MILLIMAN REPORT

Life RBC C-1 factors: 2021 update

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Section I: Executive Summary

In 2021, the National Association of Insurance Commissioners (NAIC) adopted changes to the Life Risk-Based Capital (RBC) instructions with respect to calculation of the C-1 charges. These changes will be in effect with the 2021 RBC filing.

The changes reflect a long-term effort by the NAIC to update the bond factors used in the RBC filings. These changes were developed by the NAIC, the American Council of Life Insurers (ACLI), and Moody's Analytics (MA) in 2021. The key changes were:

- Expansion of the bond categories
- Revisions to the bond factors (including tax recognition)
- Changes to the bond size factors

Other changes were also approved with regard to the RBC instructions. The reader should review the 2021 instructions for additional changes as they are not addressed in this update.

Some high-level observations include:

- These changes are expected to increase fixed income C-1 charges in aggregate. This may reduce overall RBC ratios, which are reported to state insurance departments and the NAIC.
- These increases may be partially offset by the covariance adjustment, which has not been considered in this report.
- As companies look for increased yield in the ongoing low interest rate environment, it remains to be seen whether increases in allocations to various categories such as real estate, alternatives, or some below-investment-grade debt (BIGs) will occur. For these categories, RBC factors have been maintained or reduced.
- At this time, rating agencies have not revised their rating factors used to calculate their respective capital requirements.

This report outlines the C-1 factors applied under the pre-2021 framework and the new 2021 and later framework, and also provides preliminary analyses and comments on the C-1 factor update.

Section II: C-1 bond factors

2021+ FACTORS AND REGULATORS REVISION

The table in Figure 1 summarizes the pretax and post-tax C-1 bond factors under the pre-2021 and 2021+ requirements. In general, 2021+ requirement factors generally increase for investment-grade assets and decrease for the higher-rated assets in the NAIC 3 and 4 buckets, compared to the pre-2021 requirement.

A tax adjustment of 75% was previously applied to the tax rate of 21% for the purpose of tax recognition of losses for NAIC 1 to 5, which is reflected in the pre-2021 requirement. For the 2021+ factors, taxes are refined to specify an 80% tax efficiency based on recent experience for NAIC 1 to 5.

FIGURE 1: PRETAX AND POST-TAX C-1 BOND FACTORS

			Pre-2021 Requirement		2021+ Requirement (MA's Proposed)	
Category		MIS Rating	Before Tax	After Tax	Before Tax	After Tax
NAIC 1	Exempt	Exempt	-	-	-	-
NAIC 1	1.A	Aaa	0.39%	0.33%	0.16%	0.13%
NAIC 1	1.B	Aa1	0.39%	0.33%	0.27%	0.23%
NAIC 1	1.C	Aa2	0.39%	0.33%	0.42%	0.35%
NAIC 1	1.D	Aa3	0.39%	0.33%	0.52%	0.44%
NAIC 1	1.E	A1	0.39%	0.33%	0.66%	0.55%
NAIC 1	1.F	A2	0.39%	0.33%	0.82%	0.68%
NAIC 1	1.G	A3	0.39%	0.33%	1.02%	0.85%
NAIC 2	2.A	Baa1	1.26%	1.06%	1.26%	1.05%
NAIC 2	2.B	Baa2	1.26%	1.06%	1.52%	1.27%
NAIC 2	2.C	Baa3	1.26%	1.06%	2.17%	1.80%
NAIC 3	3.A	Ba1	4.46%	3.76%	3.15%	2.62%
NAIC 3	3.B	Ba2	4.46%	3.76%	4.54%	3.77%
NAIC 3	3.C	Ba3	4.46%	3.76%	6.02%	5.01%
NAIC 4	4.A	B1	9.70%	8.17%	7.39%	6.15%
NAIC 4	4.B	B2	9.70%	8.17%	9.54%	7.93%
NAIC 4	4.C	B3	9.70%	8.17%	12.43%	10.34%
NAIC 5	5.A	Caa1	22.31%	18.80%	16.94%	14.10%
NAIC 5	5.B	Caa2	22.31%	18.80%	23.80%	19.80%
NAIC 5	5.C	Caa3	22.31%	18.80%	30.00%	24.96%*
NAIC 6	6	D	30.00%	23.70%	30.00%	23.70%*

Note: The NAIC capped the pretax factor at 30% but reflected a 16.8% tax rate so the after-tax factor is slightly higher than an after-tax NAIC 6 factor which is the common stock base factor (Caa3 NAIC 5.C o 24.96% vs NAIC 6 of 23.7% after-tax).

