

INTEREST RATE RISK AND MARKET RISK

LR027

Overview

The amount reported on Line (35) and Line (37) is calculated using the 7-step process defined below. This calculation applies to all policies and contracts that have been valued following the requirements of AG-43 or VM-21. For contracts whose reserve was determined using the Alternative Methodology (VM-21 Section 7) see step 3 while all other contracts follow steps 1 and 2, then all contracts follow steps 4 - 7.

Step 1 CTE98: The first step is to determine CTE98 by applying the one of the two methodologies described in paragraph A below.

Step 2 C-3 RBC: using the formulas in paragraph B, determine the C-3 RBC amount based on the amount calculated in step (1). Floor this amount at \$0.

Step 3 Determine the C-3 RBC using the Alternative Methodology for any business subject to that requirements as described in paragraph C.

Step 4 As described in paragraph D below, the C-3 RBC amount is the sum of the amounts determined in steps 2 and 3 above, but not less than zero. The Total Asset Requirement is the Reserve based on the requirements of VM-21 prior to the application of any phase-in, plus the C-3 RBC amount.

Step 5: For a company that has elected a Phase-in for reserves following VM-21 Section 2.B., the C-3 RBC amount is to be phased-in over the same time period following the requirements in paragraph E below.

Step 6 Apply the smoothing rules (if applicable) to the C-3 RBC amount in step (4) or (5) as applicable.

Step 7 Divide the amount from Step 4, 5, or 6 (as appropriate) by (1-enacted maximum federal corporate income tax rate). Split this amount into an interest rate risk portion and a market risk portion, as described in paragraph G.

The interest rate portion of the risk should be included in Line (35) and the market risk portion in Line (37).

The C-3 RBC is calculated as follows:

A. CTE (98) is calculated as follows: Except for policies and contracts subject to the Alternative Methodology (See C. below), apply the CTE methodology described in NAIC Valuation Manual VM-21 and calculate the CTE (98) as the numerical average of the 2 percent largest values of the Scenario Reserves, as defined by Section 4 of VM-21. In performing this calculation, the process and methods used to calculate the Scenario Reserves use the requirements of VM-21 and should be the same as used for the reserve calculations. The effect of Federal Income Tax should be handled following one of the following two methods

1. If using the Macro Tax Adjustment (MTA): The modeled cash flows will ignore the effect of Federal Income Tax. As a result, for each individual scenario, the numerical value of the scenario reserve used in this calculation should be identical to that for the same scenario in the Aggregate Reserve calculation under VM-21. Federal Income Tax is reflected later in the formula in paragraph B.1.
2. If using Specific Tax Recognition (STR): At the option of the company, CTE After-Tax (98) (CTEAT (98)) may be calculated using an approach in which the effect of Federal Income Tax is reflected in the projection of Accumulated Deficiencies, as defined in Section 4.A. of VM-21, when calculating the Scenario Reserve for each

scenario. To reflect the effect of Federal Income Tax, the company should find a reasonable and consistent basis for approximating the evolution of tax reserves in the projection, taking into account restrictions around the size of the tax reserves (e.g., that tax reserve must equal or exceed the cash surrender value for a given contract). The Accumulated Deficiency at the end of each projection year should also be discounted at a rate that reflects the projected after-tax discount rates in that year. In addition, the company should add the Tax Adjustment as described below to the calculated CTEAT (98) value.

3. A company that has elected to calculate CTEAT (98) using STR may not switch back to using MTA in the projection of Accumulated Deficiencies without prominently disclosing that change in the certification and supporting memorandum. The company should also disclose the methodology adopted, and the rationale for its adoption, in the documentation required by paragraph J below.
4. Application of the Tax Adjustment: Under the U.S. IRC, the tax reserve is defined. It can never exceed the statutory reserve nor be less than the cash surrender value. If a company is using STR and if the company's actual tax reserves exceed the projected tax reserves at the beginning of the projection, a tax adjustment is required.

The CTEAT (98) must be increased on an approximate basis to correct for the understatement of modeled tax expense. The additional taxable income at the time of claim will be realized over the projection and will be approximated using the duration to worst, i.e., the duration producing the lowest present value for each scenario. The method of developing the approximate tax adjustment is described below.

The increase to CTEAT (98) may be approximated as the corporate tax rate times f times the difference between the company's actual tax reserves and projected tax reserves at the start of the projections. For this calculation, f is calculated as follows: For the scenarios reflected in calculating CTE (98), the scenario reserve is determined and its associated projection duration is tabulated. At each such duration, the ratio of the number of contracts in force (or covered lives for group contracts) to the number of contracts in force (or covered lives) at the start of the modeling projection is calculated. The average ratio is then calculated over all CTE (98) scenarios and f is one minus this average ratio. If the Alternative Method is used, f is approximated as 0.5.

