



AMERICAN ACADEMY of ACTUARIES

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March 13, 2015

Via email to: eyeung@naic.org

David Altmaier
Chair, Property/Casualty Risk-Based Capital Working Group
National Association of Insurance Commissioners

c/o Eva Yeung, Senior Insurance Reporting Analyst
1100 Walnut Street, Suite 1500
Kansas City, MO 64106-2197

Re: Underwriting Risk Factors in the NAIC Property/Casualty (P/C) Risk-Based
Capital Formula

Dear Mr. Altmaier:

The American Academy of Actuaries¹ P/C Risk-Based Capital (RBC) Committee is pleased to provide this update to the NAIC's Property/Casualty Risk-Based Capital Working Group on its plans to develop indicated property/casualty premium and reserve underwriting (UW) risk factors for consideration by the Working Group.²

While subject to revision based on further analysis, the approach currently contemplated by the Academy's P/C RBC Committee is based on the concepts outlined below. Elements of this approach have been presented at various Working Group meetings by the CAS Dependency and Calibration Working Party (DCWP). As we proceed, we encourage questions, suggestions, and discussion of issues related to our work from the Working Group and interested parties.

To assist in that discussion, the attached outline covers the following elements of the Academy P/C RBC Committee work:

¹ The American Academy of Actuaries is an 18,000+ member professional association whose mission is to serve the public and the U.S. actuarial profession. The Academy assists 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.

² In September 2010, this Working Group requested an analysis of methods of properly quantifying reserve and pricing (premium) underwriting factors. To assist in this effort, the Academy enlisted the research aid of the Casualty Actuarial Society (CAS). In July 2011, the Academy's P/C RBC Committee reported to the Working Group that the complexity of these issues would necessitate additional research by the CAS working party. The current work by the P/C RBC Committee is a continuation of that effort, now that a significant amount of research on that subject has been completed by the CAS working party.

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1. Policy Decisions—Issues we consider a matter of NAIC policy and our interpretation of that policy based on past practices
2. Analysis Decisions—Required to prepare recommendations
3. Implications for NAIC Procedures—There are features in Academy P/C RBC recommendations that may affect NAIC procedures
4. Scope of P/C RBC Recommendations—Areas that are currently outside the scope of the contemplated Academy P/C RBC Committee recommendations. These issues may be addressed in subsequent recommendations after additional research.
5. Data Requests of NAIC

We welcome feedback and/or questions from Working Group members, interested regulators, and interested parties as early in the process as possible. If you have any questions about our comments, please contact Lauren Pachman, the Academy's casualty policy analyst, at pachman@actuary.org or (202) 223-8196.

Sincerely,

Thomas S. McIntyre, MAAA, FCAS, CERA
Chairperson, P/C Risk-Based Capital Committee
American Academy of Actuaries

**Academy RBC Committee
Approach to Underwriting Factor Calibration
Prepared for Discussion by NAIC RBC Working Group and interested parties**

Feature	Approach	Comments
1. Policy Decisions		
Line of Business Size (LOB-Size)	While indicated premium risk factors ³ (PRFs) and reserve risk factors ⁴ (RRFs) vary by size, the Academy RBC Committee will provide a single factor for all LOB-sizes	We understand this is a policy decision by the NAIC. We note that Solvency II and most factor-based standard formulas also use UW factors that do not vary by LOB-size.
Transition Rules	The Academy RBC Committee expects to provide transition rules for implementation, consistent with past practice and/or if such rules are suggested by any features in the data.	In the past, the NAIC implemented recommended factor changes with transition rules.

³ For each Schedule P LOB, R5 is determined using an “Industry RBC Loss and Expense Ratio,” a value applicable to all companies, used in PR017 line 4. We refer to this as the premium risk factor.

⁴ For each Schedule P line of business (LOB), reserve risk is determined using an “Industry Loss and Expense %,” a value applicable to all companies, on PR016 Line 4. We refer to this as the reserve risk factor.

Feature	Approach	Comments
<p>Safety Level</p>	<p>RRF based on 87.5th percentile of observed reserve runoff ratios across companies and initial reserve dates.</p> <p>PRF based on 87.5th percentile of observed loss ratios across companies and Accident Years.</p>	<p>This is the “safety level” used in prior Academy analyses, including the most recent (“Current Calibration Method” [CCM]). No safety level was specified in the earliest calibrations.</p> <p>This safety level is based on a “company view” of insolvency risk. It means that 12.5 percent of runoff ratios or loss ratios are higher than the indicated RRF or PRF, respectively, across companies and years.</p> <p>An alternative view is one based on “number of policies” or, as a more practical proxy, premium. We intend to provide the percentile of premium equivalent to the 87.5th percentile of companies, i.e., the portion of industry premium from companies with runoff ratios or loss ratios above the indicated RRF or PRF, respectively. We expect that for most lines of business, when the company view is 87.5 percent, the premium equivalent safety level view is higher than 87.5 percent.</p> <p>The committee could provide factors that also require a certain percentile of premium equivalent safety levels by line of business (in addition to the 87.5th percentile of companies).</p> <p>Also, the P/C RBC committee may be able to provide factors at other safety levels, if needed.</p>

