

Hedge Funds in an Investment Portfolio
 White Paper for FOX
 4/10/06

Ezra Zask, Managing Director and Herbert Moore, Business Development Specialist,
 Azimuth Trust Company

Hedge funds are an increasingly important investment for high net worth individuals and institutional investors. With most analysts projecting relatively low returns from traditional long-only investments and the increasing correlation between various markets, hedge funds are seen as a source of return, diversification and portfolio alpha (returns due to manager skills above market returns). For many investors, funds of hedge funds represent an attractive alternative to direct investment in hedge funds. They provide diversification which can help to reduce risk in the portfolio.

Our analysis reviews a number of performance parameters for a widely used index of fund of hedge fund performance: the HFN Fund of Funds Aggregate Average. This incorporates over 1800 fund of funds and can therefore be considered a reliable measure of fund of hedge funds performance.

In addition, we have reviewed the evidence for three time frames to insure that our results are not biased by including only one period. The time frames we have chosen are 1994-2005, 1997-2005, and 2000-2005.

Our study concluded that funds of hedge funds have performed better than traditional asset classes during the three periods, had beneficial effects when added to a portfolio of traditional assets and have had low beta exposure to traditional assets. The analysis also illustrated the fact that in periods of extreme bull markets, traditional asset classes can outperform funds of funds.

Relative Performance of Funds of Hedge Funds and Other Assets

Table I below shows that hedge funds consistently gave higher returns and lower volatility than traditional assets for all the time periods.

Table I

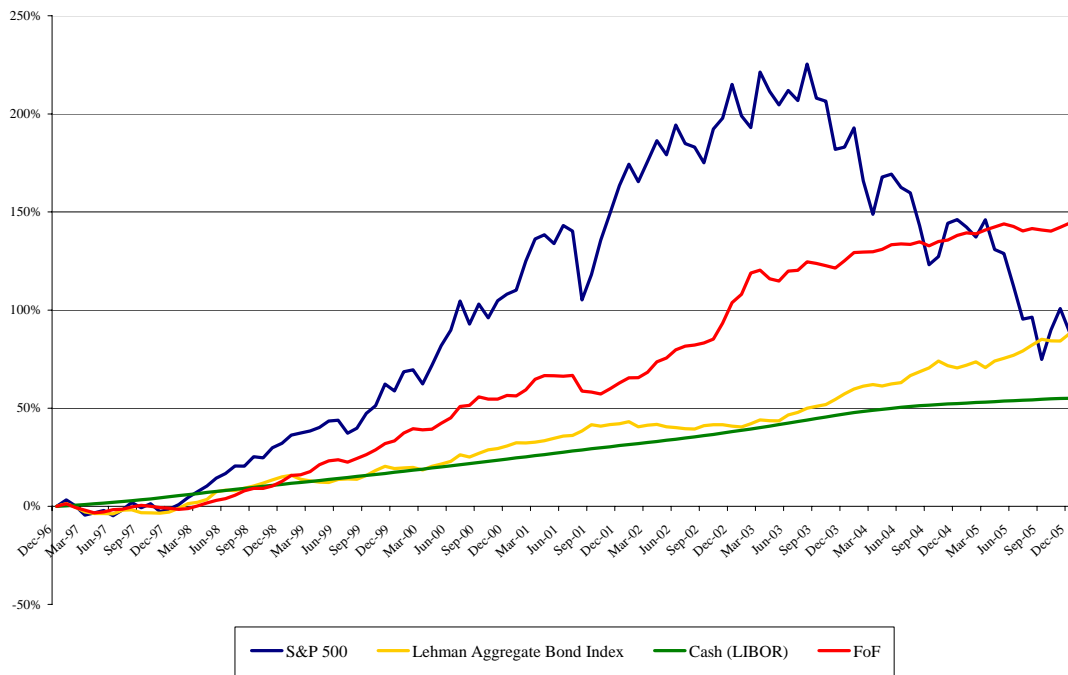
	S&P 500 ¹	Lehman Aggregate Bond Index ¹	3 Month Libor Rate ¹	HFN Fund of Funds Aggregate Average ²
Avg. Annualized Returns 1994-2005	8.5%	6.3%	4.3%	9.9%
Volatility	14.7%	3.9%	0.5%	4.7%
Avg. Annualized Returns 1997-2005	6.0%	6.5%	3.9%	9.9%
Volatility	16.0%	3.7%	0.5%	4.9%
Avg. Annual Returns 2000-2005	-2.7%	6.8%	3.1%	7.3%
Volatility	15.2%	3.9%	0.5%	3.8%