The 2021+ requirement factors are more differentiated across ratings than the pre-2021 C-1 base factors, and generally lead to an overall C-1o RBC increase before bond size factor adjustment.

Generally, the 2021+ requirement factors are higher than the pre-2021 requirement for most ratings. Because the pre-2021 rating buckets were an average, some rating classes resulted in a reduction in the rating for that class but as noted, generally factors are higher under the 2021+ requirement but also vary significantly within the NAIC 1 to 5 rating categories.

FIGURE 2: C-1 BOND FACTOR (INVESTMENT GRADE)

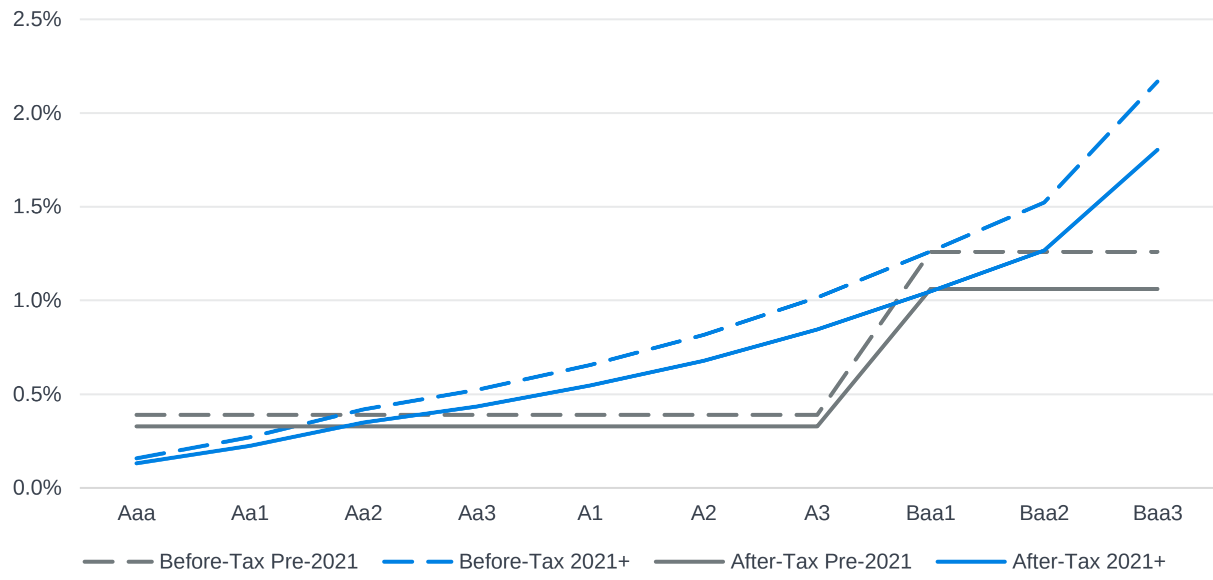
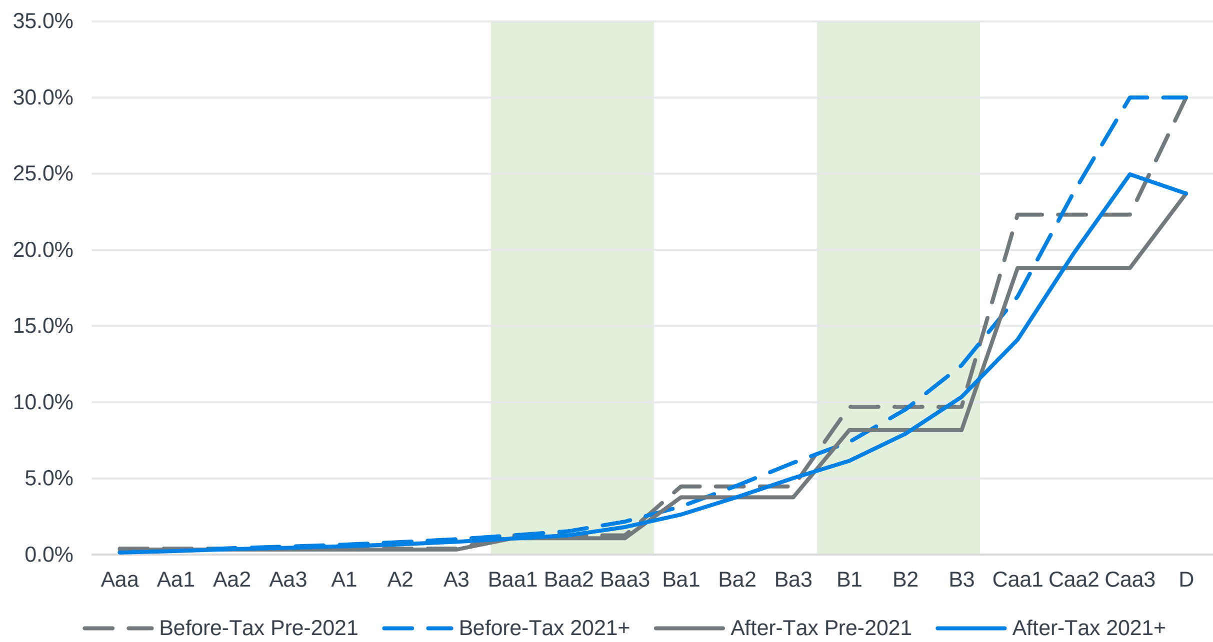


