What Did CPI Do to My SAA? A Framework for Rethinking Strategic Asset Allocation in Light of Higher Inflation

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Introduction

2022 was one of the worst years on record for US equity and bond markets. 3-month Treasury yields went nowhere but up, increasing by 436 bps—from 6 bps to 442 bps. The 10-year Treasury yield started the year at a level of 1.52% and increased at a steady rate throughout 2022. Interestingly, yields never dipped below their starting level. Equities moved in the opposite direction, with the S&P 500 down 19% for the year. Credit spreads widened throughout the year, with the Barclays Corporate and High Yield OAS increasing by 38 and 186 bps respectively. One of the primary drivers of these changes was the sustained increase in the inflation rate to levels not seen in 40 years. While the year-over-year rate decreased from the start of the year, it increased during the first half of the year, peaking in June at 9.1%.

HOLDING	12/31/21	12/31/22	CHANGE
3-month Treasury Yield	0.06%	4.42%	4.36%
10-year Treasury Yield	1.52%	3.88%	2.36%
S&P 500 Index	4766.18	3839.50	-19.44%
Barclays Corporate OAS	92 bps	130 bps	38 bps
Barclays High Yield OAS	283 bps	469 bps	186 bps
Inflation (YOY)	7.1%	6.5%	-0.6%

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In short, there was nowhere for investors to hide in 2022. Looking forward, investors can now anticipate fixed income returns to be 2%–4% higher due to the higher rate and spread environment. In light of these significant changes, investors may benefit from revisiting their SAA. In the following section, we review Conning's framework for the strategic asset analyses it performs for its own asset management clients.

Conning SAA: The Framework

Conning's SAA framework can be summarized in the following steps:

» Develop economic scenarios

» Build SAA model

» Construct efficient frontier

In the following sections, we examine each step in more detail.

Develop Economic Scenarios

The starting point for our SAA analysis is the investor's current policy portfolio. This can be reflected in the model along with any investment constraints or regulatory capital requirements. Next, we include liability cash flows, which offers numerous benefits. First, changes in the yield curve will impact the changes in the present value of the liability in the same way that it impacts the market value of the asset portfolio. Second, the timing and amount of liability cash flows will affect the choice of the optimal investment strategy. Also, including the liabilities will encourage the model to maintain a sufficient quantity of liquid assets to meet the liability cash flows. Finally, including the liabilities allows the optimization to consider alternative metrics that reflect the interaction between assets and liabilities. Some of these metrics are reviewed in a later section.

Construct Efficient Frontier

The efficient frontier represents the set of portfolios that offer the highest reward for each level of risk. In our framework, the definitions of reward and risk are flexible and should incorporate the investor's objectives and con-straints. While we can use the traditional definitions of to-

tal return and standard deviation of total returns, we prefer to use definitions that incorporate both asset and liability metrics.

An efficient frontier is efficient with respect to the following inputs:

» Reward measure

» Risk measure

» Distributions of asset class returns, associated economic factors and liabilities, if applicable

» Asset class constraints (i.e., minimum or maximum allocations)

» Investment strategy (i.e., rebalancing or dynamic decision rules)

» Time horizon

While a frontier is efficient in its own context, investors usually care about more than just the metrics used in the optimization. Looking at how allocations vary across the multiple frontiers can help select a target allocation that is robust across multiple metrics.

The table below contrasts Conning's SAA framework against the traditional mean-variance optimization approach.

Mean-Variance Optimization	Conning's SAA Framework
Single period (i.e., only one investment decision made at the beginning of the holding period with no rebalancing)	Multi-period optimization that allows rebalancing and dynamic portfolio decision rules
No explicit consideration for liabilities	Can explicitly incorporate liabilities into optimization
Assumes all returns are normally distributed	Returns reflect non-normal distributions similar to those observed historically
Considers only mean and standard deviation of underlying distributions	Scenario-based simulation allows alternative strategies to be evaluated scenario by scenario
Limited definitions of risk and reward	Flexible risk and reward definitions relevant to asset-liability objectives
Considers only asset class returns with no attempt to relate them to the economic factors that produced them	Scenario-based simulation allows economic factors to drive asset class returns (e.g., bond returns are driven by yield curves)
Uses "equilibrium" risk and return assumptions which do not vary over time and may be unachievable in current environment	Simulation starts with current economic conditions and allows asset class returns to vary over time
Cannot consider objectives and constraints unique to the insurance industry and other institutional investors	Designed to incorporate objectives and constraints faced by insurers and other institutional investors into portfolio construction
Correlations assumed to be constant	Scenario-based simulation allows for correlations to be non-constant

Applying the Framework

Different investors may focus on different metrics that best align with their unique objectives and constraints. In this section, we review different metrics that are frequently used by institutional investors.

