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AMERICAN ACADEMY of ACTUARIES

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February 14, 2018

Mr. Kevin Fry  
Chair, Investment Risk-Based Capital (E) Working Group (IRBC)  
National Association of Insurance Commissioners  
Via Email: Julie Garber ([JGarber@naic.org](mailto:JGarber@naic.org))

Re: Regulator Questions on Proposed Factors for Bonds

Dear Mr. Fry,

The members of the C1 Work Group (C1WG) of the American Academy of Actuaries,<sup>1</sup> appreciated the opportunity to discuss our proposed Risk Based Capital C1 Factors for Corporate Bonds with interested regulators on a December 12, 2017, conference call. A request was made to document our responses to the questions posed during the conference call. We have summarized our responses to those questions in the following letter.

These comments supplement comments and analysis provided by the C1WG throughout the course of this project. In August 2015, the C1WG recommended risk-based capital factors for corporate bonds. This recommendation, [\*Model Construction and Development of RBC Factors for Fixed Income Securities for the NAIC's Life Risk-Based Capital Formula\*](#), was exposed for comment and generated a number of comments and questions. The C1WG responded to those comments in our [Oct. 17, 2016, letter](#) to you. Finally, our latest recommendations were provided in [our October 10, 2017, letter](#), upon which these answers are based.

Before answering the specific questions, allow us to provide some high level background on the purpose of RBC and how the C1 bond factors contribute to the Life RBC calculation. This background should help put our responses in context.

The C1 factors are one component of the Life RBC formula, whose purpose is to identify insurers that may be weakly capitalized. There are several regulator-specified goals that influence the methodology for developing the factors, including:

- a. Calculation based on public information that can be audited by regulators;
- b. Relatively simple calculation that can be used in court proceedings; and

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<sup>1</sup> 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.

- c. Calculation based on risk factors do not vary by insurer to provide a uniform calculation that can facilitate industry-wide comparisons, to the extent possible.

RBC factors capture the impact of the risk of certain insurer's activities on that insurer's statutory surplus position. RBC is based on statutory principles that are relatively conservative, by design. The RBC formula and its factors have been designed with that specific purpose in mind. As a tool to identify potentially weakly capitalized insurers, RBC helps to protect consumers. As such, RBC differs from other measures used by investors or rating agencies with a focus on the insurer's profits and financial prospects.

In the remainder of this letter, we document our specific answers to the questions posed to us by interested regulators during the December 12, 2017, call.

**1. It appears that more modern industry models analyze credit as a single portfolio rather than as separate independent portfolios for each separate rating grade. In hindsight, does the Academy believe using a more modern single portfolio approach would provide a more accurate result? If not, why?**

We believe that the two-step process for calculating the capital requirement is equivalent to other single portfolio approaches. Regarding the C1 factors (both the current and recommended ones), the C1 requirement is calculated in a two-step process. The first step involves the calculation of a Base C1 Amount, where that Base Amount is calculated by multiplying the bond's carrying value times the base factor for each rating category and summing the total. The second step adjusts the Base C1 Amount through the use of a Portfolio Adjustment (PA). This PA is unique to each insurer and adjusts the Base C1 Amount up or down depending on the number of issuers in an insurer's portfolio, reflecting the degree of diversification contained in the portfolio.

The PA recommended by the C1WG was developed using each life company's actual bond portfolio. The PA factor scale increases or decreases the Base C1 amount of each company's portfolio for the level of diversification risk in each company's bond portfolio. The PA factor scale was developed by fitting the Base C1 Amount for each portfolio to the industry aggregate. The two-step process to produce C1 concludes with the second step on a portfolio basis. As such, the methodology being recommended by the C1WG for determining C1 requirements is, in fact, a portfolio approach which is consistent with each rating's relative risk.

If C1 had been determined only with respect to a single portfolio approach there would still be a potentially subjective process of attributing risk to each rating factor. There are an infinite number of combinations that could work but not at the same time be consistent with each rating's relative risk. Regardless, the C1WG's recommendation can be described as a portfolio approach. We believe the approach does both: total risk is correct and relative risk is correct.

In the American Council of Life Insurers' (ACLI) comments received during the exposure period, the ACLI has advocated a different approach to determining C1 requirements that has been described as a portfolio approach. However, in the ACLI's one-step approach, the total capital requirement is determined first at the portfolio level. Ultimately, this total capital requirement would have to be allocated to rating classes to create C1 factors by rating. The ACLI has not

included any discussion of how the portfolio results would be allocated to the individual security level. There is no assurance that a different approach for reflecting portfolio characteristics would produce a better RBC results, where this approach would result in a more accurate signaling of insurers that may be weakly capitalized.

