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Kevin Fry
Chair, Investment Risk-Based Capital (E) Working Group
National Association of Insurance Commissioners

Dear Kevin,

The C1 Work Group (CIWG) of the American Academy of Actuaries[1] recommended a set of bond factors in October 2017 that included an offset for the level of credit risk reflected in statutory reserves. The National Association of Insurance Commissioners' (NAIC) Investment Risk-Based Capital Work Group (IRBC) asked the C1WG to reconsider this assumption, in particular, whether the level of reserve offset reflected in the recommended C1 bond factors is too conservative. In this context, the IRBC's request related to conservatism deals with the impact on the C1 bond factors. As such, a risk premium with excess conservativism suggests that the C1 bond factors are too high. Further, the IRBC asked the C1WG to provide alternative C1 bond factors for different levels of statutory reserve offset. The C1WG analysis follows.

Definition of the Risk Premium
The level of credit risk assumed to be reflected in statutory policy reserves acts as an offset to the total credit risk modeled in the C1 bond factors. This offset is based on the Risk Premium (RP) and the default portion of the Asset Valuation Reserve (AVR), as defined within the overall solvency regime that includes statutory policy reserves, AVR, and RBC. The RP is an assumption in the C1 Bond Model, defined as a level, annual basis-point deduction from the losses charged against capital. More specifically, the RP represents the amount of spread contained in the assets backing statutory reserves. In the C1 bond model, the RP is applied to the beginning-of-year assets to determine the annual contribution, the Risk Premium Amount (RPA). Beginning-of-year assets are set equal to statutory reserves. The RPA offsets total losses in the determination of the net maximum loss, present value basis, for each trial.

As is the case with the current C1 bond factors, the proposed C1 bond factors are defined as the amount needed to pre-fund losses at the 96th percentile minus the amount assumed to be funded in statutory policy reserves. The credit loss distribution is skewed with the mean occurring at approximately the 60th percentile. The RP does not vary by economic scenario.

[1] The American Academy of Actuaries is a 19,000-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.

Recommendation of the C1WG
In the C1WG's October 10, 2017, recommendation, the RP was set at the mean or the expected level of the credit loss distribution. Based on an extensive review of the RP assumption and the overall solvency structure, the C1WG continues to recommend an RP set at the mean and the October 10, 2017, C1 bond factors for the following reasons:

1. An RP at the mean is identical to the assumption used in the current C1 bond factors, as established and reviewed in 2001. If the RP is increased in the updated C1 bond factors, then the statistical safety level established will not be achieved.

2. There have been no changes to statutory reserve standards that justify a change to this assumption. While VM-20 prescribes a new valuation methodology for statutory policy reserves for life insurance, the standard to hold policy reserves at a level covering moderately adverse risks has not changed.

3. If the RP is changed, all other parts of the solvency framework would need to be reviewed. Changing the RP would necessitate a review of statutory policy reserves, the default portion of the AVR calculation and the treatment of AVR in the life risk-based capital (LRBC) ratio calculation.

4. Essentially, any perceived overstatement of the bond factors as a result of using the mean RP assumption ignores that this perceived shortfall is conceptually addressed by including the default component of AVR in Total Adjusted Capital (TAC). The numerator of the LRBC is equal to the unassigned surplus plus AVR plus one half of the dividend liability. The perceived overstatement of the bond factors is conceptually addressed by including AVR in the calculation of TAC.

   Including the AVR in the numerator is one approach for correcting any perceived overstatement. Another, perhaps better approach is to subtract the AVR from the Company Action Level (CAL) calculation in the denominator. However, changing the treatment of AVR would require a major change in the calculation of LRBC and the entire solvency framework.

In the following section, we have provided additional background on the RP and its relationship to the solvency framework. This background supplements four prior documents:

- Original 2015 recommendation and documentation
- Responses to 2015 recommendation
- Updated recommended bond factors, October 10, 2017
- Additional documentation provided to regulators

Basic Solvency Concepts of the Statutory Framework

1. RBC was established in the early 1990s as part of a broader initiative to strengthen the solvency framework in the U.S. This framework included RBC, AVR, and the Actuarial Opinion and Memorandum Regulation (AOMR).
2. The focus of RBC is weakly capitalized companies; in particular, the RBC formula was designed to help regulators identify potentially weakly capitalized insurance companies.
3. The choice of assumptions used in developing the RBC factors is based on statutory principles and its cornerstone concept of conservativism.
4. LRBC was designed with the recognition of the complementary objectives of AVR and statutory policy reserves in the regulation of an insurer's solvency. Changing one element of LRBC (e.g., the RP) necessitates review and revision of the other elements of the solvency framework. All pieces work together to identify the risks to an insurer's statutory surplus.
5. While not a balance sheet item, LRBC is established assuming statutory policy reserves are adequate. Generally, the factors in the LRBC formula are not designed to compensate for any perceived inadequacies in statutory policy reserves. That said, it is important to note that the methodologies for developing C1 bond factors and statutory reserves are different. C1 bond factors are defined to fund the worst point in a 10-year time horizon while statutory reserves are defined to fund over the lifetime of a policy (e.g., a 30+ year time horizon.)
6. The term, "moderately adverse," is not quantitatively defined (i.e., a statistical measurement is not explicitly defined) in the NAIC's Accounting Practices and Procedures Manual. The actuarial standards of practice (see ASOP 22) defines moderately adverse conditions, but defers to the actuary to use professional judgement to quantify moderately adverse conditions.

