



Risk Budgeting: A Closer Look

Risk budgeting: an important risk/return optimization tool.

Institutional investors face a multitude of difficult decisions when designing their overall investment portfolio. Some of the most perplexing decisions relate to manager structure, both within each asset class and across the total portfolio. While an asset allocation study directs investors to the most appropriate asset class structure, many investors have little to guide them in determining the manager structure that will put their money to work most efficiently. Risk budgeting is a planning tool designed to address this need. This approach analyzes the patterns of performance, the correlation of premiums, and the fees of all the services a plan sponsor may be considering or might already have. It also develops an efficient frontier, in which each point identifies the manager mix that maximizes active, after-fee premiums. As such, risk budgeting presents choices to the investor about manager structure in order to improve risk/return efficiency.

Risk budgeting is, therefore, a risk/return optimization tool. It strives to answer questions such as “How much active management versus an index fund should you have in your portfolio?” “If your trustees are predisposed to use passive indexing, does enhanced indexing represent a superior alternative?” “Are you maximizing the risk/return trade-off that you receive from the managers you’ve hired?” And finally, “How many managers should you have?”

Several decisions and assumptions must be made in order to perform the risk budgeting analysis. First, one must determine the scope of the asset class one wishes to study. For example, it must be decided whether to analyze only large cap equity managers or all equity managers together (note that narrower scope is usually better). Secondly, one must choose the benchmark against which the risk and return analysis will be measured. Thirdly, one must identify the specific managers to be used in the analysis. Once candidate managers

have been selected, one must develop assumptions about the likely patterns of performance that they exhibit. These include excess return (i.e. premium over the benchmark), tracking error relative to the benchmark, and correlation coefficients (of excess returns) across all possible pairs of managers. Finally, it is necessary to input all the asset-based fee schedules. These assumptions are then used to drive a mean-variance optimizer that displays the efficient frontier of the risk/return trade-off. For any level of tracking error (active risk), the optimization process identifies the highest-return manager combinations.

Care must be taken when formulating assumptions about excess returns, tracking error and correlations. When using actual historical performance of the candidate managers, one may have to adjust the results for unusual historical market environments (i.e., the Internet bubble) that may not reappear in the forward-looking planning period. In addition, one must be prepared to test the sensitivity of the efficient frontier (output) to changes in the assumptions.

Notwithstanding the limitations of mean-variance optimization, risk budgeting can be a very useful analysis, and a starting point in the pursuit of an optimal manager structure. The strength lies in its ability to find optimal solutions that consider patterns of manager performance (excess returns and tracking error), diversification (correlation of excess return) and management fees. Its usefulness is apparent when the software is written with the flexibility to easily change the assumptions and test the sensitivity of the recommendations.

In a number of analyses performed for plan sponsors, we have found it to be rare that the current allocation represents the most efficient combination. Furthermore, enhanced indexing almost always surfaces as a superior alternative to passive indexing. Finally, information ratios (excess return/tracking error) often improve meaningfully when one introduces candidate managers that are superior diversifiers to the existing managers. ■