A new and more complete performance measure

This measure generates one number to reflect the simultaneous effect of timing, diversification, and selection on portfolio performance.

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This paper develops and empirically examines measures of the individual contributions of selection, timing, and diversification to portfolio performance. The paper also analyzes the merits of employing a unique, asset-weighted benchmark portfolio specifically constructed to isolate individual aspects of portfolio performance.

We have attempted to design these measures in order to overcome the shortcomings that others have pointed out in the popular performance ratios developed by Sharpe (1966), Treynor (1965), and Jensen (1968). Fama (1972), for example, argues that these measures evaluate performance resulting only from the selection of under- or overvalued securities, which may come at the unmeasured expense of less diversification. In addition, available performance measures give little attention to the simultaneous evaluation of individual contributions of timing, selection, and diversification to the overall result.

Good (1983) has suggested the advantages of using a unique benchmark portfolio to assist in this process. Our unique benchmark portfolio described here differs from Good's, but the rationale for its use is much the same.

PERFORMANCE AND DIVERSIFICATION — OR CONCENTRATION

Both Treynor's and Jensen's measures rate portfolios favorably that are above the Security Market Line (SML). As Fama (1972) suggests, this assessment of performance may not be correct if additional unsystematic risk results from an "active" management strategy directed at "beating the market."

One measure of the benefits of "active" management is the excess return (or loss) of the portfolio, which we can measure as the vertical distance of the portfolio from the SML:

$$D_v = r_p - [r_f + \hat{\beta}_p(r_m - r_f)]$$

where $D_v$ is the performance measure (alpha intercept) suggested by Jensen (1968), $r_p$ is the return on the portfolio, $r_f$ is the risk-free rate of return, $\beta_p$ is the portfolio's beta, and $r_m$ is the return on the market. $D_v$ assesses the fund manager's ability (or luck) at identifying under- or overvalued securities and/or making correct timing decisions. The $D_v$ measure cannot be used in isolation, as it does not assess the additional risk that may be incurred by the aggressive portfolio manager who maintains less than adequate diversification.

The systematic risk of a portfolio can be measured by beta, or:

$$\hat{\beta}_p = \rho_{p,m}(\sigma_p/\sigma_m)^2$$

where $\rho_{p,m}$ denotes the correlation coefficient of the portfolio returns with the market returns, and $\sigma_p$ and $\sigma_m$ represent the standard deviation of returns for the portfolio and the market, respectively. For an efficient portfolio, $\rho_{p,m} = 1$, and Equation (2) reduces to:

$$\hat{\beta}_p = \sigma_p/\sigma_m = 1$$

where $I_p$ is the "index of total portfolio risk."

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