It is often helpful to begin an SAA analysis with an asset-only efficient frontier. **Exhibit 1** shows a multi-period, asset-only efficient frontier where the reward is the average 10-year geometric return and the risk is the standard deviation of the 10-year geometric return.
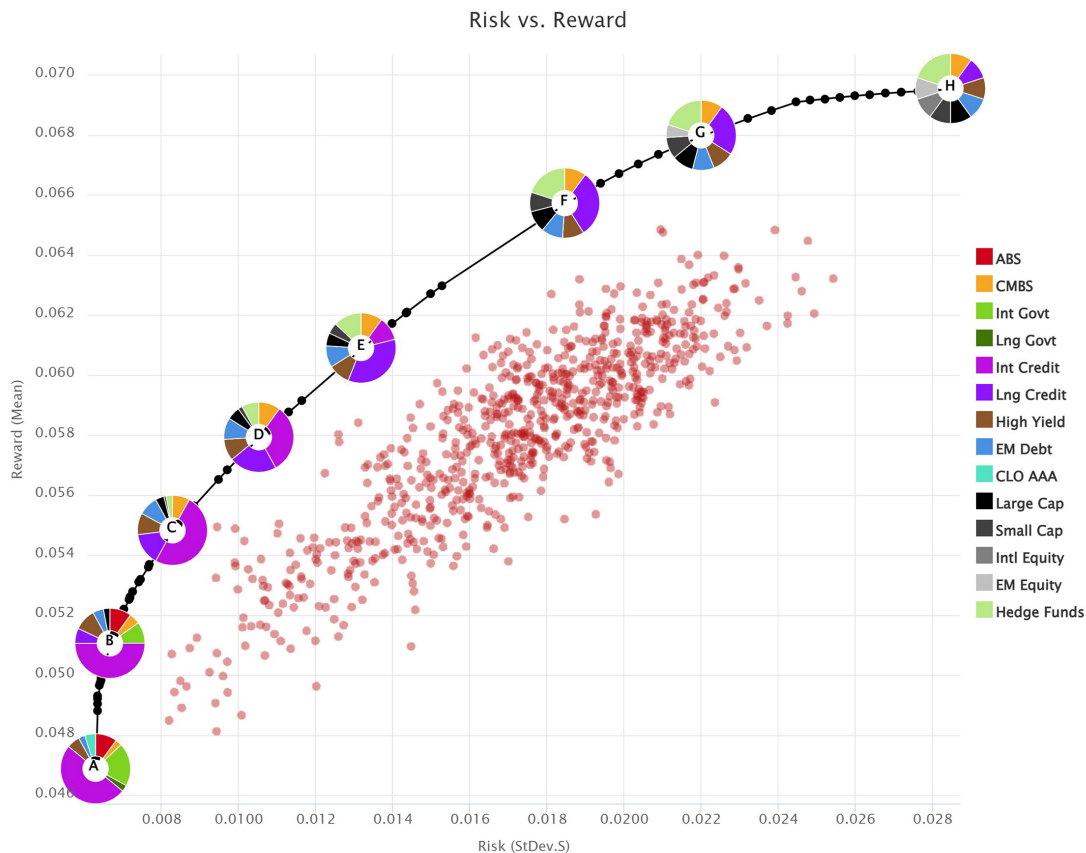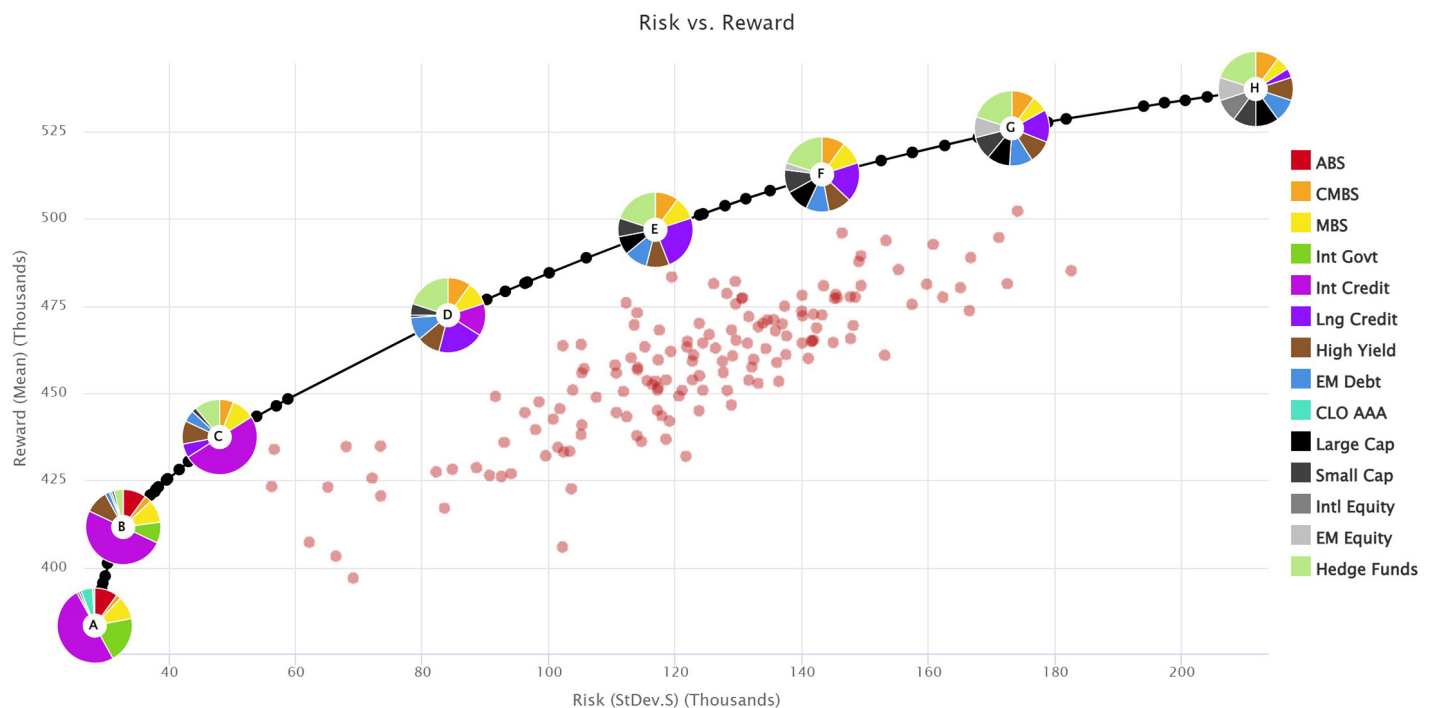
Exhibit 1: Example asset-only efficient frontier. Prepared by Conning, Inc. ©2023 Conning, Inc. Source: Conning Allocation Optimizer® using hypothetical company data and investment returns and liability cash flows from GEMS® Economic Scenario Generator.

