the pre-reinsurance reserve as 1/2cx and the reserve credit as 1/2cx following VM-20 Section 8.C.18’s instruction for handling non-guaranteed YRT or similar business. However, reviewing these filings raised that the Valuation Manual should be made more clear for such retrocessions. Note that if a company had instead been required to model these retrocessions that are dependent on the YRT, then following the requirements that they “project cash flows consistent with the above outlined treatment for non-guaranteed YRT or similar arrangements”, the company would have had to model cashflows consistent with the 1/2cx treatment for the underlying reinsurance (i.e., a partial year’s cashflows) and then modeled the retrocession terms applied to those partial year cashflows. This would have been unnecessary effort for materially the same result. The inefficiency of the alternative further supports clarifying that this is not the required treatment.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

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Dates: Received	Reviewed by Staff	Distributed	Considered
Notes:			

When the reinsurance ceded or assumed is on a non-guaranteed YRT or similar basis, the corresponding reinsurance cash flows do not need to be modeled. This includes retrocession arrangements covering non-guaranteed YRT reinsurance and similar agreements. Rather, for a ceding company, the post-reinsurance-ceded DR or SR shall be the pre-reinsurance-ceded DR or SR pursuant to Section 8.D.2, plus any applicable provision pursuant to Section 8.C.15 and Section 8.C.17, minus the NPR reinsurance credit from Section 8.B. For an assuming company, the DR or SR for the business assumed on a non-guaranteed YRT or similar basis shall be set equal to the NPR from Section 3.B.8, plus any applicable provision pursuant to Section 8.C.16 and Section 8.C.17. In the case where there are also other reinsurance arrangements that are not on a non-guaranteed YRT or similar basis, the reinsurance credit shall include the modeled reinsurance credit reflecting those other reinsurance arrangements. In particular, where there are also other reinsurance arrangements that are dependent on the non-guaranteed YRT or similar arrangements, actuarial judgment shall be used to project cash flows consistent with the above outlined treatment for non-guaranteed YRT or similar arrangements.

APF 2022-02

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

PBR Staff of Texas Department of Insurance

Title of the Issue:

APF to fix language that is hard to follow.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Section 3.F.9.h.ii

January 1, 2022 NAIC *Valuation Manual*

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

VM-31 Section 3.F.9.h.ii:

ii. Documentation that the implied volatility scenarios generated do not result in a lower TAR than that obtained by assuming that the any realizable spread between implied volatility – at all ITM levels – at a given time step in a given scenario is equal to the and realized volatility of the underlying asset scenario over the same time period as required by VM-21 Section 8.D.3.

7

4. State the reason for the proposed amendment? (You may do this through an attachment.)

VM-31 Section 3.F.9.h.ii: Sentence is confusing and doesn’t make sense grammatically. Revised based on the parallel language in VM-21, which this VM-31 reporting item is intended to verify:

For a company not using the safe harbor described in Section 9.B.5, any implied volatility scenarios generated using a non-prescribed scenario generator shall not result in a TAR less than that obtained by assuming that the implied volatility level – at all ITM levels – at a given time step in a given scenario is equal to the realized volatility of the underlying asset scenario over the same time period. In other words, the TAR shall not be reduced by assumptions of any realizable spread between implied volatility and realized volatility. For the purposes of demonstrating compliance with this standard, a company may rely on only the values from the stochastic calculations and exclude impacts from the additional standard projection and the alternative methodology.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

Dates: Received	Reviewed by Staff	Distributed	Considered
1/31/2022	RM		
Notes: APF 2022-02			

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APF 2022-03

Dates: Received	Reviewed by Staff	Distributed	Considered
2/2/2022	RM		
Notes: APF 2022-03			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

PBR Staff of Texas Department of Insurance

Title of the Issue:

General cleanup, including updating cross-references, better consistency between VM-20 and VM-21, where reasonable, and making clarifying edits:

1. **Update cross-references:** Add a reference to the newly added VM-21 Section 12 (general assumption setting) alongside the reference to Section 10 in the Guidance Note after Principle 3 in VM-21.
2. **Update cross-references:** Existing section references are too general to be useful for the asset spread assumptions discussed in VM-21 Section 4.D.4.a.iii and 4.D.4.a.iv.
3. **VM-20/VM-21 Consistency:** VM-21 Sections 4.D.5.a and 4.D.5.b should be made consistent with VM-20; new Sections 4.D.5.c and 4.D.5.d were also added to be consistent with VM-20 where appropriate.
4. **Clarifying Edits:** Avoid the SPA partial withdrawal assumptions from requiring modeling less than the RMD amount for tax qualified contracts with ages greater than or equal to the RMD age in VM-21 Section 6.C.4.
5. **Update cross-references:** Correct section reference errors in VM-21 Sections 6.C.4 and 6.C.5.
6. **Clarifying Edits:** Revenue sharing income assumption requirements need clarification, and language needs cleaning up in VM-20, VM-21, and VM-31.