- 2. The proposed framework apparently assumes that a portfolio of bonds earns only enough to cover expected losses, in effect leaving no incentive to purchase a credit bond over a Treasury. Please confirm or correct this impression, and in either case please explain the rationale.**

The bond factors are based on projected future cash flows. These cash flows fund the future losses on the bonds. Specifically, expected losses covered by policy reserves (expressed as the risk premium in the C1 bond model) are assumed as part of investment income to offset losses. No other portion of coupon payments are included in the cash flows. Investment income from coupons not dedicated to policy reserves is assumed to be included in the product pricing process, meaning that the coupon income is assumed to be part of insurance premiums, thereby covering claims, expenses, dividends, and profit. This allocation has been the practice since RBC was developed.

Please note that the term “risk premium” may have created some confusion. In the context of C1 bond charges, the risk premium represents an actuarial cost to cover the average default losses over a ten-year time horizon. This risk premium differs from an investment perspective where a risk premium represents an excess spread or return due to the risk being assumed by the investor. In the C1 bond model, the expected default loss distribution for the corporate bonds is projected. As such, the “spread” or “excess return” has no direct bearing on the projection of future cash flows. The model projects future default losses over a ten-year time horizon, producing the actuarially equivalent cost to cover up to the 96th percentile.

Changing this assumption on coupon income would be less conservative and, if implemented, would require judgement on the portion of income to attribute to claims vs. bond losses. The basis for attributing income between claims and default losses is not obvious and could vary materially by insurer depending on investment strategy. Changing this assumption would impose greater policy reserve requirements consistent with the dedicated amounts. Care would be needed so the coupon income is not double counted (i.e., used to fund claims AND fund bond losses).

RBC, and the C1 factors, are not designed to encourage or discourage any behavior. RBC is designed to reflect the risks of a set of behaviors and the anticipated impact on statutory capital.

- 3. The proposed framework does not appear to recognize that reserves already cover “moderately adverse” experience including credit losses. Please explain how the proposed C1 framework addresses losses already covered within reserves.**

The C1 bond factors capture the expected bond losses in excess of the bond losses already captured in statutory policy reserves. Current statutory policy reserves for life insurance, as prescribed by the Standard Valuation Law (SVL), do not explicitly define the level of asset losses reflected in reserves (either through tabular reserves or asset adequacy reserves). Generally, statutory policy reserves are considered to fund moderately adverse losses.

As is the case with the current C1 factors, the proposed bond C1 factor is defined as the amount needed to pre-fund losses at the 96th percentile minus the amount funded in reserves. The amount funded in reserves is set at the mean of the loss distribution, also known as the Risk Premium (RP). The RP does not vary by economic scenario, but essentially, the C1 factor covers losses in the (96th – 50<sup>th</sup>) portion of the loss distribution.

Some have argued that setting the RP at the mean is too low, as “moderately adverse” would be closer to the 67th percentile. Again, the SVL does not explicitly define the provision for loss given default (LGD). It is important to remember that the C1 factors cover losses for ALL bonds, and not just bonds backing policy reserves. Even if the RP for assets backing policy reserves should be closer to the 67th percentile, no RP is appropriate for bonds not backing policy reserves. The correct level for the RP is somewhere between 0 and the 67th percentile. There was no reason to set the RP at a different level than the current factors, especially since the IRBC stated that the C1 factor project was an update to the experience used in developing the original C1 factors.

We acknowledge that once reserves calculated according to Principle Based Reserves (VM-20) become a larger portion of an insurer’s portfolio, a review of the RP and/or the methodology for defining the level of bond losses covered in statutory reserves makes sense. However, PBR was effective as of Jan. 1, 2017, with transitional provisions and only applies to new policies issued. Consequently, the default charges specified in VM-20 will not apply to a material portion of statutory reserves (and the assets backing those reserves) for a few years.