Life insurers frequently use the present value of distributable earnings (PVDE) scope in their SAA studies. PVDE is a robust metric that measures the dividend capacity of an insurance entity. This metric requires complex calculations that must consider an entity's assets, liabilities, statutory earnings, and capital. IMR and taxes can also be incorporated as part of the analysis. While more complex, the benefit of this approach is that the efficient frontier captures the objectives and constraints that are important to insurers. **Exhibit 2** shows an example of a PVDE efficient frontier where reward is the average PVDE and risk is the standard deviation of PVDE.
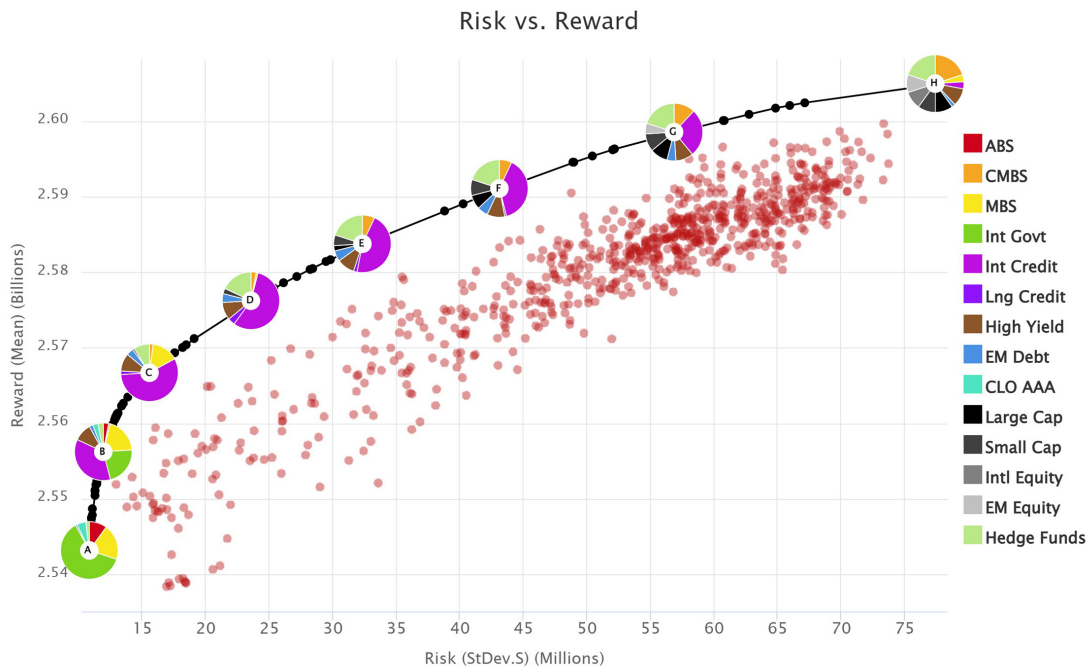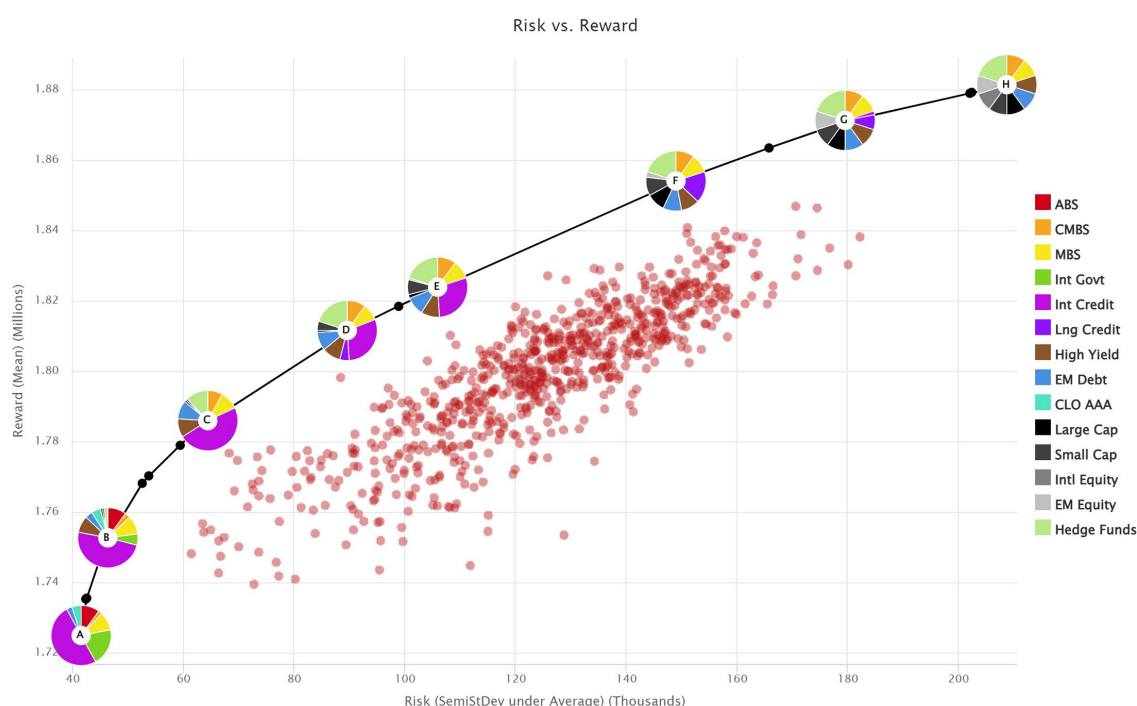

