DRAFT, For Discussion Purposes

American Academy of Actuaries Joint P&C/Health Bond Factors Analysis Work Group Report to the NAIC Health Risk-Based Capital (E) Working Group

Risk-based Capital (RBC) factors related to risk charges for fixed income securities

Health-Specific Considerations

July 10, 2018

Introduction & Context

Introduction

This material is an update on the status of work being done by the Joint P&C/Health Bond Factors Analysis Work Group (PCHWG) of the American Academy of Actuaries[1] (the Academy) for the National Association of Insurance Commissioners (NAIC) Health Risk-Based Capital (E) Working Group. The analysis deals with certain aspects of risk-based capital (RBC) factors related to risk charges for fixed income securities.

This material is preliminary. The PCHWG is providing this material to the NAIC Health RBC Working Group at this point to facilitate discussion of relevant issues. This material may be revised, perhaps materially, by the PCHWG based on further discussion and analysis.

Context

This material builds on the PCHWG January 31, 2018, Discussion Draft (January Draft) analysis of investment grade bond risk charges (NAIC classes 1 and 2) and the PCHWG May 29, 2018 Discussion Draft analysis of risk charges for speculative grade bonds presented to the NAIC Drafting Group and again at several subsequent conference calls and meetings of various NAIC working groups dealing with RBC matters.

This material relates to items associated with the Health bond factor portion of the Health RBC formula that were not specifically covered in the aforementioned discussion drafts.

Summary

This material includes updates to the selected time horizon for health insurance. The basic considerations that were included in prior discussion drafts remain relevant to both P&C and Health insurers and therefore will not be repeated here. Additionally, we have included a section related to the applicability of a bond size adjustment (portfolio adjustment) for health insurers. It's important to note that currently both the Life and P&C RBC formulas include a bond size adjustment while the Health formula does not.

[1] The American Academy of Actuaries is a 19,500-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.

Time Horizon for Health RBC Formula Default Risk Factors

The PCHWG indicated risk factors use a two-year time horizon for the Health RBC Formula after considering the issues discussed below.

1. Duration of Risk Related to Liabilities

The magnitude and duration of health unpaid claim liabilities is much lower and shorter than for P&C. Unpaid claim reserves constitute less than 36 percent of surplus and 10 percent of premium. More than 95 percent of claims are paid within the year that the claims are incurred.[2] On average, claim liabilities are paid within 1.3 months. For purposes of this analysis, "health" means the types of Accident and Health (A&H) coverages written by insurers who file the Orange Blank and therefore fill out Health RBC. As such, for purposes of this analysis "health" does not really need to contemplate longer-tailed coverages like Long-term Care (LTC) and Long-term Disability (LTD), as the companies writing those lines would typically not file a Health RBC report.

Certain liabilities take longer to settle (e.g., risk adjustment or provider settlements) but these liabilities typically settle in the year following the contract or performance year.

Lastly, other types of liabilities with materially longer-tailed durations include policy reserves, and contract reserves. These liabilities make up a relatively small portion of total liabilities for health insurers (11 percent).

While a precise average duration could not be calculated based on available information, a reasonable range was estimated to be 0.5 to 1.5 years.[3] As noted above, unpaid claims liabilities are estimated to be approximately 1.3 months and make up 40 percent of the total liabilities. The remaining liabilities make up 60 percent with an estimated average duration of 0.8 to 2.5 years.

2. Duration of Risk Related to Future Premium

Underwriting risk related to net written premium for health insurers considers just the most recent reporting year. In general, most health contracts are annually renewed. One aspect of these policies is that for regulated business (which represents a growing share of net written premium), premiums are set and therefore guaranteed for the next year without significant visibility into current year performance. As a result, it may be difficult to adjust premiums in the event of a deficiency for approximately two years. For example, many health insurers in the individual market had to price 2016 policies before knowing the adequacy of the rates on their 2014 policies.

[2] See Appendix 1. Based on health industry total Annual statement, Underwriting and Investment Exhibit Part 2C Section C
[3] See Appendix 2. Based on health industry total Annual statement, Liabilities, Capital and Surplus

3. Duration of Risk Related to Assets

We also observe that the duration of assets for health insurers is about five years, thus longer than the duration of health liabilities. Thus, assets might need to be sold prior to maturity and therefore would be subject to market value risk. That risk is mitigated because the company will receive new funds from the additional year of premium and from uncollected portions of the unearned premium reserve. In case of financial difficulty, those funds could be directed to shorter term assets, reducing the average duration in the insurer's portfolio, and the risk of needing to sell assets prior to maturity at below-book value.

In recognition that the duration of assets exceed the duration of liabilities, we selected a time horizon as high as two years in consideration of the asset duration.

