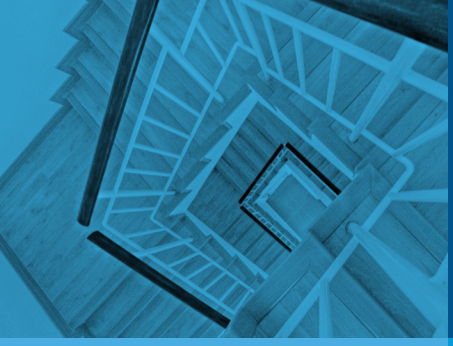

NEAM VANTAGE POINT

Perspectives

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OUR VIEW ON INSURANCE CAPITAL MANAGEMENT TOPICS

IN THIS ISSUE ▸

Old Regimes, New Requirements: Asset Allocation under Recent Risk-based Capital Model Changes

The National Association of Insurance Commissioners (NAIC), AM Best and Standard & Poor's use proprietary risk-based capital models as part of their evaluation of the solvency and financial strength of U.S. Property and Casualty (P&C) insurers. In recent years, these models underwent significant updates, and we assess the implications to P&C insurers' investment choices and opportunities.

EXECUTIVE SUMMARY

Meeting or exceeding capital requirements set by local regulators and rating agencies is often integral to an insurance company's ability to operate as a going concern. Most U.S. P&C insurers are accountable to one or more of either the NAIC, AM Best or S&P. In recent years, each of these three organizations introduced revisions or overhauls to their risk-based capital (RBC) models and corresponding methodology. These updates included risk charges and capital requirements for invested assets held by insurers. In this context, we evaluate how these changes can influence enterprise risk and strategic asset allocation.

BACKGROUND

Effective execution of a sound investment strategy, including asset allocation, is a key contributor to an insurer's financial performance. A critical aspect of a P&C insurer's investment strategy and asset allocation decision-making is understanding the capital requirements of stakeholders such as the NAIC, AM Best and S&P. NEAM recommends a holistic approach to strategic asset allocation, an approach that considers assets and liabilities jointly in their influence on optimal levels of enterprise return on (and risk of) capital. An example of a holistic approach to strategic asset allocation is Enterprise Based Asset Allocation (EBAA), where there is a collective reflection of: 1) underwriting risk and return expectations; 2) asset allocation opportunities and underlying volatility; 3) available and required capital; and 4) the interdependencies of these three factors.

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NEAM New England Asset Management

RBC MODELS GET MORE GRANULAR

AM Best, S&P and the NAIC made significant updates to their respective RBC models for the invested assets[1] held by insurers in recent years. Common across these model updates were more granular capital charge schedules for both fixed income, equities and other invested assets. For instance, the NAIC increased their bond classifications from six to 20. AM Best's and S&P's model updates reflect different listings of stochastic risk charges calibrated to ascending Value-at-Risk (VaR)[2] confidence levels. Their fixed income charges are differentiated further by maturity range buckets and credit quality notches. Moreover, S&P has fixed income asset charge listings by bond type (e.g., structured securities versus corporate securities) and listings for other asset charges by geography or other characteristics. Collectively, an invested asset can be classified for capital charges by close to 1,000 different ways under certain regimes. Perhaps this differentiation facilitates a more tailored and an improved understanding of risk capital requirements, but also it can add more complexity to investment choices. A full discussion of all model changes is beyond the scope of this analysis, but we encourage readers to refer to the respective model criteria and methodology for further details.

PREPARING FOR OPTIMAL ASSET ALLOCATION – KEY ASSUMPTIONS

Our focus is to evaluate how or where optimal asset allocations are impacted by some of the RBC model updates mentioned above. We apply an EBAA framework of holistic asset allocation and use the latest available U.S. P&C insurance industry data to represent a proxy insurer for this analysis. This includes approximating statutory net written premiums, invested asset balances and portfolio characteristics,[3] and statutory capital that are close proximities of what the industry posted at year-end 2022. Historical daily total returns dating back to 1997 are used to estimate expected returns and volatility across included assets.[4] Combined ratios and loss ratios over the past 10 years are used to estimate underwriting margins and corresponding volatilities across 15 different product line segments.[5] Observed historical correlations across assets and liabilities are reflected in the analysis as well. Exhibit 1 summarizes key statics assumed in the analysis for the baseline portfolio allocation and underwriting projection.