**4. Studies have shown different recovery rates for private placement, municipal, and sovereign securities. Please explain why the model does not differentiate asset classes with different recovery rates.**

We developed proposed bond factors using data and assumptions for corporate bonds. All assumptions in our model are consistently defined for bonds in the corporate sector. We intended to develop separate factors for different sectors. However, in our discussions with officials at rating agencies (Moody’s and Standard and Poor’s), they explained that they follow a global ratings process. Essentially, the global ratings process is centered on the risks for an issuer in the corporate sector, with notching above or below this corporate rating to reflect differences in risk for other aspects (e.g., private bonds, municipal bonds). Both rating agencies maintain that the global ratings process adjusts the rating for each security’s risk. Favorable or unfavorable risk factors for each security are included as an adjustment to the issuer rating to derive the issue rating.

This global ratings process seeks to achieve forward-looking equivalence across all sectors; the expected loss for an A-rated corporate bond is equivalent to the expected loss for an A-rated private bond and to the expected loss for an A-rated municipal bond. Because the rating agencies are making adjustments for risk in assigning a rating, it would not be appropriate to further adjust the C1 bond factors.

When we were considering the development of a separate model for municipals, we were not able to locate any credible or reliable default or recovery studies showing different experience. Over time, the rating agencies modified their ratings process (notably, Moody's) for municipals, but did not adjust the data reported in their default studies. Consequently, Moody's municipal bond default study combines experience based on different calibration techniques between municipal and corporate ratings and therefore, it would not be appropriate to use in distinguishing between corporate and municipal expected default costs.

- 5. Regarding recovery data, do you believe your most recent time frame analysis is likely to be reflective of a lower than normal general recovery environment (e.g., post-2008)? Please explain. Do you believe it would be appropriate to consider this analysis across a wider complete credit cycle?**

The data from 1987-2012 was used in our models. No other data was available.

- 6. Please provide details of back testing performed. Did the results show an increased need for capital as compared to pre-1990? If not, please explain whether you believe the model is sufficiently calibrated to obtain a 96th percentile.**

We may not fully understand this question. We define back testing as a "what if" or look back; if the new factors had been in place, how would insurers have been affected? Would more insurers have been identified as weakly capitalized? The C1WG is not in any position to evaluate whether or not the updated factors would have initiated different regulatory actions (e.g., whether the change in an insurer's RBC ratio would have decreased an insurer's ratio below the Company Action Level). While the C1 bond factors are just one part of the RBC calculation, only the NAIC staff and regulators are in a position to evaluate how updated factors affect regulatory actions.

While we cannot look in the past, we think a better question is, what happens if the factors aren't increased? What if the C1 requirements aren't increased? These proposed factors are approximately 20 percent higher than the current factors. It is reasonable to conclude that the current bond factors do not pre-fund at the regulator-prescribed statistical safety level of the 96th percentile over 10 years. If the C1 bond factors are not updated, how many companies would be missed in the future?

**7. Table 2. Attribution of Change in 2002 vs 2015 C1 Factors on p. 11 of the August 2015 Academy report shows significant impacts from changes in the Discount Rate, Default, & Recovery assumptions. Please provide more detail (than is in the report) supporting these assumption changes, and in particular, how the discount rate was chosen. Detail provided should include (but not be limited to) additional explanation of the drivers of the contrast between the fact that the C1 factors decreased for all of the below-investment grade factors whereas they increased for almost all of the investment grade factors.**

The main reason for the relative shift in the factors between investment grade (IG) and below-investment grade (BIG) factors relates to the recovery assumptions. Much more information is available on recoveries in the bond market, compared to the late 1980s/early 1990s when the original C1 bond factors were being developed. The original factors assumed a lower level of recoveries for BIG securities than was actually experienced, while the recoveries for IG securities were lower than the recovery rate assumed in the original factors. This shift in experience explains, in part, why the slope of the factors flattened out.

For the 2015 recommended factors, the discount rate (DR) is 5 percent before tax and 3.25 percent after tax. The basis for the DR is the 10-year Libor swap rate. Based on the average 10-year swap rate over the past 20 years (data ending Dec. 31, 2013), this rate was determined to be 5.02 percent before tax or 3.26 percent after tax. These rates were then rounded to 5 percent and 3.25 percent, respectively. The same DR is used for all simulations and does not vary over the projection period. Note that the average 10-year U.S. Treasury rate over the past 20 years has been 4.57 percent before tax and 2.97 percent after tax. Further, we note that if the DR were updated through April 30, 2017, the DR would drop to 4.2 percent before tax.

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We hope these comments are helpful. Please contact Nancy Bennett ([bennett@actuary.org](mailto:bennett@actuary.org)) if you have any questions.

Sincerely,

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