Health Bond Size Factors and Base Risk Factors

1. Selecting Health Bond Size Factors

The current Health RBC formula does not include a bond size factor (i.e., portfolio adjustment) in determining the risk factor associated with investment grade bonds. We believe this was reflective of the materiality of the impact of the risk factor on the overall RBC level for health insurers.[4]

Therefore to evaluate the materiality and the overall impact a bond size factor may have on the results, the NAIC prepared a comparison of company-by-company risk charges with and without bond size factors.

The NAIC analysis shows that the difference in Authorized Control Level (ACL) RBC value is within -5 percent to +5 percent for over 97 percent of companies, comparing ACL with the bond size adjustment and without the bond size adjustment. This is true for large and small companies, and there are no ACL differences over +/-5 percent for the largest 50 percent of companies. Also, there is no difference in the number of companies in any action level with the bond size factors compared to the estimate without the bond size factors.

Therefore, our indicated risk factors are based on the current Health RBC Formula, and do not include bond size factors.

[4] Feldblum, page 305, (see Appendix 3 for extract) observes that there was a debate on whether the portfolio adjustment factor should apply to P&C, because of the low impact on RBC values and because of the quality of issuer data. The same issues would have applied to health insurance and likely were considered when the Health RBC Formula was developed

2. Calculating Base Risk Factors

Assuming there will be no health bond size factors, the indicated health base risk factors are shown on page six.

We construct the base risk factors as follows:

- Investment Grade (IG) cells in Column 3 show the IG indicated factors from the default risk model, with a two-year time horizon with the health representative portfolio, the health discount rate, before federal income tax (BFIT), with no life accounting adjustments.
- Speculative Grade (SG) cells in Column 3 show P&C SG indicated factors, increased by 1.119. The factor of 1.119 adjusts the P&C indicated factors from a portfolio with 535 issues (bond size factor 1.125) to a portfolio with 382 issues (bond size factors of 1.259).[5]
- Column 4 equals Column 3, as there are no bond size factors, the risk factors for the representative portfolio, 382 issuers, equals the base risk factors.

[5] We make this adjustment using the proposed portfolio adjustment factors intended for life and P&C. On that basis, the average portfolio adjustment factor to 382 issuers (health) is 1.259 and the average portfolio adjustment for 535 issuers (P&C) is 1.25. Column 3 equals column 2 times 1.119=1.259/1.125.

(1a)	(1b)	(1c)	(2)	(3)	(4)
NAIC Class	Moodys Rating Class	S&P Rating Class	Current Base Risk Factor	Indicated Risk Factor 382 issuers	Indicated Base Risk Factor
IG Bonds - Based on Default Risk					
1	Aaa	AAA	0.3%	0.0%	0.0%
1	Aa1	AA+	0.3%	0.0%	0.0%
1	Aa2	AA	0.3%	0.1%	0.1%
1	Aa3	AA-	0.3%	0.2%	0.2%
1	A1	A+	0.3%	0.3%	0.3%
1	A2	A	0.3%	0.5%	0.5%
1	A3	A-	0.3%	0.7%	0.7%
2	Baa1	BBB+	1.0%	1.0%	1.0%
2	Baa2	BBB	1.0%	1.2%	1.2%
2	Baa3	BBB-	1.0%	1.5%	1.5%
SG Bonds - Based on Market Risk					
3	Ba1	BB+	2.0%	6.4%	6.4%
3	Ba2	BB	2.0%	7.0%	7.0%
3	Ba3	BB-	2.0%	7.6%	7.6%
4	B1	B+	4.5%	8.3%	8.3%
4	B2	B	4.5%	8.9%	8.9%
4	B3	B-	4.5%	10.2%	10.2%
5	Caa1	CCC+	10.0%	11.5%	11.5%
5	Caa2	CCC	10.0%	12.8%	12.8%
5	Caa3	CCC-	10.0%	14.1%	14.1%
6	Ca or lower	CC+ or lower	30.0%	30.0%	30.0%

We note the following about these factors:

- The health factors for IG bonds are lower than the P&C factors for IG bonds because of the shorter time horizon for health insurance.

- The health SG bond risk factors in column 4 are higher than the P&C factors for SG bonds because of the smaller number of issuers in the health represented portfolio.

The values are before the application of a 0.1 percent minimum risk factor, which affects bond factors for AAA and AA+ rating classes. Due to the short time horizon and the low default risk on bond classes AAA and AA+, the calculated risk factor rounds to zero. To avoid not having any risk charge for these two classes, we have established a minimum threshold equal to the calculated value of 0.1 percent for the AA bonds.