B. Determination of RBC amount using stochastic modeling:

1. If using the MTA: Calculate the RBC Requirement by the following formula in which the statutory reserve is the actual reserve reported in the Annual Statement. in the second term – i.e., the difference between statutory reserves and tax reserves multiplied by the Federal Income Tax Rate – may not exceed the portion of the company's non-admitted deferred tax assets attributable to the same portfolio of contracts to which VM-21 is applied in calculating statutory reserves:

$$25\% \times ((\text{CTE (98)} + \text{Additional Standard Projection Amount} - \text{Statutory Reserve}) \times (1 - \text{Federal Income Tax Rate}) - (\text{Statutory Reserve} - \text{Tax Reserve}) \times \text{Federal Income Tax Rate})$$

2. If the company elects to use the STR: the C-3 RBC is determined by the following formula:

$$25\% \times (\text{CTEAT (98)} + \text{Additional Standard Projection Amount} - \text{Statutory Reserve})$$

The Additional Standard Projection Amount is calculated using the methodology outlined in Section 6 of VM-21.

- C. Determination of C-3 RBC using Alternative Methodology:** This calculation applies to all policies and contracts that have been valued following the requirements of AG-43 or VM-21, for which the reserve was determined using the Alternative Methodology (VM-21 Section 7). The C-3 RBC amount is determined by applying the methodology as defined in Appendix 2 to these instructions.

D. The C-3 RBC amount is the sum of the amounts determined in paragraphs B and C above, but not less than zero. The TAR is defined as the Reserve determined according to VM-21 plus the C-3 RBC amount. All values are prior to any consideration of Phase-in allowances for either reserve or C-3 RBC, or any C-3 RBC smoothing allowance. The RBC values are post-tax.

E. Phase in: A company that has elected to phase-in the effect of the new reserve requirements following VM-21 Section 2.B. shall phase in the effect on C-3 RBC over the same time period, using the following steps:

1. Begin with the C-3 RBC amount from step 7 for Dec. 31, 2019 LR027 Line (37) instructions for all business within the scope of the Variable Annuities modeling requirements as of 12/31/19. Add to this any voluntary reserves which were subtracted from TAR when the C-3 RBC amount reported for 2019 was determined. Also add to this the amount of C-3 RBC computed in the same manner as the 2019 value for any reinsurance ceded that is expected to be recaptured in 2020 and in the scope of the Variable Annuities modeling requirements. This amount is 2019 RBC
2. Determine the C-3 RBC amount as of 12/31/19 using paragraphs A, B, C, and D for the same inforce business as in 1. Exclude any voluntary reserves in these calculations. Labeled as 2019 RBC New.
3. Determine the phase-in amount (PIA) as the excess of 2019RBC New over 2019RBC
4. For 12/31/2020, compute the C-3 RBC following paragraphs A – D above, then subtract PIA times (2/3)
5. For 12/31/2021, compute the C-3 RBC following paragraphs A – D above, then subtract PIA times (1/3)

Guidance Note: For a company that has adopted a Phase-in for reserves longer than 3 years, adjust the above formula to reflect the actual period with uniform amortization amounts during that period.

Guidance Note: An adjustment is made for voluntary reserves. Voluntary reserve means any reserve that is not required by AG-43, VM-21 and/or a state in which the company is doing business and was subtracted from TAR in 2019 to determine the RBC.

F. Smoothing of C-3 RBC amount

A company should decide whether or not to smooth the C-3 RBC calculated in paragraph D or E above to determine the amount in Line (37). For any business reinsured under a coinsurance agreement that complies with all applicable reinsurance reserve credit “transfer of risk” requirements, the ceding company shall reduce the reserve in proportion to the business ceded while the assuming company shall use a reserve consistent with the business assumed.

A company may choose to smooth the C-3 RBC calculated in paragraph D or E above. A company is required to get approval from its domestic regulator prior to changing its decision about smoothing from the prior year. In addition, a company that has elected to smooth the risk-based capital is required to get approval from its domestic regulator prior to smoothing if it has experienced a material change in its Clearly Defined Hedging Strategy from the prior year. For this purpose, a company’s Clearly Defined Hedging Strategy is considered to have experienced a material change if any of the items outlined in VM-21 Section 1.D.2 in the current year differs from that in the prior year.

To implement smoothing, use the following steps. If a company does not qualify to smooth or a decision has been made not to smooth, go to paragraph G.