Exhibit 1. A Summary of Notable Operating Assumptions for a Hypothetical U.S. P&C Insurer, Using Year-End 2022 Statutory Results of the U.S. P&C Industry as a Proxy

Consolidated Surplus & Underwriting	
Total Net Written Premiums ($ bn)	**$776.8**
Commercial Lines (%)	48.9%
Personal Lines (%)	49.9%
Accident and Health (%)	1.2%
Loss and Loss Adjustment Expense Ratio (%)	71.6%
Consolidated Combined Ratio (%)	99.5%
Capital and Surplus ($ bn)	**$981.8**
Underwriting Leverage	0.79x

Invested Assets	
Total Invested Assets ($ bn)	**$2,199.0**
Fixed Income (%)	60%
Equities (%)	30%
Other / Alternative Assets (%)	10%
Duration (Years)	4.6
Average Credit Quality	AA-
Investment Leverage	2.24x

Source: S&P Capital IQ and NEAM

HOLISTIC ASSET ALLOCATION GIVEN RBC CHARGES

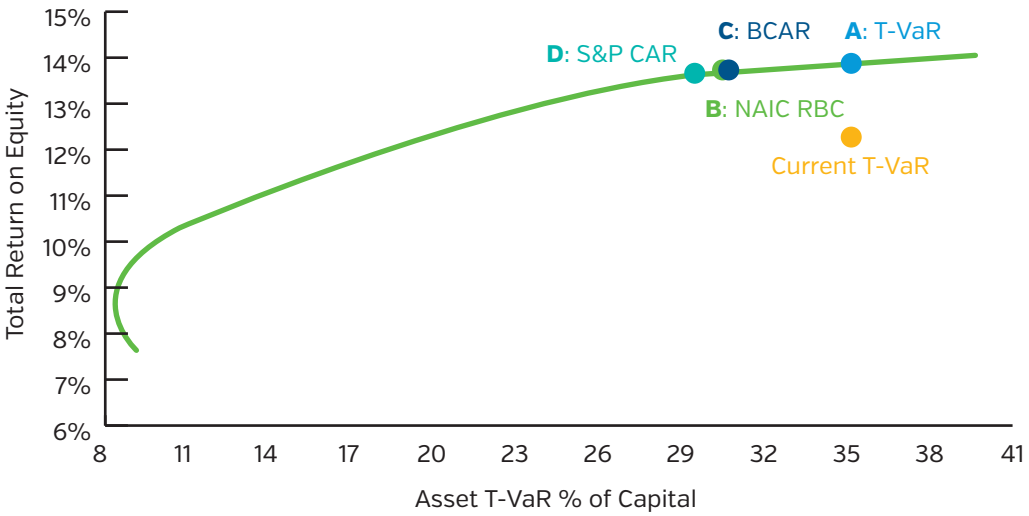
The objective of the optimization framework includes maximizing enterprise return per specific levels of asset risk, through strategic asset allocation, based on the assumptions summarized in Exhibit 1. Enterprise return is defined by return on equity or surplus (ROE). Asset risk is measured as a percentage of surplus by Tail Value-at-Risk (T-VaR) and by the investment capital charges[6] within the NAIC Risk-based Capital (NAIC RBC) model, AM Best's Best Capital Adequacy Ratio (BCAR) model and S&P Capital Adequacy Ratio (S&P CAR) model.

There are four different published capital charge schedules for BCAR and S&P CAR. These are calibrated at different confidence levels. For this exercise, we focus on the second highest level charges for each, 99.5% confidence charges for BCAR and 99.95% for S&P CAR.

Constraints are used to keep optimal outcomes reasonable and executable and to not drift astray from industry ranges considering sector allocation, duration and credit quality. Further details are noted in the appendix.

A range of statistically optimal (efficient) portfolios of ROE versus asset T-VaR are plotted and form an enterprise efficient frontier in Exhibit 2. We assume that the current asset T-VaR level is the target level, and that there is not a desire to increase or decrease asset risk specifically or enterprise risk broadly. The target portfolios are those with the highest return that maintain current enterprise risk levels.

Exhibit 2. An Enterprise Efficient Frontier or Curve that Plots Maximized ROE Across Different Risk Levels Measured by Asset Related RBC, Including T-VaR, NAIC RBC, AM Best's BCAR and S&P's CAR.