FIGURE 3: C-1 BOND FACTOR (FULL RATING BAND)



Section III: Other C-1 factors

COMMERCIAL MORTGAGE LOANS

The NAIC made no changes to the pre-2021 commercial mortgage loan (CML) factors. Tax adjustment of 75% is applied to the tax rate of 21% for CML.

FIGURE 4: COMMERCIAL MORTGAGE PRETAX AND POST-TAX

Rating	Before Tax	After Tax
CM1	0.90%	0.76%
CM2	1.75%	1.47%
CM3	3.00%	2.53%
CM4	5.00%	4.21%
CM5	7.50%	6.32%

REAL ESTATE INVESTMENTS

The capital factors under the 2021 and later framework lean favorably toward real estate investments. A technical correction has been proposed by the American Academy of Actuaries ("Academy") to recognize the 2021+ factors in the asset concentration section of capital but no decision has occurred as of the date of this report. The full 21% tax rate is applied to real estate investments.

FIGURE 5: REAL ESTATE PRETAX AND POST-TAX

	Pre-2021		2021+	
Real Estate	Before Tax	After Tax	Before Tax	After Tax
Schedule A	15.00%	11.85%	11.00%	8.69%
Schedule BA	23.00%	18.17%	13.00%	10.27%

Section IV: Portfolio adjustment factors

SUMMARY OF FACTORS

Portfolio adjustment factors (PAFs), also referred to as bond size adjustment, generally decrease as the portfolio size increases. The PAFs proposed by MA reflected a higher factor on bond portfolios that contain relatively fewer bonds. The NAIC approved factors were generally in line with those proposed by MA. The NAIC realized the proposed factors could increase RBC for small companies. The NAIC addressed this potential small company issue by condensing MA's PAFs to reflect the average of the first 50 issuers based on MA's proposed "to reduce the burden on small companies." Under the 2021+ requirement, factors for smaller portfolios decrease compared to MA's proposed and align for larger-sized portfolios.

FIGURE 6: PORTFOLIO ADJUSTMENT FACTOR

# of Issuers	Pre-2021 Requirement*	2021+ Requirement
First 10	2.50	2.40
10 to 50	2.50	2.40
50 to 100	1.30	1.53
100 to 200	1.00	0.85
200 to 500	0.97	0.85
Over 500	0.90	0.82

* Pre-2021 PAFs converted to NAIC's proposed thresholds for better comparison.