¹ Bloomberg

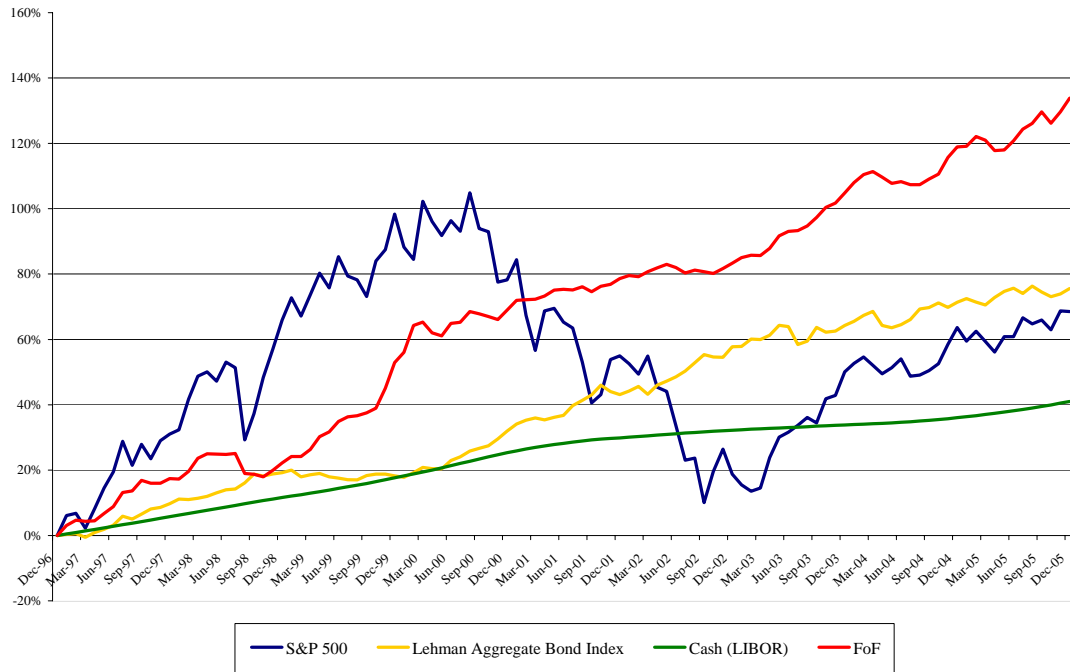
² HFN = Hedgefund.net Index

The following three graphs show the performance of traditional asset classes and hedge fund of funds. As can be seen in the first two graphs, the very defensive nature of hedge funds which makes them so attractive can also cause them to under perform in extreme bull markets. This is shown by the fact that the cumulative return of the S&P is higher at times than the cumulative return of fund of funds. However, the lower volatility of the fund of funds proves beneficial in the long run as the fund of funds do not experience large draw downs in 2001 and 2002.

