



AMERICAN ACADEMY *of* ACTUARIES

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September 28, 2016

Kerry Krantz
Chair, Stress Testing Subgroup
National Association of Insurance Commissioners

Dear Mr. Krantz:

The American Academy of Actuaries¹ Stress Testing Work Group is pleased to submit the following comments to the NAIC's Stress Testing Subgroup. On January 12, our two groups met to discuss the charge of the NAIC's Stress Testing Subgroup (NAIC Subgroup), and how the Academy's Stress Testing Work Group (Academy WG) could assist the NAIC Subgroup in completing its charge. Since our joint call, the Academy's Stress Testing Work Group has met several times to discuss this further.

The charges of the NAIC Subgroup are:

- A. Evaluate RBC in light of PBR. Consider changes to RBC needed because of the changes in reserve values, including "right sizing" of reserves, margins in the reserves, any expected increase in reserve volatility, and the overall desired level of solvency measurement and other issues. —*Essential*
- B. Consider a total balance sheet approach (e.g., total asset requirement (TAR) type calculation and then subtracting out the PBR reserves) and application of stress scenarios. These charges should include appropriate consideration of international core principles.—*Important*

The Academy WG has decided to focus on the NAIC Subgroup's *essential* issue first, and will provide input on your second charge at a later date.

¹ The American Academy of Actuaries is an 18,500+ member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

We note that principle-based reserves (PBR) are currently in place for variable annuities, and reserve and capital updates are being considered by the NAIC Variable Annuities Issues Working Group. PBR for Fixed Annuities and Long-Term Care are still being developed. For this reason, our comments pertain only to RBC and PBR as they relate to life insurance policies, specifically described in chapter 20 of the Valuation Manual (VM-20).

Change in Valuation Method

Any consideration of RBC must start with an understanding of the impact of a reserve methodology on required capital levels. Any statutory valuation methodology should produce reserves sufficient to cover claims under moderately adverse conditions, at a minimum. Although there are different measures to represent moderately adverse conditions, this requirement of any valuation method has not changed with the implementation of PBR. VM-20 reserves are set at conditional tail expectation (CTE) 70, or the average of the worst 30% of scenario results. While CTE 70 is an explicit measure for life reserves levels as compared to the implicit level inherent in current valuation methods for life insurance, the concept for VM-20 reserves has not changed: statutory reserves cover claims under moderately adverse conditions.

Reserves may be more volatile under VM-20 due to unlocking of assumptions as emerging experience warrants. Regardless, even if VM-20 reserves are more volatile, reserves will be set at a level designed to be adequate under moderately adverse conditions.

Company specific margins and underlying experience assumptions will lead to reserves which vary between companies, even for identical policies. Depending on a company's mix of business, pricing and underwriting standards, and credible risk factor experience, the degree of aggregate margins in one company's reserve level will differ from another company's. However, despite company differences, statutory reserves for every company will at least cover moderately adverse conditions.

Required Capital Considerations

The current RBC formula covers the following risks: C-0 (Affiliate Risk), C-1 (Investment Risk), C-2 (Mortality Risk), C-3 (Interest Rate Risk), and C-4 (Business/Operational Risk). In the Academy WG's opinion, there are no additional risks created solely due to the implementation of PBR. PBR may measure risks differently, but the objective of the reserves is still the same - to cover moderately adverse situations. For life insurance, the current RBC C-3 calculation is not integrated with the reserve calculations as is the case with Actuarial Guideline 43 for variable annuities (which is now covered in the Valuation Manual as VM-21) and C-3 Phase II (capital requirements for variable annuities). Work on the capital requirements for policies valued under VM-20 (i.e., C-3 Phase III) began with a consideration of reserve and

capital integration. Integrating the reserve and capital calculations may provide for a more dynamic solvency requirement based on the Total Asset Requirement (TAR), but the need for such integration is not triggered by the introduction of PBR for life insurance products. A decision to integrate reserves and capital is independent of a principle-based approach for reserves.

Risk-Based Capital (RBC) Principles

The Academy WG considered the purpose of RBC: the identification of potentially weakly capitalized companies. Per the NAIC website²:

The NAIC RBC system operates as a tripwire system that gives regulators clear legal authority to intervene in the business affairs of an insurer that triggers one of the action levels specified in the RBC law. As a tripwire system, RBC alerts regulators to undercapitalized companies while there is still time for the regulators to react quickly and effectively to minimize the overall costs associated with insolvency.

State Regulators use RBC as a tool to recognize and take action when an insurer's capital levels raise concern regarding the company's ability to meet its obligations. RBC is one of the tools regulators use for this purpose.

Reserves are held so that the company has the ability to provide promised benefits to policyholders under expected to moderately adverse conditions. RBC is established to preserve the company's ability to cover benefits and expenses in the event of extremely adverse conditions. An underlying assumption of the RBC framework is that reserves are adequate under moderately adverse conditions.

Reserve adequacy is subject to the actuarial opinion, which itself is based on an asset adequacy analysis. Therefore, given that reserves must be adequate, the specific valuation method does not affect the level of required capital. In other words, as long as reserves are adequate, the RBC determination is not dependent on the use of a formulaic or PBR valuation method.