IMPACT ANALYSIS

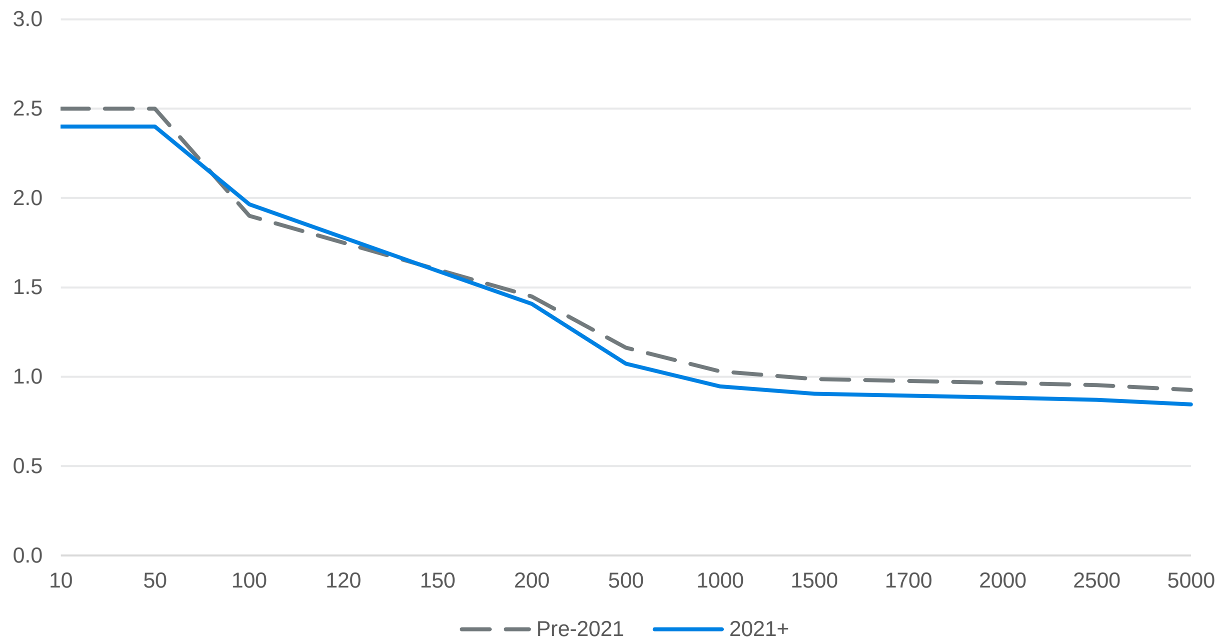
Under the proposals, any insurer that holds a portfolio with greater than a certain number of issuers will benefit from the PAFs of less than 1.0.

- Approximately 1,400 issuers under pre-2021 factors
- Approximately 800 issuers under the 2021+ requirement

FIGURE 7: ISSUERS: PRE-2021 AND 2021+ REQUIREMENTS

# of Issuers	Pre-2021 Requirement	2021+ Requirement
30	2.500	2.400
100	1.900	1.965
250	1.354	1.296
500	1.162	1.073
1000	1.031	0.947
2500	0.952	0.871
5000	0.926	0.845

FIGURE 8: EXAMPLES OF PAF ADJUSTMENT ON BOND SIZE



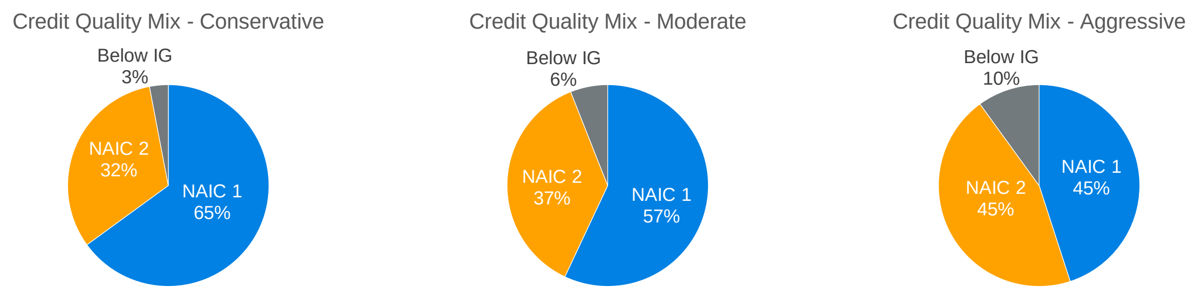
Section V: Case study

This case study calculates the C1 base factors, PAF adjustments, and the final RBC C-1 factors under both the pre-2021 and 2021+ requirement for mock-up companies with different levels of asset qualities and portfolio sizes.

The charts and graphs in Figure 9 illustrate the assumptions for credit quality and company sizes used in the case study examples.

