RBC Ratios and Impairment Risk: Are They Related and, if so, When?

Property and Casualty Risk-Based Capital (E) Working Group

March 23, 2026

American Academy
of Actuaries

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BACKGROUND

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AUTHOR	YEAR	Title	Main Drivers of Impairment
Academy	2010	Property/Casualty Insurance Company Insolvencies	Inadequate loss reserves; inadequate pricing; rapid growth; mismanagement
CAS	2012	A Review of Historical Insurance Company Impairments	Middle-sized companies show highest impairment rates
SOA/CAS/ CIA	2018	Actuarial Review of Insurer Insolvencies and Future Preventions	Premium growth; profitability; liquidity; investment mix; leverage; RBC ratio

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1. Academy and CAS studies included only P&C firms
2. SOA/CAS/CIA study included 76 firms across Life, Health, and P&C
3. None of the studies provided quantitative impacts for RBC ratios on the probability of impairment or insolvency
4. None of the studies examined all of the drivers in a multivariate analysis

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Canadian Property and Casualty Insurance Compensation Corporation (PACICC):

- Global Failed Insurer Catalog (including Life, P&C, Composite, and Reinsurance)
- Research on Why P&C Insurers Fail

Board of Governors of the Federal Reserve System. Comparing Capital Requirements in Different Regulatory Frameworks (2019). Including a careful analysis of the relationship between RBC ratios and defaults for U.S. Life and P&C insurers.

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"[S]ituations in which a company has been placed, via court order, into conservation, rehabilitation, or insolvent liquidation. Supervisory actions undertaken by state insurance department regulators without court order are not considered impairments, unless there are clear indications that policyholder payments may be delayed or otherwise limited in some manner through the regulatory oversight process."

- AM Best, 2023 U.S. Property/Casualty Impairments Update, Jan. 31, 2025, p1.

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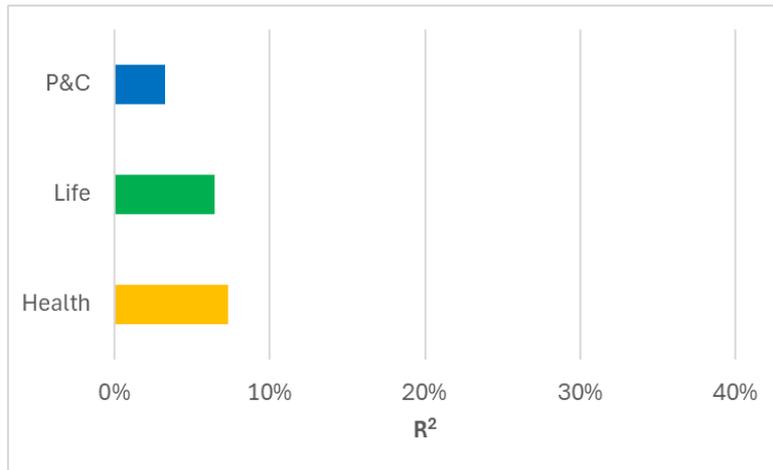| Results of matching impairment data with RBC ratio data			
	Companies with RBC data (S&P)	Companies with impairment data (AM Best)	% Matched	% Impaired (total)
P&C	4218	433	87%	10%
Health	2147	105	82%	5%
Life	1805	88	82%	5%
Total	**8170**	**626**	**86%**	**8%**

1. Downloaded ACL RBC ratios from 1996 to 2023 from S&P Capital IQ Pro for all life, health, and P&C insurance companies that had data for those years
2. Downloaded impairment data from AM Best Impairment Reports for all life, health, and P&C insurance companies that experienced an impairment between 2000 to 2023
3. Matched impairment and ACL RBC ratios using state of domicile and the name of the company because AM Best does not use NAIC codes
4. Results are only for 2011-2023

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- We assessed whether a meaningful relationship exists by looking at how closely differences in RBC ratios align with differences in the likelihood of impairment. This was done by analyzing max rescaled R-squared (RSQ) values from logistic regressions as an indicator of goodness of fit.

- We selected the "best" sample for each line of insurance by optimizing RSQ and the number of impaired companies in the filtered sample.

- We calculated the estimated probability of impairment by applying the parameters estimated in the logistic regression on the "best" sample to various levels of RBC ratios.
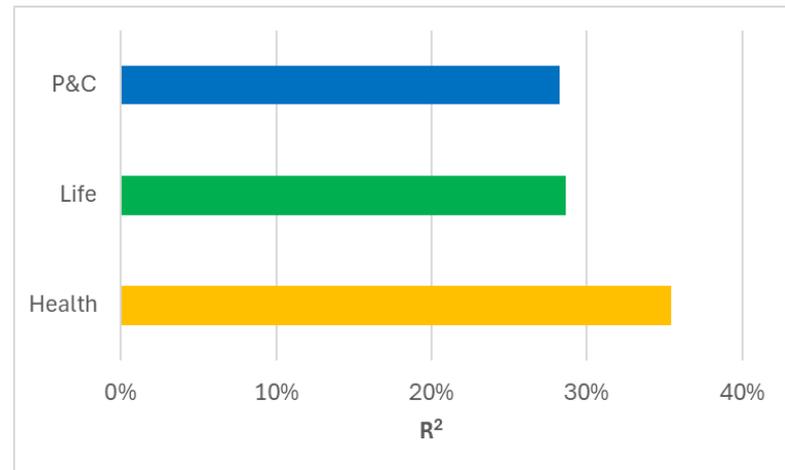
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RESULTS