2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

Issue 1: VM-21 Section 1.B

Issue 2: VM-21 Section 4.D.4.a.iii and 4.D.4.a.iv

Issue 3: VM-21 Section 4.D.5

Issue 4: VM-21 Section 6.C.4

Issue 5: VM-21 Section 6.C.4 and 6.C.5

Issue 6: VM-20 Sections 9.G.7 and 9.G.8, VM-21 Section 4.A.5.f, and VM-31 Sections 3.D.7.c and 3.F.7.c

January 1, 2022 NAIC Valuation Manual

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached.

4. State the reason for the proposed amendment? (You may do this through an attachment.)

1. Add a reference to the newly added Section 12 (general assumption setting Section 12 added by APF 2021-11 for the 2023 Valuation Manual) alongside the reference to Section 10 in the Guidance Note after Principle 3.
2. Existing section references are too general to be useful for the asset spread assumptions discussed in VM-21 Section 4.D.4.a.iii and 4.D.4.a.iv. Edits refer to specific sections of VM-20 gross asset spread assumptions. References parallel those in VM-20 Sections 7.E.1.d and 7.E.1.e.
3. Update VM-21 Section 4.D.5 to be consistent with VM-20, where appropriate. Language added parallels VM-20 Sections 7.F.1, 7.F.2, 7.F.5, and 7.F.6.
4. The current SPA partial withdrawals assumption does not consider the RMD requirement for tax qualified contracts with ages greater than or equal to the federal RMD age. Some companies assumed this was intended to be reflected, but it should be clarified in VM-21.
5. Correct section reference errors in Sections 6.C.4 and 6.C.5.
6. Both VM-20 and VM-21 need to clarify that the haircut prescribed for the non-contractually guaranteed revenue sharing is only a guardrail which is neither redundant to nor a substitution for the margin determination requirements of VM-20 Section 9.G.6 and VM-21 Section 4.F.5.c. Two guidance notes from VM-20 should be added to VM-21 for appropriate consistency. The reporting requirement language which is already in VM-31 should be removed from VM-20 and the reporting requirement in VM-31 is augmented and clarified.

VM-21 Section 1.B (Guidance Note after Principle 3)

Guidance Note: The intent of Principle 3 is to describe the conceptual framework for setting assumptions. Section 10 provides the requirements and guidance for setting contract holder behavior assumptions and includes alternatives to this framework if the company is unable to fully apply this principle. [More guidance and requirements for setting assumptions in general are provided in Section 12.](#)

VM-21 Section 4.D.4.a.iii and Section 4.D.4.a.iv

iii. For purchases of public non-callable corporate bonds, [use the gross asset spreads over Treasuries prescribed in VM-20 Section 9.F.8.a through Section 9.F.8.c. \(For purposes of this subsection, “public” incorporates both registered and 144a securities.\)](#) ~~follow the requirements defined in VM-20 Sections 7.E, 7.F and 9.F.~~ The prescribed spreads reflect current market conditions as of the model start date and grade to long-term conditions based on historical data at the start of projection year four;

iv. For transactions of derivative instruments associated with fixed income investments, reflect the prescribed assumptions in VM-20 Section 9.F.[8.d](#) for interest rate swap spreads;

VM-21 Section 4.D.5

5. Cash Flows from Invested Assets

- a. Cash flows from general account fixed income assets [and derivative asset programs associated with these assets](#), including starting and reinvestment assets, shall be reflected in the projection as follows:
 - 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 materially understate the modeled reserve that would have been obtained using a seriatim approach.
- ii. Reflect asset default costs as prescribed in VM-20 Section 9.F and anticipated investment expenses through deductions to the gross investment income.
 - iii. Model the proceeds arising from modeled asset sales and determine the portion representing any realized capital gains and losses.
 - 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. Asset defaults are not subject to this requirement, since asset default assumptions must be determined by the prescribed method in VM-20 Sections ~~7.E, 7.F~~ and 9.F.
- b. Cash flows from general account equity assets—i.e., non-fixed income assets having substantial volatility of returns, such as common stocks and real estate—and derivative asset programs associated with these assets, including starting and reinvestment assets, shall be reflected in the projection as follows:
- i. Determine the grouping for asset categories and the allocation of specific assets to each category in a manner that is consistent with that used for separate account assets, as discussed in Section 4.A.2.
 - ii. Project the gross investment return including realized and unrealized capital gains in a manner that is consistent with the stochastically generated scenarios.
 - iii. 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. Determine cash flows for each projection interval for all other general account assets by modeling asset cash flows on other assets that are not described in Sections 4.D.5.a and 4.D.5.b using methods consistent with the methods described in Sections 4.D.5.a and 4.D.5.b. This includes assets that are a hybrid of fixed income and equity investments.
- d. Determine cash flows or total investment returns as appropriate for each projection interval for all separate account assets as follows:
- i. Determine the grouping for each variable fund and subaccount (e.g., bonds funds, large cap stocks, international stocks, owned real estate, etc.) as described in Section 4.A.2.
 - ii. Project the total investment return for each variable fund and subaccount in a manner that is consistent with the prescribed returns described in Section 4.A.2 and Section 8.C.3.