FIGURE 9: CREDIT QUALITY MIX

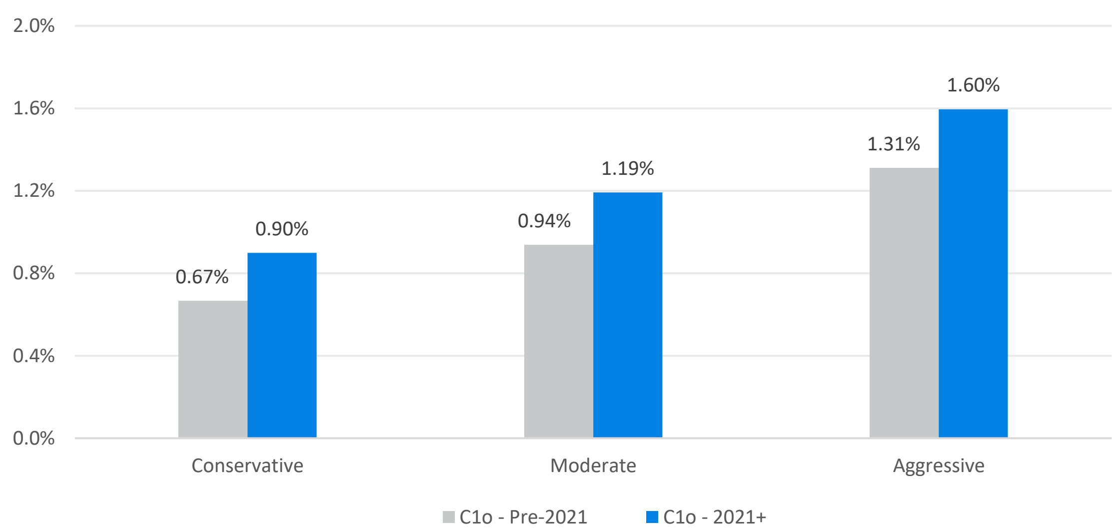
Company	# of Issuers
A - Small-Size	100
B - Medium-Size	500
C - Large-Size	5,000



* NAIC 1 mock-up investments are AA- and A-rated assets.

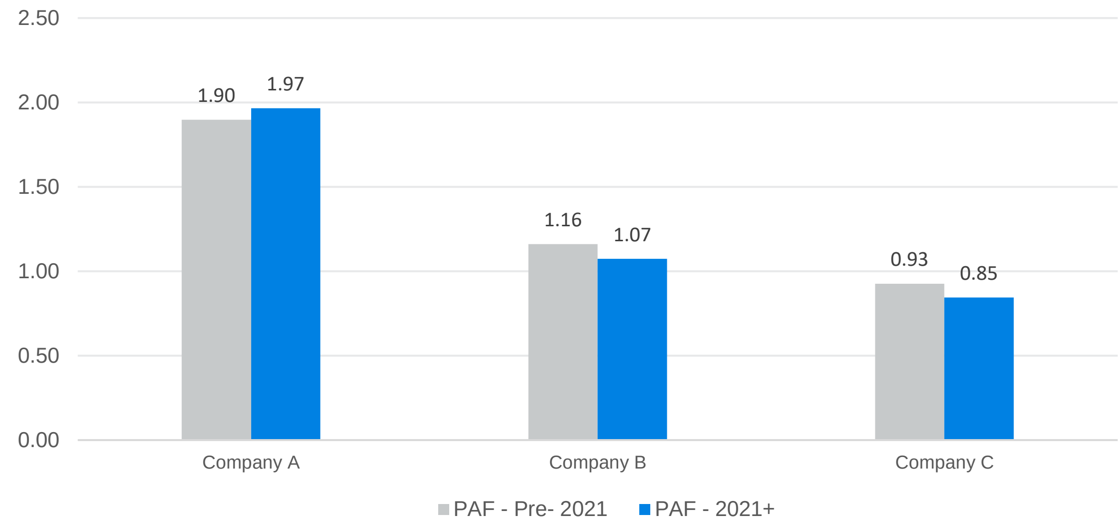
Factors under the 2021+ requirement lead to an overall increase of 25 basis points (bps) in C-1o RBC across different-sized companies before bond size adjustment. Slightly higher C-1 differentials between the pre-2021 and 2021+ requirements are observed in portfolios with more aggressive investment strategies.