Appendix 1
Incurred Year Health Claims and Claims Adjustment Expense Ratio December 31, 2016[6]

	1	2	3	4	5	6	7	8	9	10
	Years in which Premiums were Earned and Claims were Incurred	Premiums Earned	Claims Payments	Claim Adjustment Expense Payments	(Col. 3/2) Percent	Claim and Claim Adjustment Expense Payments (Col. 2+3)	(Col. 5/1) Percent	Claims Unpaid	Unpaid Claims Adjustment Expenses	Total Claims and Claims Adjustment Expense Incurred (Col. 5+7+8)	(Col. 9/1) Percent
1	2012	1,352,764,956	1,042,541,208	21,262,207	NA	1,063,803,414	NA	98,087	312	1,063,901,813	NA
2	2013	1,503,238,087	1,084,512,885	22,830,986	NA	1,107,343,872	NA	158,315	3,254	1,107,505,440	NA
3	2014	1,320,561,336	1,128,440,996	25,502,514	NA	1,153,943,507	NA	150,529	551	1,154,094,585	NA
4	2015	1,693,345,636	1,470,701,172	26,201,865	NA	1,496,903,038	NA	1,891,370	51,623	1,498,846,032	NA
5	2016	4,696,180,375	1,460,856,994	29,383,273	NA	1,490,240,262	NA	58,921,016	1,407,110	1,550,568,390	NA

[6] This information is compiled from the NAIC Health Annual Statement for the period ending 12/31/2016 for all health insurance companies. This information comes from the Underwriting and Investment Exhibit, Part 2C, Section C.

Appendix 2
Health Liabilities, Capital, and Surplus – December 31, 2016[7]

		Total	% of Total
1	Claims unpaid (less $1,553,769,047 reinsurance ceded)	58,688,540,063	40%
2	Accrued medical incentive pool and bonus amounts	2,393,695,037	2%
3	Unpaid claims adjustment expenses	1,461,814,331	1%
4	Aggregate health policy reserves, including the liability of $603,216,278 for medical loss ratio rebate per the	15,788,451,472	11%
0	Public Health Service Act	0	0%
5	Aggregate life policy reserves	17,292,455	0%
6	Property/casualty unearned premium reserves	123,037	0%
7	Aggregate health claim reserves	175,660,339	0%
8	Premiums received in advance	7,046,192,514	5%
9	General expenses due or accrued	15,091,976,809	10%
10	Current federal and foreign income tax payable and interest thereon (including $28,708,231	0	0%
0	on realized capital gains (losses))	1,254,125,567	1%
10	Net deferred tax liability	66,924,338	0%
11	Ceded reinsurance premiums payable	1,410,104,768	1%
12	Amounts withheld or retained for the account of others	1,801,127,524	1%
13	Remittances and items not allocated	1,705,631,607	1%
14	Borrowed money (including $2,481,517,339 current) and interest thereon $21,234,714	0	0%
0	(including $17,358,778 current)	5,335,602,523	4%
15	Amounts due to parent, subsidiaries and affiliates	10,097,643,721	7%
16	Derivatives	1,221,807	0%
17	Payable for securities	702,444,591	0%
18	Payable for securities lending	1,253,256,871	1%
19	Funds held under reinsurance treaties (with $526,374,024 authorized reinsurers,	0	0%
	$159,328,374 unauthorized reinsurers and $45,179,012 certified reinsurers)	730,881,906	1%
20	Reinsurance in unauthorized and certified ($0) companies	42,177,428	0%
21	Net adjustments in assets and liabilities due to foreign exchange rates	0	0%
22	Liability for amounts held under uninsured plans	8,942,476,967	6%
23	Aggregate write-ins for other liabilities (including $2,264,950,754 current)	11,689,636,000	8%
24	Total liabilities (Lines 1 to 23)	145,697,001,677	100%

[7] This information is compiled from the NAIC Health Annual Statement for the period ending 12/31/2016 for all health insurance companies. This information comes from page 3 - Liabilities, Capital and Surplus.

Appendix 3
Bond Size Adjustment Factor – Footnote on Page 305 from Feldblum, Proceedings of the Casualty Actuarial Society, 1996

For property/casualty insurers, the bond size adjustment factor has little effect on the final risk-based capital ratios, though calculating the factor is time-consuming. The AAA Task Force is presently (mid-1996) preparing a recommendation that this factor be dropped from the risk-based capital formula. Moreover, since the number of issuers subject to the bond size adjustment factor is not shown in the Annual Statement, errors in calculating the factor abound. Michael Barth, the research associate at the NAIC in charge of analyzing the risk-based capital results, has commented that “it is hard to argue that the bond size factor is meaningful when so many companies report it incorrectly.”