Insights
Global Fiduciary Solutions

Asset Allocation

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Portfolio Correlation Analysis for Defined Benefit Plans

Thomas J. Kennelly, III
Senior Investment Strategist

Measuring and managing portfolio risk during periods of heightened market volatility is a challenging exercise. The predictive relationship between asset classes at times of economic turbulence can differ substantially from normal ranges, as seen most recently when correlations increased during the market downturn in early 2020. This challenge is particularly evident to managers of defined benefit plans, which require multi layered risk monitoring given the assets and their relationship to the ultimate benchmark for corporate defined benefit plans, plan liabilities. Correlation risk analysis and management for corporate pension is complex and requires enhanced skill sets and systems beyond what is required for other asset driven client types. State Street's approach to analyzing and managing portfolio correlation for defined benefit plans is outlined below.

Strategic Asset Allocation

State Street's strategic asset allocation analysis focuses on the interplay between liability-based assets and growth-seeking assets in relation to plan liabilities. The purpose of the liability-based assets is to manage the impact of changes in interest rates and discount rates and volatility of funded status. The growth-seeking assets are designed to close a defined benefit plan's funding deficit over time. The two main drivers of pension risk and return, from a factor standpoint, are equities and interest rates. Therefore, it is critical to model the correlation risk across and within the growth portfolio and liability based assets. Our team utilizes advanced models to evaluate near term value at risk, and longer term, surplus and contribution volatility and impact of changes in correlation. Understanding pension surplus risk driven by changes in the correlation and volatility regimes are critical to our strategic asset allocation and portfolio construction.

Liability-Based Assets

Within the liability-based portfolio, we construct allocations based on sector exposure, style, and managers that are best correlated to the defined benefit plan liability. As funded status improves for many plans, we typically employ strategies that have a higher correlation to the liability discount rate. As the overall allocation to liability based assets increase, enhanced focus correlation reduces funded status volatility and at the same time, incorporating credit spread beta to meet and exceed liability returns can mitigate funding volatility, and avoid having funded status slippage and deterioration. For less well funded plans, we focus on hedge ratio and capital efficiency with longer duration treasuries or overlays. While corporate credit exposure is reduced, we factor in the correlation to the equity portfolio and other growth assets to the credit spread risk inherent in the plan liabilities.

Growth-Seeking Assets

The growth-seeking portfolio is the portion of the plan designed to deliver higher returns over time to help close the funding gap. However, while we seek enhanced correlation within liability based fixed income, the inclusion of less-correlated asset classes provides diversification benefits particularly in a rising rate environment that deliver returns above the plan liabilities to reduce the funding gap. Employing assets with a low-positive correlation, typically within the 0 to 0.3 range, and diversified beta exposure, can generate excess returns while lowering the volatility of the plan's funded status. As plans become better funded, or even fully funded and de-risk, we believe a level of de-risking can be achieved with growth assets that exhibit a level of correlation to interest rates and credit spreads. This could include defensive growth assets, low beta equities, and income oriented growth assets such as multi-asset credit strategies with exposure to high yield, bank loans, emerging market debt. The improved liability correlation allows plans to retain additional growth asset exposure they might otherwise forego within fixed income.

Tactical Asset Allocation

State Street's team believes in the use of market positioning/tactical asset allocation as a way of generating excess return above the strategic policy benchmark for the plan. Much like an active manager, our tactical process targets a level of excess return (alpha) and risk (tracking error) against the policy benchmark. Our results have shown that the ability to generate alpha via a risk controlled tactical asset allocation process is often uncorrelated to the alpha generated by active equity and fixed income managers further improving risk adjusted returns for the total portfolio. Our process actively tilts a portfolio across asset classes, utilizing quantitative models and fundamental inputs. It also allows us the opportunity to be defensive and allocate to cash, when markets become more volatile and correlations less certain. Market positioning tends to be employed more aggressively as a source of additional return for clients with a funding deficit. For plans of adequate size, we actively implement systematic hedges and opportunistic overlays, in the futures, swap or options space. The use of a derivative overlay as a risk and return management tool is cost efficient but also has the additional benefit of not disrupting the underlying physical assets and/or active managers, thereby incurring additional trading costs.

Capital Markets Forecasting

State Street produces expected return, volatility, and correlation **forecasts for over 100 asset classes** on a quarterly basis, under three different horizons; Short Term, Intermediate Term, and Long Term. These estimates rely on analyzing various windows of historical data that are further adjusted for sustainable changes observed within current market environments.

We utilize both off-the-shelf and proprietary tools to analyze expected risk/return attribution of individual investments and how they are expected contribute to portfolios. We assess the correlation of excess returns, return drivers, and the differentiation of investment processes and subadvisor teams. A proprietary process is used to further refine these projections by including expected cash movements, such as benefit payments and company contributions, into overall plan estimates.

Closing Thoughts

Enhanced risk mitigation, improved governance, and deep market insights and trading expertise are some of the overarching benefits of using an OCIO, often resulting in improved risk adjusted returns and volatility management. Understanding the interplay of correlation across assets and liabilities, and within growth assets and liability based assets and constructing portfolios accordingly can improve long-term expected returns and manage volatility. Managing and monitoring portfolios both strategically, via asset allocation, portfolio construction and active manager style, and tactically via thoughtful rebalancing can generate improved client outcomes. While advanced models can help illustrate the impact of volatility, correlation, and adverse tail events on a pension plan, State Street's Investment Solutions Group provides an added layer of stewardship to clients with practical and implementable solutions.

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Our clients are the world's governments, institutions and financial advisors. To help them achieve their financial goals we live our guiding principles each and every day:

- Start with rigor
- Build from breadth
- Invest as stewards
- Invent the future

For four decades, these principles have helped us be the quiet power in a tumultuous investing world. Helping millions of people secure their financial futures. This takes each of our employees in 31 offices around the world, and a firm-wide conviction that we can always do it better. As a result, we are the world's third-largest asset manager with US $3.59 trillion* under our care.

* This figure is presented as of March 31, 2021 and includes approximately $60.33 billion of assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated.

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Marketing Communication

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