VM-21 Section 6.C.4 (Intro)

4. Partial Withdrawals

Partial withdrawals required contractually or previously elected (e.g., a contract operating under an automatic withdrawal provision, or that has voluntarily enrolled in an automatic withdrawal program, on the valuation date) are to be deducted from the Account Value in each projection interval consistent with the projection frequency used, as described in Section ~~6.D.4.F~~, and according to the terms of the contract. However, if a GMWB or hybrid GMIB contract's automatic withdrawals results in partial withdrawal amounts in excess of the GMWB's guaranteed maximum annual withdrawal amount or the maximum amount above which withdrawals reduce the GMIB basis by the same dollar amount as the withdrawal amount (the "dollar-for-dollar maximum withdrawal amount"), such automatic withdrawals shall be revised such that they equal the GMWB's guaranteed maximum annual withdrawal amount or the GMIB's dollar-for-dollar maximum withdrawal amount. However, for tax qualified contracts with ages greater than or equal to the federal RMD age, if the prescribed withdrawal amount is below the RMD amount, the withdrawal amount may be reset to the RMD amount.

Guidance Note: Companies are expected to model withdrawal amounts consistent with the RMD amount where applicable and where practically feasible; however, it is understood that this level of modeling sophistication may not be available for all companies.

For any contract not on an automatic withdrawal provision as described in the preceding paragraph, depending on the guaranteed benefit type, other partial withdrawals shall be projected as follows but shall not exceed the free partial withdrawal amount above which surrender charges are incurred and may be floored at the RMD amount for tax qualified contracts with ages greater than or equal to the federal RMD age:

VM-21 Section 6.C.5

5. Withdrawal Delay Cohort Method

To model the initial withdrawal for certain GMWBs and hybrid GMIBs as discussed in Sections 6.C.4.h and 6.C.4.j-6.C.4.f, the actuary shall adopt a modeling approach whereby a contract is split into several copies (referred to as “cohorts”), each of which is subsequently modeled as a separate contract with a different initial withdrawal period. The contract Account Value, bases for guaranteed benefits, and other applicable characteristics shall be allocated across the cohorts based on different weights that are determined using the method discussed below in this section.

VM-21 Section 4.A.5.f

1. The amount of net revenue-sharing income assumed in a given scenario shall be applied with a margin to reflect any uncertainty but shall not exceed the sum of (i) and (ii), where:
 - i. Is the contractually guaranteed net revenue-sharing income projected under the scenario; and
 - ii. Is the company’s estimate of non-contractually guaranteed net revenue-sharing income before reflecting any margins for uncertainty multiplied by the following factors:
 - 1.00 in the first projection year.
 - 0.95 in the second projection year.
 - 0.90 in the third projection year.
 - 0.85 in the fourth projection year.
 - 0.80 in the fifth and all subsequent projection years.

Guidance Note: Provisions such as one that gives the entity paying the 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.

Guidance Note: If the agreement allows the company to unilaterally take control of the underlying fund fees that ultimately result in the revenue sharing, 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 revenue-sharing income shall be reduced to account for any actual or assumed additional expenses.

VM-20 Section 9.G.7, 9.G.8

7. The ~~qualified actuary to whom responsibility for this group of policies is assigned~~company is responsible for reviewing the revenue-sharing agreements that apply to that group of policies ~~and~~, verifying compliance with these requirements ~~and documenting the rationale for any source of the GRSI used in the projection for that group of policies.~~
8. The amount of net revenue-sharing income assumed in a given scenario shall be applied with a margin to reflect any uncertainty but shall not exceed the sum of (a) and (b), where:
 - a. Is the contractually guaranteed GRSI, net of applicable expenses, projected under the scenario.
 - b. Is the company's estimate of non-contractually guaranteed net revenue-sharing income before reflecting any margins for uncertainty multiplied by the following factors:

VM-31 Section 3.D.7.c

- c. Revenue-Sharing Margins – The level of margin in the prudent estimate assumptions for revenue-sharing income and description of the rationale for the margin for uncertainty. Also, a demonstration that the amounts of net revenue-sharing income, after reflecting margins, do not exceed the limits set forth in VM-20 Section 9.G.8.

VM-31 Section 3.F.7.c

- c. Revenue-Sharing Margins – The level of margin in the prudent estimate assumptions for revenue-sharing income and a description of the rationale for the margin for uncertainty. Also, a demonstration that the amounts of net revenue-sharing income, ~~and after reflecting~~ margins, ~~included~~ do not exceed the limits set forth in VM-21 Section 4.A.5.f.

