

# Efficient Diversification: Managed Futures in Portfolios of Hedge Funds

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Managed futures trading has the capacity to deliver competitive performance over the long term; however, the volatility of the average futures programme often inhibits investors seeking low-risk returns. When it comes to the framing of allocation strategies within funds of hedge funds, this perceived “riskiness” of managed futures often makes them appear a liability next to less volatile hedge fund strategies. However, when considering adding an asset to a portfolio, it is more important to consider its potential interaction with other elements in the portfolio than to view it in isolation. By carrying out a simple portfolio optimisation exercise we would like to extend the notion of managed futures as a diversifier from the usual context of a traditional stocks and bonds portfolio to that of the portfolio of hedge funds.

It may at first seem paradoxical that a high-risk investment can be used to reduce the overall risk of a portfolio. However, combining managed futures with traditional investments provides a clear example of the principles of mean/variance optimisation. A portfolio that combines managed futures with stocks and bonds exhibits more optimal mean/variance characteristics, combining higher returns with lower volatility, than one composed entirely of stocks and bonds alone (Schneeweiss & Georgiev 2002; Schneeweiss & Spurgin 1998). The optimisation effect is due to the lack of correlation between managed futures and the performance of traditional investment portfolios composed of bonds and equities (notably Lintner 1983, updated by Edwards & Liew 1998; Edwards & Caglayan 2000; Fung & Hsieh 2001).

We would argue that portfolios of hedge funds, such as those assembled by funds of funds, can benefit in a similar manner from the addition of managed futures, while at the same time solving some of the problems that have emerged from recent studies of hedge fund portfolios. As in the case of traditional investments, the benefits stem from the lack of observed correlation between managed futures and hedge fund returns (see Edwards & Caglayan 2000; Kat 2002; Schneeweiss & Georgiev 2002).

For the purposes of this exercise, the hedge fund universe is represented by the CSFB/Tremont asset-weighted Hedge Fund Index<sup>1</sup>, from which the managed futures component has been removed and the remaining hedge fund classes re-weighted accordingly. The performance of the resulting index for the period October 1997 – December 2002 is summarised in Table 1. This is only intended as a rough approximation of what a portfolio of hedge funds will behave like in reality, as funds of hedge funds will typically include a substantially smaller number of funds than those represented in the index, and will seek to implement some kind of selection strategy from among the different classes of hedge funds.

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Further information on the composition of the CSFB/Tremont Index can be found at [www.hedgeindex.com/index.cfm](http://www.hedgeindex.com/index.cfm)

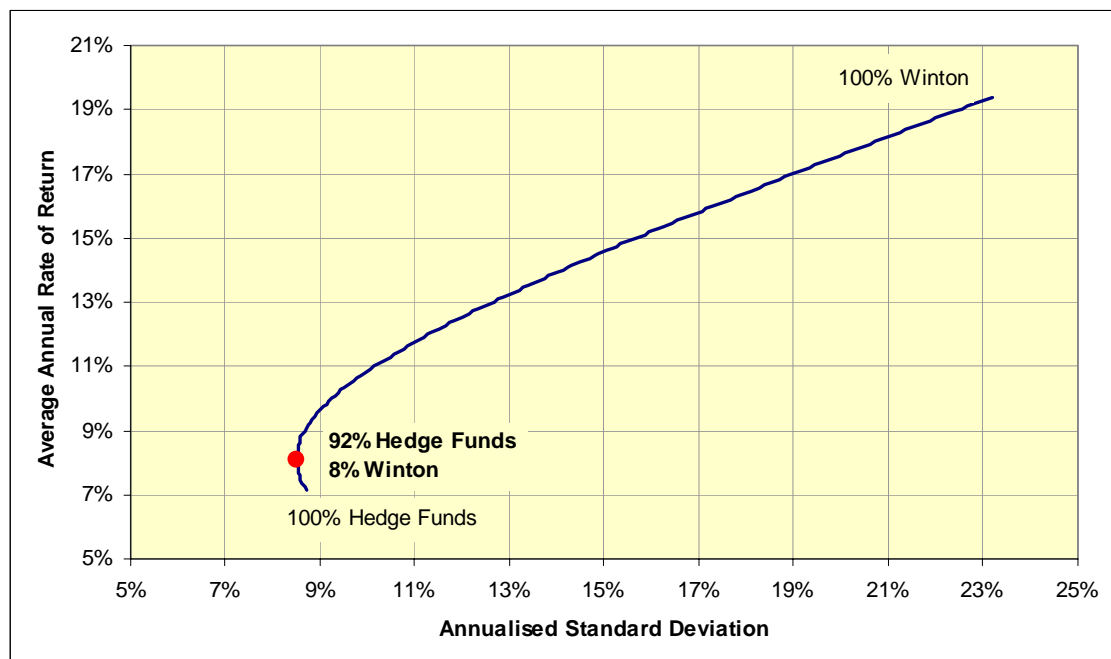
Winton's futures programme is represented by the historical returns of the Winton Futures Fund since its inception in October 1997, net of 1% management fees and 20% incentive fees.