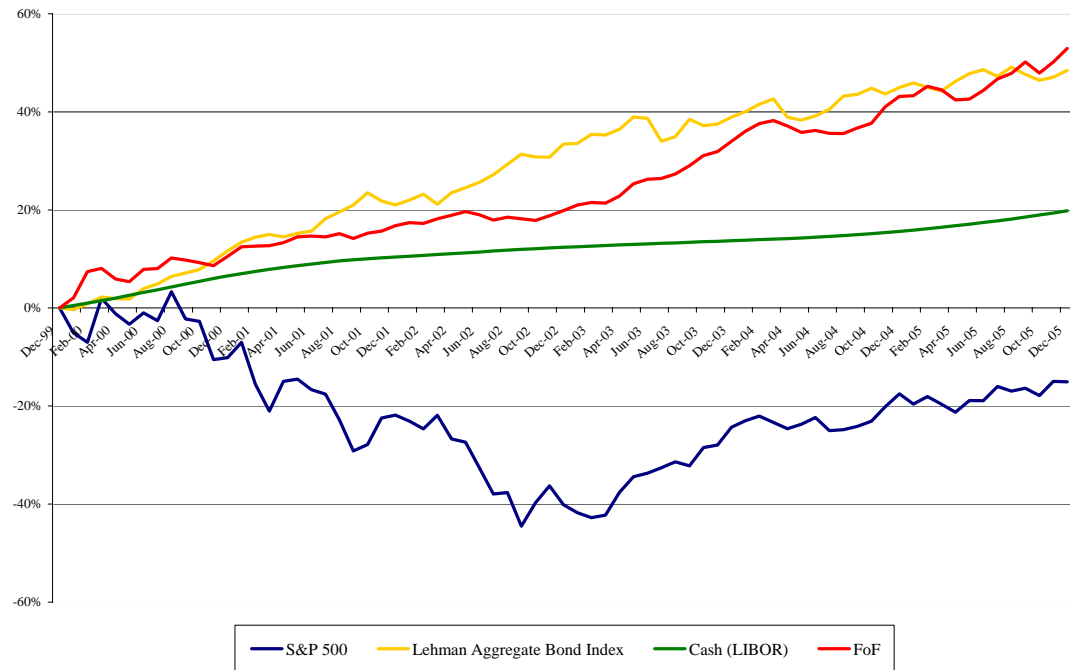
Performance 1994 - 2005



Performance 1997 - 2005



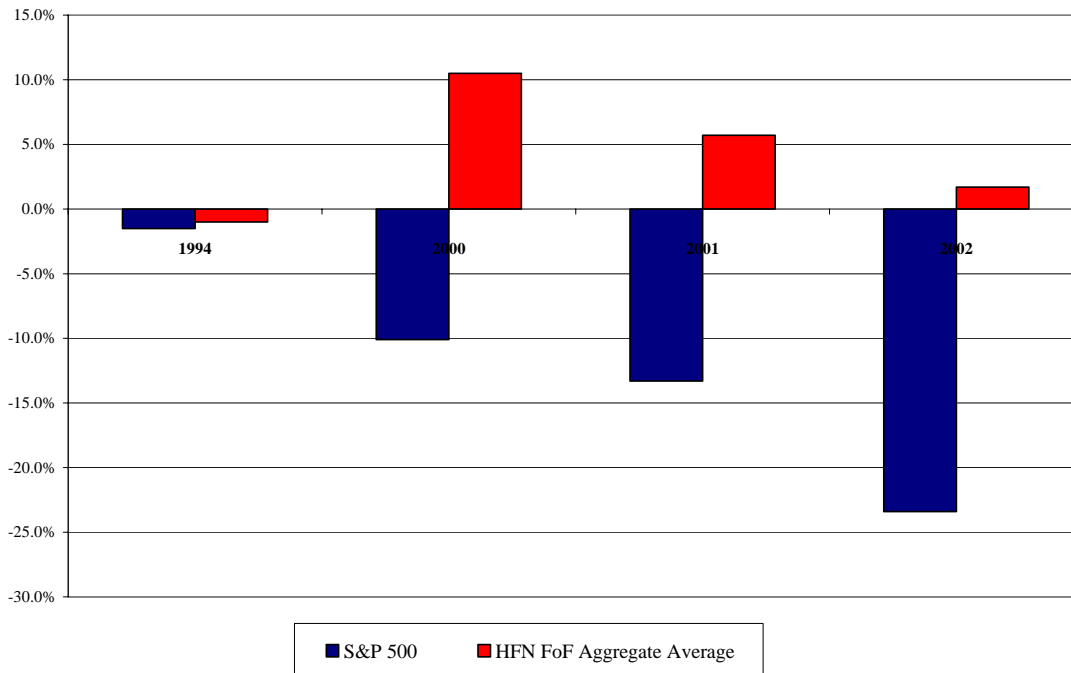
Performance 2000 - 2005



Protection Against Market Declines

Hedge funds, because of their ability to short markets, have proven to be highly effective in containing the losses of market downturns. Funds of funds have shown gains in three of the four years that S&P has declined since 1994, including the major downturns of 2000-2002.

HFN Fund of Funds Aggregate Average Performance During S&P Down Years



Addition of Hedge Fund of Funds to Investment Portfolios

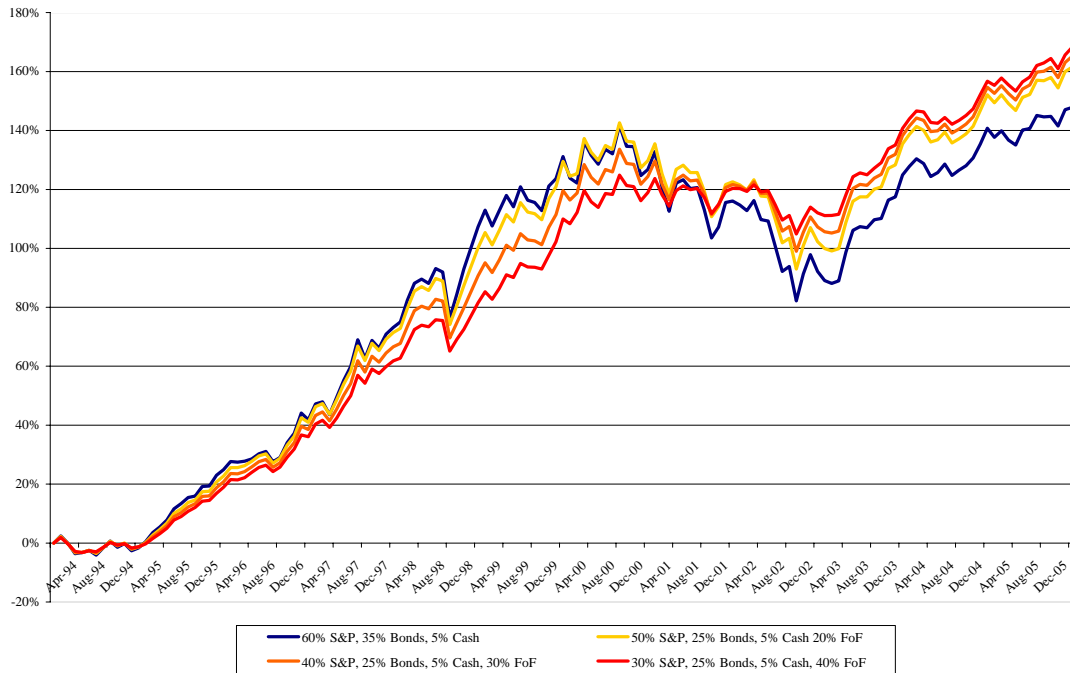
The addition of a fund of funds to a portfolio has beneficial effects on the performance and the volatility.³ For example, the return of a portfolio comprised of 60% S&P, 35% bonds and 5% cash had an average annualized return of 7.9% from 1994-2005 with an annual volatility of 9.0%. In contrast, the inclusion of a 40% allocation to fund of funds increased the average annualized return to 8.6% while reducing volatility to 5.0%. The fund of funds' beneficial effect on cumulative returns is also seen in the following table and graph. Once again, it should be noted that in extreme bull markets the defensive nature of hedge funds causes their addition to the portfolio to dampen returns.