Feature	Approach	Comments
2. Analysis Decisions		
Data	The P/C RBC Committee will use data from as many years as can be provided by the NAIC, likely to be Annual Statements 1997-2013.	<p>The DCWP research showed the significance of including underwriting cycles.</p> <p>The P/C RBC Committee is interested in any data or analysis supporting a view that future UW risk will be significantly different from observed past risk. Absent such data or analysis, to the extent the history appears to provide enough data, the P/C RBC Committee recommendations will be based primarily on the historical data.</p>
Survivorship	The P/C RBC Committee will use data for any years in which Annual Statements were filed, even if a company is no longer filing statements, i.e., including data for companies that are no longer in operation.	The CCM, based on data from only one Annual Statement, does not include any data from companies that did not file Annual statements in the most recent year.
LOB-Size	Select PRF and RRF for data points with LOB-size at or above a selected percentile for each LOB. ⁵	<p>For PRFs, the CCM was calibrated to sizes over \$500,000 in premium. This CCM filter would include more data points for some lines and fewer data points for other lines.</p> <p>For RRFs, no filter exists for LOB-size. The P/C RBC Committee proposes LOB-size filters based on a selected percentile of reserve volume.</p>

⁵ The P/C RBC Committee is still considering the other alternatives, the median approach and the threshold approach, identified in the DCWP research.

Feature	Approach	Comments
Pooling	The P/C RBC Committee intends to recommend combining the data from intercompany pool participants into a single pool-wide data point .	In CCM, data from each company that is part of an intercompany pooling arrangement is treated as an independent data point. Treating such interrelated data points as independent has the potential to cause distortion. The DCWP approach addresses that potential distortion.
Minor lines	The P/C RBC Committee intends to recommend some type of filtering for “ minor lines ” – data points where the net earned premium for the Line of Business (LOB) represents a small portion of the company’s total net earned premium.	The basis for this approach is described in DCWP Reports 6, 7, and 8, on premium risk factors, reserve risk factors, and variation in risk factors by type of company, respectively. (All DCWP reports are published in the CAS E-Forum.)
Company Age	The P/C RBC Committee intends to exclude data points from companies with less than five years of earned premium.	The basis for this approach is described in DCWP Reports 6 and 7, on premium risk factors and reserve risk factors.
Maturity	The P/C RBC committee will investigate the effects of determining indicated factors using data (a) of all maturities and (b) removing the least mature data points, as those data points might distort indicated UW risk factors, as indicated by DCWP research.	
Inflation	The percentile threshold for LOB-size may be applied separately for each Accident Year/ reserve date to adjust for inflation over time. ⁶	As the CCM used only 10 years of data (the latest Annual Statement), inflation adjustments were not as important.

⁶ As was stated earlier, the P/C RBC Committee will use data from as many years as can be provided by the NAIC, likely to be Annual Statements 1997-2013. Therefore, if a constant LOB-size threshold is applied for each Accident Year, this may lead to distortion due to inflation. A constant percentile could be selected for each Accident Year/reserve date separately to adjust for this.

Feature	Approach	Comments
Unexpected data values	The P/C RBC Committee intends to exclude data points that have anomalous values . This includes negative loss ratios, negative calendar reserves, reserve runoff ratios over 500 percent, etc.	<p>CCM included similar filters.</p> <p>The new filters must be somewhat different because the data set will now include 25 years of data rather than just the 10 years of data used in CCM.</p> <p>Also, CCM filters were modeled on the rules for the RBC own-company experience adjustment. Those own-company adjustment data rules are not necessarily appropriate for determining the data points for calibration purposes.</p>
3. Features in Application of RBC Recommendations that may Affect NAIC Procedures		
Own-company experience adjustment	<p>The RBC formula includes an adjustment for the company loss ratio (or runoff ratio) in relation to the industry loss ratio (or runoff ratio) in PR0016 and PR0017 lines 1, 2, and 3.</p> <p>Consistent with the proposed calibration of premium and reserve risk factors, the P/C RBC Committee might recommend changes to the calculation of the industry loss ratio and/or reserve ratio (line 1 on PR0016 and PR0017) to reflect the minor lines, pooling, size, and maturity treatments in the risk factor calibration.</p>	
4. Scope of This P/C RBC Analysis		
Catastrophe Risk Charges	The P/C RBC Committee currently does not intend to address the effect of the new R6 and R7 charges in this work.	

Feature	Approach	Comments
Investment Income	The scope of this project does not include an evaluation or recommendation of changes to the investment income offset.	
Tabular Reserve	The P/C RBC Committee does not have the data necessary and therefore will not estimate the effect that unwinding workers' compensation tabular reserve might have on the indicated RBC factors.	Do the NAIC or interested parties have any suggestions regarding analysis of the effect and/or data sources to allow such analysis?
5. Data Requests of NAIC		
Data	NAIC has already provided Schedule P data for Annual Statement years 2011-2013 to supplement the 1997-2010 Annual Statement data already provided to DCWP.	
Measuring Impact	To allow the P/C RBC Committee and the NAIC itself to consider the effect of the P/C RBC Committee's proposals, we ask that the NAIC work with the P/C RBC Committee to perform a calculation of the impact.	This data can be approximated, but not quite reproduced, from public Annual Statement data.