1. Determine the C-3 RBC amount calculated in paragraph D or E above
2. Determine the aggregate reserve for the contracts covered by the Variable Annuity Stochastic modeling requirements.
3. Determine the ratio of the C-3 RBC / reserve for current year.
4. Determine the C-3 RBC as actually reported for the prior year Lines (35) plus (37) and adjust that amount to a post-tax amount by multiplying by (1- enacted maximum federal corporate income tax rate). Restate the amount to remove the effect of any voluntary reserves held in prior years that materially differ in amount from the voluntary reserves held in the current year.
5. Determine the aggregate reserve for the contracts in scope of these requirements for the prior year-end. Restate the aggregate reserve to remove any voluntary reserves held for the prior year-end that materially differ in amount from the voluntary reserves held as of the current year-end.
6. Determine the ratio of the C-3 RBC / reserve for prior year.
7. Determine a ratio as $0.4*(6)$ plus $0.6*(3)$ {40% prior year ratio and 60% current year ratio}.

8. Determine the risk-based capital for current year as the product of (7) and (2) {adjust (2) to be actual 12/31 reserve}.

- G. The amount determined in paragraphs D., E., or F. above for the contracts shall be divided by (1-enacted maximum federal corporate income tax rate) to arrive at a pre-tax amount. This pre-tax amount shall be split into a component for interest rate risk and a component for market risk. Neither component may be less than zero. The provision for the interest rate risk, if any, is to be reported in Line (35). The market risk component is reported in Line (37).

The amount reported in Line (37) is to be combined with the C-1cs component for covariance purposes.

- H. The way grouping (of funds and of contracts), sampling, number of scenarios, and simplification methods are handled is the responsibility of the company. However, all these methods are subject to Actuarial Standards of Practice, supporting documentation and justification, and should be identical to those used in calculating the company's statutory reserves following VM-21.
- I. Certification of the work done to set the C-3 RBC amount for Variable Annuities and Similar products are the same as are required for reserves as part of VM-31. The certification should specify that the actuary is not opining on the adequacy of the company's surplus or its future financial condition.

The certification(s) should be submitted by hard copy with any state requiring an RBC hard copy.

- J. An actuarial memorandum should be constructed documenting the methodology and assumptions upon which the required capital for the variable annuities and similar products is determined. Since the starting point for the C-3 RBC calculation is the cash flow modeling used for the reserves, the documentation requirements for reserves (VM-31) should be followed for the C-3 RBC. The reserve report may be incorporated by reference, with this C-3 RBC memorandum focused on identifying differences and items unique to the C-3 RBC process, or at the company's option, the documentation of C-3 RBC may be merged into the VA Report with the differences for C-3 RBC discussed in a separate section of the Memorandum as outlined in VM-31.

These differences that would need to be identified either in the RBC Actuarial Memorandum or the VA Report will typically include:

- * the basis for considering federal income tax,
- * whether or not smoothing was applied, and the effect of that smoothing,
- * whether or not a phase in was used, and the impact on the reported values,
- * If the company elects to calculate CTEAT (98) using STR whereby the effect of Federal Income Tax is reflected in the projection of Accumulated Deficiencies, the company should still disclose in the memorandum the Total Asset Requirement and C-3 RBC that would be obtained if the company had elected to use the MTA method.
- * Documentation of the alternative methodology calculations, if applicable, and
- * Documentation of how the C-3 RBC values were allocated to the interest and market risk components.

This actuarial memorandum will be confidential and available to regulators upon request.

The lines on the alternative calculations page will not be required for **2019 or later**.

The total of all annual statement reserves representing exposure to C-3 risk on Line (36) should equal the following:

- Exhibit 5, Column 2, Line 0199999
- Page 2, Column 3, Line 6
- + Exhibit 5, Column 2, Line 0299999
- + Exhibit 5, Column 2, Line 0399999
- + Exhibit 7, Column 1, Line 14
- + Separate Accounts Page 3, Column 3, Line 1 plus Line 2 after deducting (a) funds in unitized separate accounts with no underlying guaranteed minimum return and no unreinsured guaranteed living benefits; (b) non-indexed separate accounts that are not cash flow tested with guarantees less than 4 percent; (c) non-cash-flow-tested experience rated pension reserves/liabilities; and (d) guaranteed indexed separate accounts using a Class II investment strategy.
- Non policyholder reserves reported on Exhibit 7
- + Exhibit 5, Column 2, Line 0799997
- + Schedule S, Part 1, Section 1, Column **12**
- Schedule S, Part 3, Section 1, Column **14**