APF 2022-04

Life Actuarial (A) Task Force
June 9, 2022
Updated Exposure of APF 2022-04

Swap Spreads and London Inter-Bank Offered Rate (LIBOR)
Transition to the Secured Overnight Financing Rate (SOFR)

This exposure of APF 2022-04 provides two options for moving forward with the transition to SOFR. Option A is applicable if the availability of SOFR data is limited to a single data source. Option B is applicable if SOFR data is available from multiple data sources.

Parties are also asked to opine on whether the APF should use the word “companies” or the term “appointed actuary” in option A for VM-20 Appendix 2.F.

Note this revised APF is complemented by a May 26, 2022 memo from NAIC staff to LATF on a recommended replacement to LIBOR swap spreads effective [TBD, potentially June 30, 2022].

Please send comments to Reggie Mazyck @ RMazyck@NAIC.Org by close of business on June 21, 2022.

*** This APF was adopted by LATF on June 30. The Task Force chose to go with Option B for current and Longterm spreads. Members also voted to replace “Appointed Actuary” with the “company.”

Dates: Received	Reviewed by Staff	Distributed	Considered
03/08/22	RM	03/08/22	03/10/22
Notes: APF 2022-04 exposed on 6/9			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Identification:

Alan Routhenstein, on behalf of the American Academy of Actuaries' Life Reserves Work Group, Annuity Reserves and Capital Work Group, and Variable Annuity Reserves and Capital Work Group

[Pat Allison, NAIC staff](#)

Title of the Issue:

Swap Spreads and London Inter-Bank Offered Rate (LIBOR) transition to the Secured Overnight Financing Rate (SOFR) - Updated VM-20 prescribed swap spreads guidance in light of the LIBOR transition to SOFR.

2. Identify the document, including the date if the document is "released for comment," and the location in the document where the amendment is proposed:

VM-20 Section 9.F.8.d, VM-20 Appendix 2.F, VM-20 Appendix 2.G
January 1, 2022 NAIC *Valuation Manual*

3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on "track changes" in Word®) version of the verbiage. (You may do this through an attachment.)

Proposed edits to VM-20 for LIBOR transition to SOFR are shown in the attached Appendix

4. State the reason for the proposed amendment? (You may do this through an attachment.)
 - a. Bank regulators and a group of swap market participants have agreed that for interbank interest rate swaps executed after 2021, the floating rate needs to be based on an index other than LIBOR.
 - b. During 2021 the swap market evolved such that the definition of a standard n-year interest rate swap changed in January 2022 to be a SOFR swap (for which the floating rate is based on SOFR) from the historical LIBOR swap (for which the floating rate is LIBOR).
 - c. As a result, VM-20 instructions for how the NAIC will calculate and publish swap spreads needs to be updated for:
 - i. Current Benchmark swap spreads (as of each month end); and
 - ii. Long-Term Benchmark swap spreads (as of each quarter end)
 - d. The associated presentation provides further background and rationale for this proposal.

NAIC Staff Comments:

Appendix

Proposed amendments to VM-20 for APF 2022-04 on Swap Spreads and LIBOR transition to SOFR

VM-20 Section 9.F.8.d Procedure for Setting Prescribed Gross Asset Spreads.....:

- d. Interest rate swap spreads over Treasuries shall be prescribed by the NAIC for use throughout the cash-flow model wherever appropriate for transactions and operations including, but not limited to, purchase, sale, settlement, cash flows of derivative positions and reset of floating rate investments. A current and long-term swap spread curve shall be prescribed for year one and years four and after, respectively, with yearly grading in between. ~~The three-month and six-month points on the swap spread curves shall be the market observable values for these tenors. Currently, this shall be the corresponding London Interbank Offered Rate (LIBOR) spreads over Treasuries. When the NAIC determines LIBOR is no longer effective, the NAIC shall recommend a replacement to the Life Actuarial (A) Task Force which shall be effective upon adoption by the Task Force.~~
- i. ~~The current prescribed swap spread curve shall be the Secured Overnight Financing Rate (SOFR) swap curve.~~
 - ii. ~~The long term SOFR swap spread curve, given that the SOFR swap market did not emerge before late 2021 and that SOFR is an index for which there is no official data before April 2, 2018, shall be calculated based on 15 year moving averages of prescribed estimates of historical SOFR swap spreads for valuation dates prior to June 30, 2037.~~

Guidance Note: Actuarial judgment may be required in the use of prescribed swap spreads (for example, in the case where the companies have a financial instrument with floating rate payments based on an index that is not prescribed by the NAIC [e.g., 1-month SOFR or 3-month LIBOR]).

VM-20 Appendix 2.F Current Benchmark Swap Spreads:

Option A – For use if the NAIC does not publish current benchmark swap spreads. Replace Section F with the language shown below.