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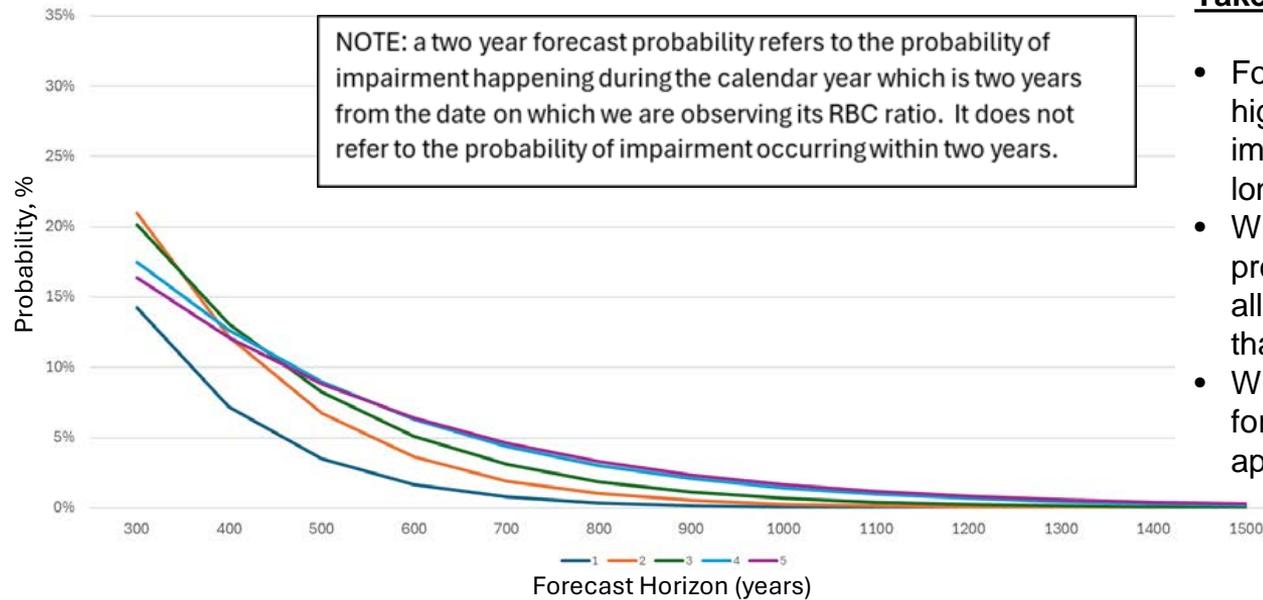Extent of Variation in Impairments Accounted For by ACL RBC Ratios (R^2), by Line of Business (2011-2023)

NOTE: a two year forecast probability refers to the probability of impairment happening during the calendar year which is two years from the date on which we are observing its RBC ratio. It does not refer to the probability of impairment occurring within two years.

Takeaways

- For RBC ratios of 400 or higher, the probability of impairment increases the longer the forecast period
- With RBC ratios of 700, the probability of impairment for all forecast periods is less than 5%
- With RBC ratios of 1200, all forecast probabilities approach 0

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Probability of Impairment by RBC level and Forecast Horizon (years)

| ACL RBC	P&C				
1500	0%	0%	0%	0%	0%
1400	0%	0%	0%	0%	0%
1300	0%	0%	0%	0%	1%
1200	0%	0%	0%	1%	1%
1100	0%	0%	0%	1%	1%
1000	0%	0%	1%	1%	2%
900	0%	1%	1%	2%	2%
800	0%	1%	2%	3%	3%
700	1%	2%	3%	4%	5%
600	2%	4%	5%	6%	6%
500	3%	7%	8%	9%	9%
400	7%	12%	13%	13%	12%
300	14%	21%	20%	18%	16%
	1	2	3	4	5

Forecast Horizon (years)

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- RBC ratios, on their own and across all lines of insurance (P&C, Life and Health) show little meaningful relationship with impairment experience.

- Once we remove very small insurers and companies with extremely high capital levels, a much clearer and more stable predictive pattern emerges.

- In these filtered samples, RBC levels become materially less informative of impairment risk when ACL RBC ratios exceed 1000% - 1500%.

Next steps: In addition to sensitivity testing of the results presented here, the relationship between the RBC ratios and impairment risk when accounting for other factors, which are very likely also related, will be examined.

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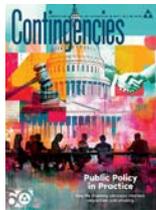
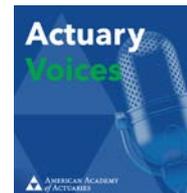*Contingencies* Magazine

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