    a. Statutory Policy Reserves are governed by both the Standard Valuation Law (SVL) and the AOMR. The SVL defines minimum reserves that are mostly formulaic and the AOMR establishes procedures to give regulators assurance that the appointed actuary has tested the reserves to ensure reserves are adequate under moderately adverse conditions. Between tabular and any additional reserves established by asset adequacy testing, statutory policy reserves are deemed to be able to cover moderately adverse conditions in aggregate.

    b. Each reserve assumption is not necessarily set to cover moderately adverse risks. The moderately adverse standard covers the entire reserve, not each individual assumption.
7. AVR was established to serve as a first layer of protection to statutory surplus. Capital losses are first charged against AVR, cushioning the impact of capital losses to statutory surplus. Basic AVR contribution factors are set equal to the expected mean annual loss.
8. Throughout the development process, the C1WG has assumed there would be an AVR structure, updated for the experience contained in the base C1 bond factors. This assumption implies that the AVR Basic Contribution will continue to be set equal to the expected loss or the RP.

9. The C1 bond model assumes the AVR is fully funded, with ongoing annual contributions equal to expected losses. With the AVR fully funded, the contribution will be capped such that the annual contribution is at most equal to expected losses (i.e., the mean RP). If the RP were changed to be greater than expected, any "excess" amounts would not result in additional funding for credit risk since the AVR would be at the maximum level.

Sensitivity Testing:

At the request of the IRBC, the C1WG has provided basic C1 bond factors under different RPs.

	Mean	60	65	70	75	80	83	Current
Aaa	0.31%	0.31%	0.31%	0.28%	0.26%	0.25%	0.24%	0.30%
Aa1	0.43%	0.44%	0.42%	0.40%	0.39%	0.35%	0.32%	0.30%
Aa2	0.57%	0.57%	0.54%	0.51%	0.47%	0.44%	0.42%	0.30%
Aa3	0.72%	0.71%	0.67%	0.64%	0.60%	0.56%	0.51%	0.30%
A1	0.86%	0.83%	0.79%	0.75%	0.68%	0.63%	0.58%	0.30%
A2	1.06%	1.00%	0.94%	0.89%	0.81%	0.74%	0.68%	0.30%
A3	1.24%	1.17%	1.10%	1.03%	0.94%	0.85%	0.78%	0.30%
Baa1	1.42%	1.35%	1.26%	1.18%	1.08%	0.96%	0.90%	0.96%
Baa2	1.69%	1.61%	1.50%	1.40%	1.29%	1.18%	1.08%	0.96%
Baa3	2.00%	1.89%	1.78%	1.65%	1.54%	1.40%	1.29%	0.96%
Ba1	3.75%	3.63%	3.47%	3.31%	3.07%	2.82%	2.67%	3.39%
Ba2	4.76%	4.65%	4.46%	4.21%	3.99%	3.67%	3.46%	3.39%
Ba3	6.16%	5.88%	5.61%	5.31%	4.94%	4.58%	4.29%	3.39%
B1	6.35%	6.06%	5.79%	5.47%	5.10%	4.72%	4.42%	7.38%
B2	8.54%	8.24%	7.88%	7.51%	7.06%	6.56%	6.17%	7.38%
B3	11.82%	11.44%	10.94%	10.36%	9.79%	9.11%	8.63%	7.38%
Caa1	17.31%	16.90%	16.07%	15.36%	14.64%	13.65%	13.07%	16.96%
Caa2	23.22%	22.86%	22.10%	21.33%	20.64%	19.67%	19.06%	16.96%
Caa3	34.11%	34.19%	33.74%	33.25%	32.57%	31.78%	31.35%	16.96%

Note: the numbers in this table are direct model output; no rounding or other adjustments have been made. For example, the Caa3 factor will likely be capped at the 30% common stock base factor.

Conclusion:

The C1WG has reviewed the Risk Premium assumption used in the development of the C1 bond factors. The C1WG continues to recommend an RP set at the mean to be consistent with the existing solvency framework. Consequently, we continue to recommend the set of C1 bond factors included in our October 10, 2017, letter.

Please contact Nancy Bennett, senior life fellow (bennett@actuary.org), or Ian Trepanier, life policy analyst (trepanier@actuary.org) at the American Academy of Actuaries with any questions you may have.

Sincerely,

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