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F. Current Benchmark Swap Spreads

For tenors of 3 months, 6 months, and one year through 30 years, companies (the appointed actuary) shall use swap spread data determined as of the last business day of the month by maturity from a nationally recognized provider of this data.

Option B – For use if the NAIC publishes current benchmark swap spreads based on at least two data sources.

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F. Current Benchmark Swap Spreads

1. For tenors of 3 months, 6 months, and one year to through 30 years, extract swap spread data determined as of the last business day of the month by maturity from at least two nationally recognized providers of this data. For Bank of America data, if the data source provides swap rates rather than swap spreads, convert the swap rate for each maturity to a swap spread by subtracting the corresponding maturity Treasury yield from the swap rate. For JP Morgan, the swap spread is provided for each maturity.
2. Average the Bank of America swap spread with the JP Morgan swap spreads from the data sources by maturity determined as of the last business day of the month.
3. Publish the Current Benchmark Swap Spreads by maturity in a table.

[Drafting Note: The tables will be labeled to indicate they contain SOFR swap spreads.]

Guidance Note: 3-month and 6-month SOFR swap rates are defined herein as the fixed rate one party pays at the end of three months or six months in exchange for receiving at such time 3-month SOFR or 6-month SOFR, calculated on a compounded in arrears basis.

VM-20 Appendix 2.G Long-Term Benchmark Swap Spreads:

G. Long-Term Benchmark Swap Spreads _____

Option A

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1. Extract daily swap spread data over the prescribed observation period (rolling 15-year period) ending on the last business day of the quarter from a nationally recognized provider of this data. For Bank of America data, if the data source provides swap rates rather than swap spreads, convert the daily swap rate for each maturity to a swap spread by subtracting the corresponding maturity Treasury yield from the swap rate.

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Option B

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1. Extract daily swap spread data over the prescribed observation period (rolling 15-year period) ending on the last business day of the quarter from at least two nationally recognized providers of this data. For Bank of America data, if the data source provides swap rates rather than swap spreads, convert the daily swap rate for each maturity to a swap spread by subtracting the corresponding maturity

Treasury yield from the swap rate. ~~For JP Morgan, the daily swap spread is provided for each maturity.~~

2. For a valuation date during or after 2023 and before 2037, calculate SOFR swap spreads as follows for each business day on or after the effective date of the adoption by the Life Actuarial (A) Task Force of SOFR swap spreads as the replacement for swap spreads previously prescribed:

- a. For each maturity “m” = 0.25, 0.5, 1 ... 30 years, and business day “u”:

$$\text{SOFR swap spread}(m,u) = \text{SOFR swap rate}(m,u) - \text{Treasury yield}(m,u).$$

3. For a valuation date during or after 2023 and before 2037, for each business day before the effective date of the adoption by the Life Actuarial (A) Task Force of SOFR swap spreads as the replacement for swap spreads previously prescribed, utilize Bloomberg’s 2021-03-05 published USD Spread Adjustments as follows:

- a. For each maturity “m” = 3 or 6 months, and business day “u”:

i. $\text{SOFR swap spread}(3 \text{ months},u) = \text{LIBOR swap spread}(3 \text{ months},u) - 0.26161\%$
(the USD 3-month Spread Adjustment)

ii. $\text{SOFR swap spread}(6 \text{ months},u) = \text{LIBOR swap spread}(6 \text{ months},u) - 0.42826\%$
(the USD 6-month Spread Adjustment)

- b. For each maturity “m” = 1 ... 30 years, and business day “u”:

$$\text{SOFR swap spread}(m,u) = \text{LIBOR swap spread}(m,u) - 0.26161\% \text{ (the USD 3-month Spread Adjustment)}$$

4. For a valuation date during or after 2037, calculate SOFR swap spreads as follows for each business day:

- a. For each maturity “m” = 0.25, 0.5, 1 ... 30 years, and business day “u”:

$$\text{SOFR swap spread}(m,u) = \text{SOFR swap rate}(m,u) - \text{Treasury yield}(m,u).$$

Option A

~~Delete item 5 below. It would not apply, since data would come from one source.~~

Option B

~~Keep item 5 below, since data would come from more than one source and averaging would apply.~~

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- ~~4.5.2.~~ Average the ~~daily Bank of America~~ swap spread data ~~from the data sources with the daily JP Morgan swap spread data~~ by maturity over the prescribed observation (rolling 15-year period).

6. ~~3.~~ Calculate the Long-Term Benchmark Swap Spreads as the 85% conditional mean for each of the 32 maturity categories (three-month, six-month, one-year, two-year, ... 30-year) using the same business trading days as were used in the 85% conditional mean for long-term bonds spreads.

