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Hedge Fund Benchmarks: A Risk-Based Approach

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Abstract

Following a review of the data and methodological difficulties in applying conventional models used for traditional asset class indexes to hedge funds, this article argues against the conventional approach. Instead, in an extension of previous work on asset-based style (ABS) factors, the article proposes a model of hedge fund returns that is similar to models based on arbitrage pricing theory, with dynamic risk-factor coefficients. For diversified hedge fund portfolios (as proxied by indexes of hedge funds and funds of hedge funds), the seven ABS factors can explain up to 80 percent of monthly t[illegible] market prices, t[illegible]nces among major he[illegible]databases.

Conv[illegible]ptions that the und[illegible]that the dominan[illegible]rformance characte[illegible]ic, and bets may be highly levered. These hedge fund characteristics, together with the lack of

standardized reporting of historical hedge fund performance, greatly limit the information content of hedge fund indexes that are constructed by using conventional methods. At times, using such indexes can even produce misleading results.

In the study reported here, we used a method to create hedge fund benchmarks that captures the common risk factors in hedge funds by using asset-based style (ABS) factors. Model construction began by extracting common sources of risk from hedge fund returns. These sources of risk were identified by directly linking them to various market risk factors. These ABS factors were then used to construct a hedge fund risk-factor model similar to the approach in arbitrage pricing theory, in which the factor loadings (betas) are permitted to vary over time.

Thus far, researchers have identified seven risk factors. Equity long-short hedge funds are exposed to two equity risk factors—market risk (as proxied by the S&P 500 Index) and the spread between small-capitalization stock returns and large-capitalization stock returns. Fixed-income hedge funds are exposed to two interest-rate-related risk factors—the change in 10-year U.S. Treasury yields and the change in the yield spread between 10-year T-bonds and Moody's Investors Service Baa bonds. Trend-following funds are exposed to the same risk factors as three portfolios of “lookback” options—on bond futures, on currency futures, and on commodity futures. Empirical evidence shows that these seven risk factors can jointly explain a major portion of return movements in diversified hedge fund portfolios, as proxied by a fund-of-funds index.

Applying the risk-factor model to hedge fund indexes, we show that the model can identify risk differences inherent in these indexes, which in turn, helps explain anomalous return differences among them. An out-of-sample check on the usefulness of the risk-factor model with 2003 data indicates that the model explains a significant amount of the return differences among major hedge fund indexes.

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Hedge fund managers can also use ABS factors to communicate the systematic risk inherent in a strategy to investors in a format that is consistent with the qualitative description of the strategy's style. Thus, risk disclosure and transparency can be brought to a satisfactory aggregated level without having to analyze the huge volume of individual hedge fund transactions.

The same framework can be used by regulators to monitor aggregate exposures to systematic risks. This use would provide important input to the management of stressful events, such as the bond market decline of 1994.