Exhibit 2: PVDE efficient frontier. Prepared by Conning, Inc. ©2023 Conning, Inc. Source: Conning Allocation Optimizer® using hypothetical company data and investment returns and liability cash flows from GEMS® Economic Scenario Generator.

P&C insurers tend to prefer to use the Economic Value scope, which measures the difference between the market value of assets and the present value of liabilities (i.e., surplus). This metric aligns with the objective of maximizing shareholder value over longer horizons. **Exhibit 3** shows an example of an economic value efficient frontier where the reward is the expected surplus and the risk is the standard deviation of surplus.

Exhibit 3: Economic value efficient frontier Prepared by Conning, Inc. ©2023 Conning, Inc. Source: Conning Allocation Optimizer® using hypothetical company data and investment returns and liability cash flows from GEMS® Economic Scenario Generator.

Pension funds care about funded status, which is the market value of assets less the present value of liabilities. Using the Economic Value scope, sponsors can define reward as the ending funded status and risk as the standard deviation of funded status. Sponsors may be in a situation where they are more sensitive to decreases in funded status than increases of the same magnitude. In this case, they can use an asymmetric risk measure such as semi-deviation, which measures the standard deviation of only those results that are below the average. **Exhibit 4** shows an efficient frontier where the reward is the economic value as in Exhibit 3 (i.e., assets minus liabilities), but the risk is the standard deviation of surplus falling below the average.

Exhibit 4: Downside risk efficient frontier. Prepared by Conning, Inc. ©2023 Conning, Inc. Source: Conning Allocation Optimizer® using hypothetical company data and investment returns and liability cash flows from GEMS® Economic Scenario Generator.

A successful SAA analysis will result in a target allocation that balances multiple objectives from multiple stakeholders, such as:

» Satisfying policyholder obligations
» Delivering on shareholder commitments
» Meeting organizational objectives
» Adhering to regulatory constraints

The selected risk and reward metrics are important but not the only metrics that are important; we recommend running additional optimizations using alternative measures of risk and reward. This can help identify portfolios that are robust across multiple metrics. Selecting the best portfolio requires looking beyond risk and reward and examining other important considerations.

Conclusion

A successful SAA analysis requires a solid framework and a robust tool. The Conning SAA framework can be used as a guide to help investors revisit their SAAs in light of the recent market changes. Using a tool that can quickly and efficiently test alternative strategies can help investors respond to the rapidly changing market environment. The Conning Allocation Optimizer™ can help simplify the complex process of identifying optimal strategies consistent with their specific objectives and constraints. Strategic asset allocation is one of the most important decisions investors can make and they should ensure that they have the right frameworks and tools to equip them to make the best-informed decisions.

Advantages of Conning's SAA Framework

- Browser-based tool provides useful analysis from day one, utilizing cloud computing to run stochastic optimizations in a few minutes.

- Leverages scenarios from Conning's GEMS® economic scenario generator or allows clients to "drag-and-drop" asset class returns from their own model directly into the system.

- User-friendly and interactive tool enables users to fully evaluate alternative allocations from different perspectives

- Uses robust risk and reward statistics that are relevant to objectives and constraints unique to institutional investors such as insurance companies and pension plan sponsors

- Produces full financial forecast for candidate portfolios allowing users to examine metrics

About Conning

Conning (www.conning.com) is a leading investment management firm with a long history of serving the insurance industry. Conning supports institutional investors, including insurers and pension plans, with investment solutions, risk modeling software, and industry research. Conning's risk management software platform provides deeper insights for decision making, regulatory and rating agency compliance, strategic asset allocation, and capital management. Founded in 1912, Conning has investment centers in Asia, Europe and North America.