7. ~~4.~~ Publish the Long-Term Benchmark Swap Spreads in a table. Among tables published on the NAIC website (See Subsection H) ~~Table J shows Long-Term Benchmark Swap Spreads.~~

APF 2022-05

Dates: Received	Reviewed by Staff	Distributed	Considered
5/4/2022	RM		
Notes: APF 2022-05			

Life Actuarial (A) Task Force/ Health Actuarial (B) Task Force Amendment Proposal Form*

1. Identify yourself, your affiliation and a very brief description (title) of the issue.

Angela McNabb & Pat Allison – NAIC staff support. Changes to VM-51 Appendix 1 & Appendix 4.
2. Identify the document, including the date if the document is “released for comment,” and the location in the document where the amendment is proposed:

January 1, 2023 version of the Valuation Manual – VM-51 Appendix 1 and Appendix 4
3. Show what changes are needed by providing a red-line version of the original verbiage with deletions and identify the verbiage to be deleted, inserted or changed by providing a red-line (turn on “track changes” in Word®) version of the verbiage. (You may do this through an attachment.)

See attached
4. State the reason for the proposed amendment? (You may do this through an attachment.)
 1. Additional insurance purchased with dividends do not currently have a distinct plan code. This is needed to perform more complete analysis of the data.
 2. Society of Actuaries would like to have a COVID-19 indicator. We are adding a new termination code to specify death due to COVID-19.
 3. The field previously identified as “State of Domicile” is being changed to “Owner’s State of Residence” to eliminate confusion.
 4. The questionnaire in Appendix 1 incorrectly identifies some values as dates to be filled in.

Note: These changes do not impact the layout of the data file.

* This form is not intended for minor corrections, such as formatting, grammar, cross-references or spelling. Those types of changes do not require action by the entire group and may be submitted via letter or email to the NAIC staff support person for the NAIC group where the document originated.

NAIC Staff Comments:

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Appendix 1: Preferred Class Structure Questionnaire

PREFERRED CLASS STRUCTURE QUESTIONNAIRE

Fill out this preferred class structure questionnaire based on companywide summaries, such as underwriting guideline manuals, compilations of issue instructions or other documentation.

*The purpose of this preferred class structure questionnaire is to gather information on different preferred class structures. This questionnaire varies between nonsmoker/non-tobacco and smoker/tobacco users and provides for variations by issue year, face amount and plan. If the company has the standard Relative Risk Score (RR Score) information available, the company should map its set of preferred class structure to sets of RR Scores. **Except for new preferred class structures or new sets of RR Scores applied to existing preferred class structure(s), the response to the questionnaire should remain the same from year to year.***

If a company has determined sets of RR Scores for its preferred class structures, it should provide separate preferred class structure responses for each set of RR Scores applied to a preferred class structure. If a company has not determined sets of RR Scores for its preferred class structures, it should fill out this questionnaire with its preferred class structures and update the preferred class structure questionnaire at such future time that sets of RR Scores for the preferred class structures are determined. When sets of RR Scores are used, there is to be a one-to-one correspondence between a preferred class structure and a set of RR Scores.

The information given in this questionnaire will be used both to map a set of RR Scores to policy level data and as a check on the policy-level data submission. Submit this questionnaire along with the initial data submission to the Experience Reporting Agent.

Each preferred class structure must include at least two classes (e.g., one preferred class and one standard class). Make as many copies of this preferred class structure questionnaire as necessary for your individual life business and submit in addition to policy-level detail information.

Company	NAIC Company Code
Name	Date

PREFERRED CLASS STRUCTURE – Part 1 Nonsmokers/Non-Tobacco Users

Preferred class structure must have at least one preferred and one standard class. Use multiple copies of this page if needed for nonsmokers/non-tobacco users

Number of Nonsmoker/Non-Tobacco User Risk Classes

- Issue Date Range ~~Date~~ through ~~Date~~
- Issue Age Range ~~Date~~ Age through ~~Date~~ Age
- Face Amount Range ~~Date~~ Amount through ~~Date~~ Amount
- Plan Types (use three-digit codes from item 19, Plan)

Number of Nonsmoker/Non-Tobacco User Risk Classes

- a) Issue Date Range ~~Date~~ through ~~Date~~
- b) Issue Age Range ~~Date Age~~ through ~~Date Age~~
- c) Face Amount Range ~~Date Amount~~ through ~~Date Amount~~
- d) Plan Types (use three-digit codes from item 19, Plan)

Number of Nonsmoker/Non-Tobacco User Risk Classes

- a) Issue Date Range ~~Date~~ through ~~Date~~
- b) Issue Age Range ~~Date Age~~ through ~~Date Age~~
- c) Face Amount Range ~~Date Amount~~ through ~~Date Amount~~
- d) Plan Types (use three-digit codes from item 19, Plan)

Number of Nonsmoker/Non-Tobacco User Risk Classes

- a) Issue Date Range ~~Date~~ through ~~Date~~
- b) Issue Age Range ~~Date Age~~ through ~~Date Age~~
- c) Face Amount Range ~~Date Amount~~ through ~~Date Amount~~
- d) Plan Types (use three-digit codes from item 19, Plan)