Risk-Based Capital in Light of Principle-Based Reserves

It is the Academy WG's opinion that the introduction of PBR for life insurance policies (i.e., VM-20) does not necessitate any changes to the current RBC formula. By itself, PBR valuation does not expose insurers to new risks related to policyholder benefits or expenses. Therefore, the current RBC formula will capture the risks of life insurance policies for which reserves are calculated under PBR.

² http://www.naic.org/cipr_topics/topic_risk_based_capital.htm

We note that other Academy Work Groups have supported the C-3 Phase III paradigm to capture the interest rate risk for VM-20 policies. Practical considerations have generated industry opposition to C-3 Phase III, particularly the time and expense of implementing C-3 Phase III for all business, not just the new business subject to VM-20. Further, regulators have not voiced strong support for the recommended C-3 Phase III framework. The Academy's C-3 Work Group has suspended any work on C-3 Phase III until there is general agreement among all stakeholders on the conceptual framework for an interest rate risk charge for VM-20 policies.

Certain factors within the RBC formula may benefit from some of the analyses conducted as part of developing PBR, or in other RBC efforts. Updates and improvements to these elements could improve the identification of weakly capitalized companies. We have identified some possible enhancements to RBC in the attached Appendix A.

In summary, the view of the Academy WG is that the implementation of PBR for life insurance policies (i.e., VM-20) does not necessitate any changes to the RBC formula. Our conclusions are based on the following fundamentals:

1. VM-20 valuation does not expose insurers to new risks related to policyholder benefits or expenses.
2. VM-20 has not changed the fundamental objective for statutory reserves and the relationship between statutory reserves and RBC has not changed. Statutory reserves are established to cover moderately adverse conditions. RBC assumes policy reserves, however calculated, that are adequate under these conditions. RBC covers extremely adverse conditions.
3. While the experience assumptions for one company will differ from another company, statutory reserves under VM-20 are assumed to cover benefits and expenses under moderately adverse conditions.
4. The anticipated volatility of VM-20 has no bearing on RBC. The volatility will affect reserve levels, but as explained above, reserves should always be assumed to cover moderately adverse conditions.

We look forward to discussing our conclusions with the NAIC Subgroup and continuing discussions on the use of stress testing in a total balance sheet approach to solvency requirements.

If you have any questions or would like to further discuss these issues, please contact Amanda Darlington, life policy analyst, at darlington@actuary.org.

Sincerely,

Linda Lankowski, MAAA, FSA
Co-Chairperson, Stress Testing Work Group
American Academy of Actuaries

Copies: Dave Fleming, NAIC staff
Philip Barlow
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General Maintenance of the Life RBC Formula
Appendix A

1. VM-20 asset default charges are not consistent with the proposed C-1 factors for corporate bonds. The Academy WG suggests that VM-20 prescribed default charges be updated if and when the C-1 bond factors are updated.
2. C-2 factors have not been updated since RBC was first implemented. Now that a 2017 CSO table has been developed and approved, the Academy WG suggests a review and possible update of C-2 mortality risk factors. Note that the C-2 charge for life insurance is based on a factor times the Net Amount at Risk (NAR). The Academy Work Group sees no reason why this basic C-2 framework should change for VM-20 policies (i.e., C-2 equals an updated factor times NAR).
3. When RBC was introduced, longevity risk was judged to be immaterial for RBC due to the slow emergence of longevity risk over a long time horizon. Further, the prevailing view at the time was that longevity risk would be captured in statutory reserves.

Recently, insurers' increased exposure to longevity risk due to sales of products with guaranteed living benefits has raised concerns among regulators that explicit requirements for longevity risk in either reserves or RBC might be needed. The Academy has formed a group to discuss longevity risk for life and annuity products and will present findings to the appropriate NAIC Working Groups.

4. Inconsistencies between C-3 Phases I and II (i.e., Fixed Annuities and Variables Annuities) were examined in the course of the 2014 C-3 Phase I Field Test. The Academy's C3 Work Group has recommended removing the inconsistencies among all C-3 Phases by using one common methodology, including the use of proprietary scenario generators and calibration criteria. Consistent with previous Academy work group recommendations, the recommendation for consistency among all phases contemplates a C-3 Phase III methodology similar to previous Academy recommendations (i.e., an integrated reserve/capital calculation based on stochastic modeling of all inforce business).

Specifically, the current C-3 factor for life insurance is based on a factor times reserves (i.e., reserves minus reinsurance and policy loans). While the NAIC is considering the adoption of a more sophisticated C-3 Phase III framework, the Academy Work Group sees no reason why this basic C-3 framework should change for VM-20 policies (either the current factor or calculating C-3 as a factor times reserves).

5. VM-20 prescribes use of the Academy's economic scenario generator and does not allow for the use of other generators. Capital calculations for variable annuities allow the use of proprietary generators (e.g., generators developed by software vendors or an insurance company), but the required capital calculation for fixed annuities prescribes the generator, albeit with different parameters than those included in the VM-20 generator. Consistent with recommendations from the Academy's C3 Work Group and the Life Practice Council, this Stress Testing WG supports the use of proprietary generators along with calibration criteria for all regulatory calculations.