NORTHERN TRUST

DIVERSIFY WITH SELECT HEDGE FUND STRATEGIES

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Modern portfolio theory suggests investment portfolios can be improved by adding diversifying sources of return. The diversification benefit is greatest when those additional sources of return are truly unique and different from what already exists in the portfolio. The benefit to the investor is a portfolio with the same return for less risk, or conversely, a higher return for the same risk.

Most investment portfolios are largely composed of diversified stocks and bonds because these two major asset classes are uncorrelated and powerfully diversify each other. Most other asset classes commonly used in asset allocation represent slightly different flavors of stock and bond risk, so they provide only modest diversification benefits.

Hedge funds are not an asset class per se, but rather a set of strategies that span asset classes and instruments, take on long and short positions, and employ leverage in the attempt to produce differentiated returns. The worst hedge funds merely capture commonly available returns – at high cost. But the best hedge funds produce meaningful returns that are uncorrelated to stocks and bonds, and therefore provide a powerful diversification benefit to stock/bond portfolios. The key is to be highly selective.

The Hedge Fund Research (HFRI) Fund Weighted Composite is an equally weighted index of a broad universe of hedge funds, making it a good proxy for average hedge fund returns. Additionally, HFRI publishes four main strategy classification indices that group common hedge fund strategies:

- **Equity Hedge** strategies invest long and short in equity markets with varying net exposures, leverage, holding periods and concentration;
- **Event Driven** strategies invest in equity or debt securities based on corporate-related events like mergers and acquisitions, restructuring, or financial distress;

- **Relative Value** strategies seek to capitalize on pricing discrepancies between related securities in equity, debt or currency markets;
- **Macro** strategies invest in equity, debt and currency markets based on movements in underlying economic variables.

Contemplate a hedge fund allocation if there is strong evidence for a unique and different source of return – a robust four-factor alpha.

The returns of multi-asset class portfolios are largely explained by just a few common risk factors. Following Mladina (2015)[1], we use four systematic risk factors to represent the return and risk of the major asset classes commonly used in asset allocation. The **global market factor** represents the return of developed global equity in excess of cash. The **emerging market premium** is the return of emerging market equity over developed global equity. The **global term factor** represents the return of global Treasuries in excess of cash. And the **global default factor** is the return of global high yield bonds over global Treasury bonds.

Hedge fund returns are regressed against these four factors to provide an opportunity-cost perspective when evaluating a hedge fund allocation. From this perspective, we would only contemplate a hedge fund allocation if we saw strong evidence for a unique and different source of positive return – a robust four-factor alpha. Without alpha, the returns provided by hedge funds would be available for a lower cost from some mix of stocks, bonds and cash.

Exhibit 1 shows the risk factor exposures (betas) for each HFRI strategy index from 2007 to 2016. This 10-year period offers a contemporary view of hedge fund performance while spanning economic environments. The betas are present but muted, which explains why hedge funds tend to have lower volatility than stocks.

EXHIBIT 1: HEDGE FUND BETAS

	Equity Hedge	Event Driven	Relative Value	Macro
Global Market	29%*	25%*	6%*	15%*
Emerging Market Premium	10%*	4%	4%*	8%*
Global Term	–6%	–3%	15%*	–1%
Global Default	7%*	21%*	33%*	–19%*
Adjusted R^2	87%	84%	83%	18%

*Statistically significant beta.
Sources: Northern Trust Research, Hedge Fund Research.

This simple four-factor model explains about 85% of the return variation (adjusted R^2) of Equity Hedge, Event Driven and Relative Value strategies. Market, emerging market and default betas are statistically significant (i.e., likely true) across strategies, whereas global term is only present in Relative Value. This suggests hedge funds are not good surrogates for

1 Mladina, P., "Illuminating Hedge Fund Returns to Improve Portfolio Construction." *The Journal of Portfolio Management* (2015).

investment-grade bonds. The model does not explain macro well, but we need to assess the alpha.

A statistically significant four-factor alpha that is the predominant contributor to total return and risk are the characteristics of a unique and different source of positive average return. Alphas with these characteristics drive allocations in portfolio optimizations because they provide a meaningful diversification benefit to stock and bond portfolios. Exhibit 2 displays the four-factor alpha characteristics for each HFRI strategy index.

Although the return is the same over the 10-year period, the porfolio with hedge funds has less risk and is more efficient – the benefit of enhanced diversification.

EXHIBIT 2: HEDGE FUND ALPHAS

	Equity Hedge	Event Driven	Relative Value	Macro
Alpha	1.2%	1.4%	2.4%*	2.4%
Alpha Return Contribution	44%	41%	53%	107%
Alpha Risk Contribution	12%	15%	16%	79%

*Statistically significant alpha.
Sources: Northern Trust Research, Hedge Fund Research.

Although all of the alphas are positive, only Relative Value has a statistically significant alpha. The other alphas are hard to distinguish from zero, and they could just be random. Only Macro has an alpha that predominantly contributes to both return and risk, but it is not statistically significant. None of the four strategy indices offer robust alphas that also predominantly contribute to total return and risk.

Nonetheless, we can still use the two indices that most closely represent these characteristics – Relative Value and Macro – to illustrate the diversification benefit to a portfolio of stocks and bonds. We use a 60% allocation to global stocks (MSCI ACWI) and 40% allocation to U.S. bonds (Bloomberg Barclays U.S. Aggregate Bond Index) to represent a well-diversified stock/bond portfolio. We compared this to an allocation of 40% global stocks, 40% U.S. bonds, 10% HFRI Relative Value and 10% HFRI Macro. Exhibit 3 shows that although the return is the same over the 10-year period, the portfolio with hedge funds has less risk and is more efficient – the benefit of enhanced diversification.

EXHIBIT 3: PORTFOLIO PERFORMANCE

	Compound Return	Standard Deviation	Sharpe Ratio
60% Stocks/40% Bonds	4.2%	10.4%	0.45
40% Stocks/40% Bonds/20% Hedge Funds	4.2%	7.6%	0.60

Sources: Northern Trust Research, Hedge Fund Research.

These results don't mean that only Relative Value and Macro hedge funds are worth adding to stock/bond portfolios. These indices represent *average* hedge fund returns, and the average does not apply to all. The best hedge funds maximize four-factor alpha and minimize four-factor betas. The key for portfolio investors is to be highly selective in identifying managers and strategies that meet the alpha criteria.

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This naturally leads to identifying the underlying sources of four-factor alpha and confirming they are consistent with the manager's investment process. At the highest level, the sources of four-factor alpha include alternative risk premiums and manager skill. Alternative risk premiums are systematic sources of positive average return not prevalent in stock/bond portfolios. They include value, carry, momentum and trend following, which require taking on long and short positions and using leverage.

Manager skill is another source of four-factor alpha. The returns from manager skill can be isolated with counteracting long-short positions, and magnified with leverage. We find a higher prevalence of alpha among hedge fund managers than stock or bond managers, even after attributing returns to alternative risk premiums.

We agree that the *average* hedge fund may not diversify stock/bond portfolios much. But when the right methods are used, a highly selective and well-constructed hedge fund allocation can materially enhance stock and bond portfolios.

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