Number of Nonsmoker/Non-Tobacco User Risk Classes

- a) Issue Date Range ~~Date~~ through ~~Date~~
- b) Issue Age Range ~~Date Age~~ through ~~Date Age~~
- c) Face Amount Range ~~Date Amount~~ through ~~Date Amount~~
- d) Plan Types (use three-digit codes from item 19, Plan)

PREFERRED CLASS STRUCTURE – Part 2 Smokers/Tobacco Users

Preferred class structure must have at least one preferred and one standard class. Use multiple copies of this page if needed for smokers/tobacco users

Number of Smoker/Tobacco User Risk Classes

- a) Issue Date Range ~~Date~~ through ~~Date~~
- b) Issue Age Range ~~Date Age~~ through ~~Date Age~~
- c) Face Amount Range ~~Date Amount~~ through ~~Date Amount~~
- d) Plan Types (use three-digit codes from item 19, Plan)

Number of Smoker/Tobacco User Risk Classes

- a) Issue Date Range ~~Date~~ through ~~Date~~
- b) Issue Age Range ~~Date Age~~ through ~~Date Age~~
- c) Face Amount Range ~~Date Amount~~ through ~~Date Amount~~
- d) Plan Types (use three-digit codes from item 19, Plan)

Number of Smoker/Tobacco User Risk Classes

- a) Issue Date Range ~~Date~~ through ~~Date~~
- b) Issue Age Range ~~Date Age~~ through ~~Date Age~~
- c) Face Amount Range ~~Date Amount~~ through ~~Date Amount~~
- d) Plan Types (use three-digit codes from item 19, Plan)

Number of Smoker/Tobacco User Risk Classes

- a) Issue Date Range ~~Date~~ through ~~Date~~
- b) Issue Age Range ~~Date~~ ~~Age~~ through ~~Date~~ ~~Age~~
- c) Face Amount Range ~~Date~~ ~~Amount~~ through ~~Date~~ ~~Amount~~
- d) Plan Types (use three-digit codes from item 19, Plan)

Number of Smoker/Tobacco User Risk Classes

- a) Issue Date Range ~~Date~~ through ~~Date~~
- b) Issue Age Range ~~Date~~ ~~Age~~ through ~~Date~~ ~~Age~~
- c) Face Amount Range ~~Date~~ ~~Amount~~ through ~~Date~~ ~~Amount~~
- d) Plan Types (use three-digit codes from item 19, Plan)

Number of Smoker/Tobacco User Risk Classes

- a) Issue Date Range ~~Date~~ through ~~Date~~
- b) Issue Age Range ~~Date~~ ~~Age~~ through ~~Date~~ ~~Age~~
- c) Face Amount Range ~~Date~~ ~~Amount~~ through ~~Date~~ ~~Amount~~
- d) Plan Types (use three-digit codes from item 19, Plan)

Appendix 4: Mortality Data Elements and Format

ITEM	COLUMN	L	DATA ELEMENT	DESCRIPTION
19	65–67	3	Plan	<p>Exclude from contribution: spouse and children under family policies or riders. If Form for Additional Plan Codes was submitted for this policy, enter unique three-digit plan number(s) that differ from the plan numbers below:</p> <p>000 = If unable to distinguish among plan types listed below</p> <p>100 = Joint life plan unable to distinguish among joint life plan types listed below</p> <p>Permanent Plans:</p> <p>010 = Traditional fixed premium fixed benefit permanent plan</p> <p>011 = Permanent life (traditional) with term</p> <p>012 = Single premium whole life</p> <p>013 = Econolife (permanent life with lower premiums in the early durations)</p> <p>014 = Excess interest whole life</p> <p>015 = First to die whole life plan (submit separate records for each life)</p> <p>016 = Second to die whole life plan (submit separate records for each life)</p> <p>017 = Joint whole life plan – unknown whether 015 or 016 (submit separate records for each life)</p> <p>018 = Permanent products with non-level death benefits</p> <p>019 = Permanent plans 010, 011, 012, 013, 014, 015, 016, 017, 018 combined (i.e. unable to separate)</p> <p>Term Insurance Plans:</p> <p>020 = Term (traditional level benefit and attained age premium)</p> <p>021 = Term (level death benefit with guaranteed level premium for five years and anticipated level term period for five years)</p> <p>211 = Term (level death benefit with guaranteed level premium for five years and anticipated level term period for 10 years)</p> <p>212 = Term (level death benefit with guaranteed level premium for five years and anticipated level term period for 15 years)</p> <p>213 = Term (level death benefit with guaranteed level premium for five years and anticipated level term period for 20 years)</p> <p>214 = Term (level death benefit with guaranteed level premium for five years and anticipated level term period for 25 years)</p> <p>215 = Term (level death benefit with guaranteed level premium for five years and anticipated level term period for 30 years)</p> <p>022 = Term (level death benefit with guaranteed level premium for 10 years and anticipated level term period for 10 years)</p> <p>221 = Term (level death benefit with guaranteed level premium for 10 years and anticipated level term period for 15 years)</p> <p>222 = Term (level death benefit with guaranteed level</p>

