CONSTRUCTING ASSET CLASS LEVEL PORTFOLIO ALLOCATIONS

When creating portfolios at the asset class level, Ibbotson Associates focuses on two major qualifications: (1) efficiency from a mean-variance perspective, and (2) investor preferences. Portfolios that provide the best risk/return characteristics may not be acceptable to many clients due to counterintuitive allocations and investment biases. Furthermore, the most quantitatively efficient portfolios may not take into account possible errors in the input forecast. All of these factors are incorporated into the portfolio recommendations. The following sections: Ibbotson Constraints, Forecast Performance Criteria, and Portfolio Spacing provide an overview of how Ibbotson approaches portfolio construction within the mean-variance setting.

Ibbotson Constraints

Performing an unconstrained mean-variance optimization will often result in asset allocations that are not deemed practical by the investor and the investment professional. In an ideal world, the inputs used in mean-variance analysis would perfectly reflect future asset class behavior and would result in efficient portfolios that also meet investor "tolerances" for asset holdings. Unfortunately, this is not the case. Regardless of one's method for calculating mean-variance analysis inputs, there will be instances where the resulting values differ dramatically from more qualitative expectations and investor tolerances. In addition, short-lived data series may result in unstable inputs. In both of these cases, it is necessary to constrain the allocations to such asset classes to reflect qualitative information, investor tolerances, or the lower confidence in various asset class inputs.

Forecast Performance Criteria

The following is a brief description of the typical performance criteria for conservative, moderate, and aggressive portfolios. These descriptions focus on short-term volatility, chance of loss, and the potential to outpace inflation in both the short and long run. These qualities are not intended to be a complete list of absolute requirements, but a list of the items Ibbotson takes into consideration when developing model portfolios.

The Conservative Investor

The conservative investor is particularly sensitive to short-term losses, but still has the likely goal of beating expected inflation over the long run. The following criteria have been developed to ensure that such investors have the best chance of achieving these goals:

- The portfolio should have *approximately* a 90 percent chance of achieving a non-negative return over a one-year holding period. This accounts for substantial risk aversion; any stricter criteria used to avoid risk (such as a 95 percent chance) would significantly limit the intermediate and long-term upside potential of the portfolio.
- The portfolio should have at least a 75 percent chance of keeping pace with expected inflation over a three-year span and 90 percent chance over a five-year span. Using a model developed by Ibbotson, an expected inflation rate of approximately 1.5 percent has been forecast for the next three to five years.

Vantage Advisor Group
470 Atlantic Ave., 4th Floor Boston MA 02210
617-273-8401 www.thevantage.com

- Investment periodicals (both retail and institutional) often single out three and five years as relevant time periods for manager selection and evaluation. Investors will tend to examine a portfolio's performance to date and re-evaluate their investment decision over these periods. Ibbotson assumes that a high probability of achieving the minimal investment goal of keeping pace with inflation is desired over these periods.
- The portfolio should have an expected return (refers to the expected value) that outpaces expected inflation by at least three percent over a 20-year holding period. An expected inflation rate range of 2-3 percent has been forecast over the next 20 years. There should be growth in the real value of assets over the long run.

The Moderate Investor

The moderate investor is willing to accept more risk than the conservative investor, but is probably not willing to accept the short-term risk associated with achieving a long-term return dramatically above the inflation rate. With this in mind, the moderate portfolio should meet all of the following criteria:

- The portfolio should have *approximately* a 75 percent chance of achieving a non-negative return over a one-year time frame and at least a 95 percent chance over a three-year holding period. These constraints are more liberal than those for the conservative portfolio, but still account for moderate short-term loss aversion.
- The portfolio should have at least a 75 percent chance of keeping pace with expected inflation over a three-year holding period and 90 percent chance over a five-year span. An expected inflation rate of approximately 1.5 percent has been forecast for the next three to five years. This is the same as the criteria for the conservative and aggressive investors.
- The portfolio should be expected to outpace expected inflation by at least 6 percent over a 20-year holding period. An expected inflation rate range of 2-3 percent has been forecast over the next 20 years. The expected long-term real return should be approximately two times that of the conservative portfolio.

The Aggressive Investor

The aggressive portfolio should be constructed to maximize long-term expected returns rather than to minimize possible short-term losses. In order to construct such a portfolio, Ibbotson designed a long-term aggressive portfolio to meet the following criteria:

- The portfolio should have *approximately* a 75 percent chance of achieving a non-negative return over a three-year holding period. There should still be some marginal protection against risk, but a lesser degree of concern with short-term loss potential.
- The portfolio should have at least a 75 percent chance of keeping pace with expected inflation over the three-year holding period and 90 percent chance over a five year span. An expected inflation rate of approximately 1.5 percent has been forecast for the next three to five years. This is the same as the criteria for the conservative and aggressive investors.
- The portfolio should be expected to beat expected inflation by approximately 9 percent over a 20-year holding period. An expected inflation rate range of 2-3 percent has been forecast over the next 20 years. The expected long-term real return is approximately three times that of the conservative portfolio, and one and a half that of the moderate portfolio.

Portfolio Spacing

The Vantage Selector model portfolios are the result of the Ibbotson inputs construction methodology, the relative constraints used to reflect prudent and practical investor considerations, and the meeting of basic performance criteria. Other considerations, such as portfolio "spacing" are also reflected in these allocations. Portfolio spacing refers to the change in standard deviation (risk) from one portfolio to the next. The goal is to ensure that the risk spread between each portfolio is relatively equal (i.e., there is no benefit in offering five portfolios if they all have similar risk characteristics). Because standard deviation estimations are based on historical data, they are more stable than nominal return estimations (which rely partly on current inflation expectations as expressed in the treasury yield curve). As a result, Ibbotson prefers to base "spacing" upon the variable that will change least from year to year. This helps to ensure that the target portfolios will not experience a drastic shift in asset class weightings from one period to the next.