FIGURE 10: C-1O PRE-2021 VS. C-1O 2021+



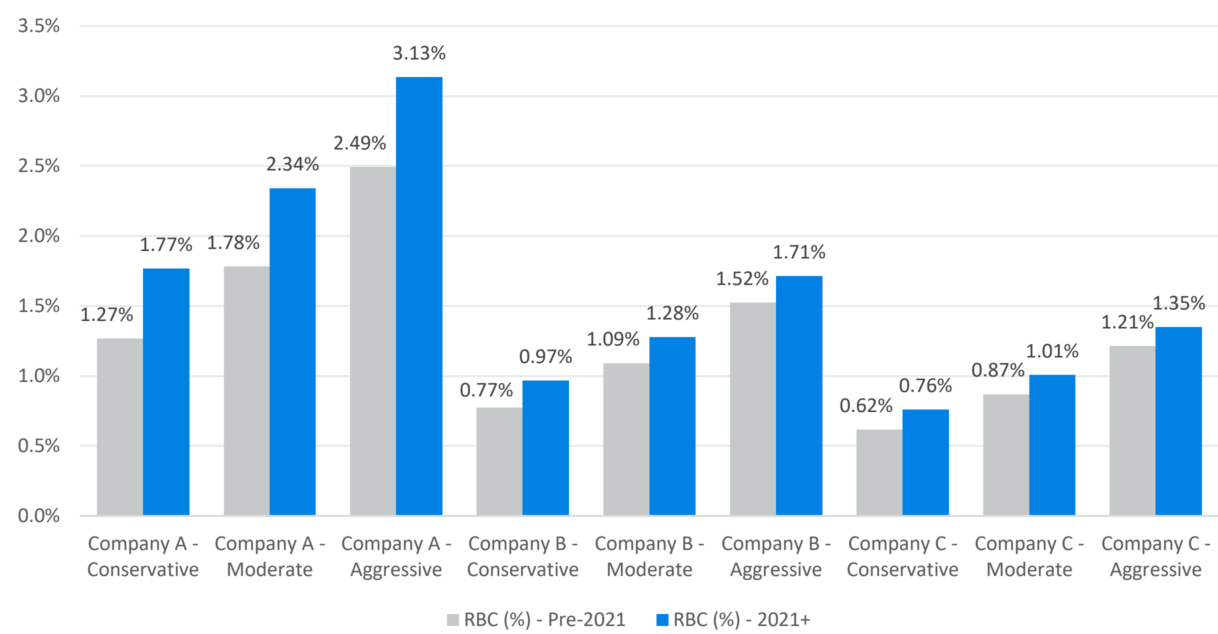
The 2021+ requirement is higher for small-size portfolios and lower for large-size companies in terms of PAF adjustments. This result is consistent with diversification of risk over a larger number of issuers.

FIGURE 11: PAF PRE-2021 VS. PAF 2021+



Insurance company portfolios, with the features of low credit profile and small size, will be most impacted by the changes. Compared to the pre-2021 requirement, C-1 factors under the 2021+ framework impose a higher capital requirement to small-size companies with aggressive investment profiles in consideration of credit defaults and portfolio diversifications. The RBC requirement tends to be lower when portfolios grow in size and are invested in higher-quality assets.

FIGURE 12: RBC PRE-2021 VS. RBC 2021+



Section VI: Conclusion

As noted, these changes to the life RBC filings are effective in 2021 and later. Factors for other asset classes, other than bonds and real estate as shown, have not and are not expected to be changed for 2021.

For life insurers utilizing the life RBC calculations, we expect an increase in 2021 RBC for most insurers. The increase will vary by insurer and size of the insurer. On average, we expect the C-1 amounts to increase in the range of 5% to 20%. This may reduce overall RBC ratios, which are reported to state insurance departments and the NAIC. These increases may be partially offset by the covariance adjustment, which has not been considered in this report.

As companies look for increased yield in the ongoing low interest rate environment, it remains to be seen how the C-1 factor changes will affect investment activities in the life industry and whether these changes drive further increases to asset classes such as real estate, alternatives, or some below-investment-grade debt (BIGs). For these categories, RBC factors have been maintained or reduced. Companies continue to review their strategic asset allocations (SAAs) and efficient frontiers using return. In some cases, RBC is used to map out the optimal investment allocation to meet risk and return appetites.

At this time, rating agencies such as S&P and AM Best have not revised their rating factors used to calculate their respective capital requirements.

For questions or additional details on the information presented in this report, please contact a Milliman consultant.

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