				<p>premium for 10 years and anticipated level term period for 20 years)</p> <p>223 = Term (level death benefit with guaranteed level premium for 10 years and anticipated level term period for 25 years)</p> <p>224 = Term (level death benefit with guaranteed level premium for 10 years and anticipated level term period for 30 years)</p> <p>023 = Term (level death benefit with guaranteed level premium for 15 years and anticipated level term period for 15 years)</p> <p>231 = Term (level death benefit with guaranteed level premium for 15 years and anticipated level term period for 20 years)</p> <p>232 = Term (level death benefit with guaranteed level premium for 15 years and anticipated level term period for 25 years)</p> <p>233 = Term (level death benefit with guaranteed level premium for 15 years and anticipated level term period for 30 years)</p> <p>024 = Term (level death benefit with guaranteed level premium for 20 years and anticipated level term period for 20 years)</p> <p>241 = Term (level death benefit with guaranteed level premium for 20 years and anticipated level term period for 25 years)</p> <p>242 = Term (level death benefit with guaranteed level premium for 20 years and anticipated level term period for 30 year)</p> <p>025 = Term (level death benefit with guaranteed level premium for 25 years and anticipated level term period for 25 years)</p> <p>251 = Term (level death benefit with guaranteed level premium for 25 years and anticipated level term period for 30 year)</p> <p>026 = Term (level death benefit with guaranteed level premium for 30 years and anticipated level term period for 30 years)</p> <p>027 = Term (level death benefit with guaranteed level premium period equal to anticipated level term period where the period is other than five, 10, 15, 20, 25 or 30 years)</p> <p>271 = Term (level death benefit with guaranteed level premium period not equal to anticipated level term period, where the periods are other than five, 10, 15, 20, 25 or 30 years)</p> <p>028 = Term (decreasing benefit)</p> <p>040 = Select ultimate term (premium depends on issue age and duration)</p> <p>041 = Return of Premium Term (level death benefit with guaranteed level premium for 15 years)</p> <p>042 = Return of Premium Term (level death benefit with guaranteed level premium for 20 years)</p> <p>043 = Return of Premium Term (level death benefit with guaranteed level premium for 25 years)</p> <p>044 = Return of Premium Term (level death benefit with guaranteed level premium for 30 years)</p> <p>045 = Return of Premium Term (level death benefit with guaranteed level premium for period other</p>
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				<p>each life)</p> <p>Variable Life Plans with Secondary Guarantees: 090 = Variable life with secondary guarantees 091 = Variable universal life with secondary guarantees (decreasing risk amount) 092 = Variable universal life with secondary guarantees (level risk amount) 093 = Variable universal life with secondary guarantees –unknown whether code 091 or 092 094 = First to die variable universal life plan with secondary guarantees (submit separate records for each life) 095 = Second to die variable universal life plan with secondary guarantees (submit separate records for each life) 096 = Joint life variable universal life plan with secondary guarantees – unknown whether code 094 or 095 (submit separate records for each life)</p> <p>Coverage purchased with dividends: 196 = Paid Up Additions 197 = One Year Term</p> <p>Nonforfeiture: 098 = Extended term 099 = Reduced paid-up 198 = Extended term for joint life (submit separate records for each life) 199 = Reduced paid-up for joint life (submit separate records for each life)</p>
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27	133-134	2	Cause of Termination	<p>If Inforce Indicator is 1, leave blank.</p> <p>00 = Termination type unknown or unable to subdivide</p> <p>01 = Reduced paid-up</p> <p>02 = Extended term</p> <p>03 = Voluntary; unable to subdivide among 01, 02, 07, 09, 10, 11 or 13</p> <p>04 = Death</p> <p>05 = Death due to COVID-19</p> <p>07 = 1035 exchange</p> <p>09 = Term conversion – unknown whether attained age or original age</p> <p>10 = Attained age term conversion</p> <p>11 = Original age term conversion</p> <p>12 = Coverage expired or contract reached end of the mortality table</p> <p>13 = Surrendered for full cash value</p> <p>14 = Lapse (other than to Reduced Paid Up or Extended Term)</p> <p>15 = Termination via payment of a discounted face amount while still alive, pursuant to an accelerated death benefit provision</p>
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46	275-276	2	State of Domicile Owner's State of Residence	<p>Use standard, two-letter state abbreviations codes (e.g., FL for Florida) for the state of the policy owner's domicile <u>state of residence</u></p> <p>If unknown or outside of the U.S., leave blank.</p>
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