The effect of allocating a portion of this portfolio to Winton is shown below.

	<i>Return</i>	<i>St Dev</i>	<i>Sharpe</i>	<i>Sortino</i>	<i>Correlation</i>
<b>Hedge Funds</b>	7.1%	8.7%	0.34	0.41	0.16
<b>Winton</b>	19.4%	23.2%	0.66	0.87	
<b>Optimal Portfolio</b>	8.1%	8.5%	0.46	0.62	

**Table 1.** Risk/return characteristics of Hedge Funds (CSFB/Tremont Index minus Managed Futures), Winton (Winton Futures Fund) and the optimal portfolio, for the period October 1997 – December 2002.

On the efficient frontier graph, the area bounded by the curve represents all possible combinations of the assets in question. Points outside this area are not obtainable from these two assets. Any point of the frontier itself represents the portfolio with maximum return for a given level of risk (measured by the standard deviation), or, conversely, the lowest risk for a given level of return. The red dot marks the *optimal* portfolio, that is, the portfolio with the highest return for the lowest level of risk.



**Figure 1.** Mean/variance efficient frontier of a portfolio combining Winton with Hedge Funds, for the period October 1997 – December 2002.

In this case, the optimal result is obtained by a small allocation (8%) to Winton within a portfolio of hedge funds. This small allocation is enough to raise the Sharpe ratio of the hedge fund portfolio by 36% for the period in question, by both enhancing the returns and lowering the risk of the portfolio. The Sortino ratio, which takes into account only the downside risk, is increased by over 50%.

This result agrees with past portfolio optimisation studies which strongly recommended the inclusion of an allocation to managed futures in mixed portfolios containing other types of hedge fund investments (Schneeweiss & Georgiev 2002).

There are other benefits to the inclusion of managed futures in a portfolio containing hedge funds. Recent analyses of hedge fund portfolios have pointed out that while combining a number of hedge funds in a portfolio can improve its mean/variance characteristics compared to an individual hedge fund, the effect on the overall shape of the return distribution is not totally benign. A lower standard deviation comes at the cost of higher correlation with the stock market, but also lower returns. These effects are compounded when portfolios of hedge funds are combined with stocks and bonds, when the probability of a large loss is increased substantially (Amin & Kat 2002a, b, c).

Clearly, in terms of diversification none of these features is an advantage. However, by extending the portfolio to include managed futures, not only is the standard deviation reduced and returns increased, but a more attractive risk profile is achieved by counteracting the undesirable side-effects of hedge funds (Kat 2002).

These considerations demonstrate that the inclusion of managed futures is an imperative for the construction of a risk-optimised hedge fund portfolio, particularly if that portfolio is intended to complement investments in stocks and bonds.

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