Sources: ICE Bank of America, S&P Capital IQ and NEAM

Exhibit 3 summarizes key performance metrics and statistics of the current and target portfolios, and how these vary considering economic capital and regulatory or rating agency solvency capital charges. Portfolio A is the "similar asset T-VaR" portfolio. Portfolios B, C and D target similar NAIC RBC, BCAR and S&P capital charges, respectively. All four suggest expected total return enhancement possibilities, with very similar total return on asset projections. However, portfolios B, C and D coalesce at a lower than current asset T-VaR and have a lower book yield expectation. Each portfolio extends duration[7] to the maximum allowed and adds incrementally to "<BBB" assets. In contrast, portfolios B, C and D reduce the total allocated to "BBB" and "<BBB" fixed income, resulting in lower default loss expectations. This is most evident with S&P CAR where "BBB" and "<BBB" assets are reduced by half.

Portfolio A increases the allocation to structured securities offset with a decrease to short-term assets and treasuries. Portfolios B, C and D reduce the allocation to structured securities, and short-term assets and treasuries are kept the same. Asset risk estimates for T-VaR are based on mark-to-market total returns over time. Regulators and rating agencies calibrate credit risk charges for bonds and loans using default and recovery rates. Moreover, the S&P CAR model has higher capital charges for structured securities relative to capital charges of other equivalently rated investment grade fixed income assets in that model, in part due to lower recovery rates expected for structured securities by S&P. This recovery rate differentiation is not within the NAIC RBC and BCAR models. So, it is not surprising that Portfolio D has the lowest allocation to structured securities.

Exhibit 3. Summary Statistics Table of Four Target Portfolios Optimizing Return Relative to Similar Asset-Related Economic Capital or RBC Targets.

	Current	A Similar T-VaR	B Similar NAIC RBC	C Similar BCAR	D Similar S&P CAR
Enterprise Return & Risk (%)					
Total Return on Equity	12.3	14.0	13.8	13.8	13.7
Total Return on Assets	5.3	6.1	6.0	6.0	6.0
Book Yield	4.4	4.8	4.6	4.6	4.5
Product Margin	0.4	0.4	0.4	0.4	0.4
Earnings Risk (Std Dev)	16.5	16.9	15.3	15.4	15.0
Asset Risk Capital Metrics (%)					
T-VaR 99.5	35.1	35.1	30.5	30.6	29.6
NAIC RBC	13.5	13.5	13.5	13.5	13.4
BCAR 99.5	39.6	39.6	39.5	39.6	39.3
S&P CAR 99.95	48.4	49.1	48.7	48.8	48.4
Portfolio Metrics					
Duration	4.6	5.4	5.4	5.4	5.4
Average Rating	AA-	AA-	AA-	AA-	AA-
BBB %	8	8	4	4	2
<BBB %	2	3	3	3	3
Default Loss ($M)	**2.5**	**3.3**	**2.4**	**2.4**	**2.3**
Sector Distribution %					
Short Term / Treasuries / Quasi	10	7	10	10	10
Municipal Securities	10	10	10	10	10
Corporates	18	17	19	18	20
Structured Securities	20	23	19	19	18
Inv Grade Fixed %	**58**	**57**	**57**	**57**	**58**
High Yield / Bank Loans	2	3	3	3	3
Equities	30	30	30	30	30
Alternatives	10	10	10	10	10
Risk Assets %	**42**	**43**	**43**	**43**	**42**
Total %	100	100	100	100	100
Risk Assets % of Capital	93	96	96	96	95

Sources: ICE Bank of America S&P Capital IQ and NEAM

KEY TAKEAWAYS

Understanding NAIC, AM Best and S&P RBC implications can enhance the asset allocation decision-making process. We apply a holistic strategic asset allocation to a proxy portfolio that represents a multiline U.S. P& C insurer. The objective is to identify target portfolios that maximize ROE while maintaining starting asset-related risk. Asset risk is measured by asset T-VaR and by RBC charges per the latest NAIC RBC, BCAR and S&P CAR models. The outcomes in our example show similar return on asset enhancements, but with different sector and credit allocations. Key findings include:

- NAIC RBC, BCAR and S&P CAR models appear more restrictive to the credit risk taking, evidenced by the resulting lower expected default loss expectation of fixed income assets than the corresponding interest rate risk, all else equal. Each target portfolio extended duration and allowed an incremental increase to "<BBB" assets. However, portfolios optimized to NAIC RBC, BCAR and S&P CAR models decreased the total allocation to "BBB" and "<BBB" assets by up to half of the starting allocation and lowered default loss expectations.
- The optimized portfolio that maintains the current-level asset T-VaR decreased the allocation to short-term and treasuries and increased the allocation to structured securities. The optimized portfolios, that retain current RBC, BCAR and S&P CAR model charges, maintained the existing weight to short-term and treasuries and reduced the overall weight to structured securities.
- The S&P CAR model has lower capital charges for corporate bonds relative to equivalent rated structured securities. This was evident under the S&P CAR optimization; corporates increased with an offsetting decrease to structured securities.

Rating agencies and regulators periodically update their criteria and methodology to assess the financial position of insurers. Prevailing and projected capital market conditions are also dynamic. NEAM suggests using a holistic approach to asset allocation jointly considering the evolving expectations of stakeholders, market opportunities and available capital. Optimization under only one regime or perspective may suggest an incomplete understanding of risk and return trade-offs as different investment opportunities and strategies are assessed.

APPENDIX

Notable constraints applied within the optimization analysis: duration +/-0.75 years to current, limits on ranges for certain key rate durations to inhibit duration barbells, average credit quality kept at AA- with no more than 5% of the portfolio in <BBB assets, no additional equities or alternatives, limits on excessive sector rotations in certain instances to curtail unreasonable concentrations, and all underwriting product weights held constant.

The estimates shown in Exhibits 2 and 3 are for illustrative purposes only. VaR is the statistical estimate for the marked-to-market portfolio loss not to be exceeded within one year at a given confidence level. T-VaR is the statistical estimate for the expected amount of loss given the VaR loss limit is exceeded. Both VaR and T-VaR are expressed as a percent of invested assets. Capital Charge analysis estimates regulatory and rating agency required capital to help assess the perceived 'riskiness' of investments from a regulatory and rating agency perspective. NEAM adheres to each regimes' published capital adequacy frameworks, formulas and criterions which are publicly available. Certain regime-specific risk factors may not, or only be partially reflected in the analysis provided. NEAM makes a reasonable attempt but cannot guarantee that the latest regime published rating criterion and methodology updates are always reflected in NEAM provided estimates. NEAM applies constraints (i.e. sector, gain/loss, rating, duration limits) to the Current Portfolio via its Portfolio Optimization tool to generate the hypothetical estimates of total returns, yields, duration and other portfolio metrics shown in the target portfolios. The tools' objective is to maximize total return on equity under these constraints using NEAM's reinvestment set of generic securities and their attributes as of May 2024. NEAM makes no representation or warranty as to the reasonableness of the tool, reinvestment universe or constraints applied. The target portfolios do not consider the effect of changing risk profiles, operating cash flows or future investment decisions, do not represent actual trades and may not reflect the effect of material economic and market factors, including the potential inability to execute the proposed portfolio repositioning. Results will vary with each use of the tool and over time.

ENDNOTES

1 Rating agencies and regulators also updated charges within their RBC models for other operational areas, including underwriting, reserves, catastrophe risk, counterparty risk, liquidity risk, etc., as well as the total available capital used within these models. For some insurers these changes are more impactful than investment-related capital requirements we discuss.

2 This movement toward VaR for solvency assessment appears in other regulatory regimes outside of the U.S. as well, perhaps an indication of an industry "de-facto" method of downside risk measurement.

3 See Perspectives *"2022 P&C Industry Investment Highlights: Reversing the Declining Trend" July 2023 for further discussion on the U.S. P&C industry asset holdings for 2022.*

4 ICE Bank of America and NEAM are the primary sources for this data.

5 S&P Capital IQ and NEAM are the primary sources for this data.

6 Note that capital charges are measured against total available capital (TAC) in RBC models. Some recent model changes by the NAIC, AM Best or S&P include how TAC is calculated. We do not adjust surplus to reflect TAC adjustments.

7 Note that, if left unchecked, duration would extend much longer in each instance. NAIC RBC optimized portfolios would extend the most given that the NAIC RBC model has no distinction on asset durations and maturities within their factors.

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