³ We use hedge fund of funds rather than individual hedge funds because the latter provide investors with diversification among hedge funds and hedge fund styles, typically resulting in lowered overall risk. This is especially true as hedge fund returns converge.

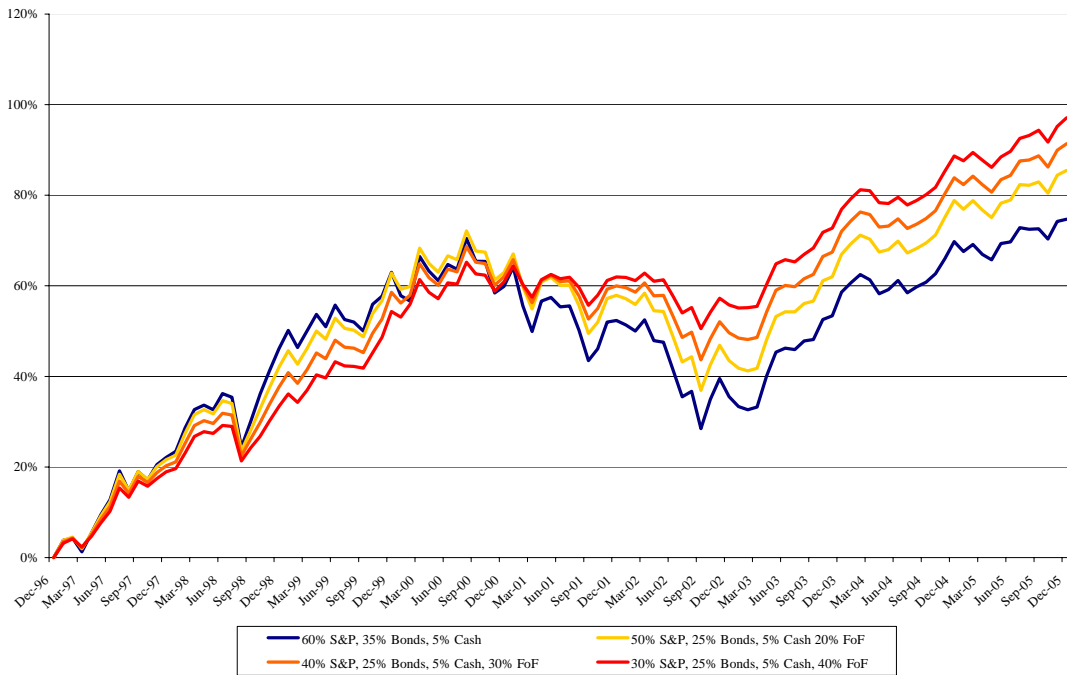
Table II

	60% S&P, 35% Bond, 5% Cash	50% S&P, 25% Bond, 5% Cash, 20% FoF	40% S&P, 25% Bond, 5% Cash, 30% FoF	30% S&P, 25% Bond, 5% Cash, 40% FoF
Avg. Annualized Returns 1994-2005	7.9%	8.3%	8.5%	8.6%
Volatility	9.0%	8.0%	6.8%	5.8%
Avg. Annualized Returns 1997-2005	7.2%	8.0%	8.5%	8.9%
Volatility	9.6%	8.5%	7.2%	6.0%
Avg. Annual Returns 2000-2005	1.2%	2.2%	3.2%	4.2%
Volatility	8.9%	7.7%	6.5%	5.2%

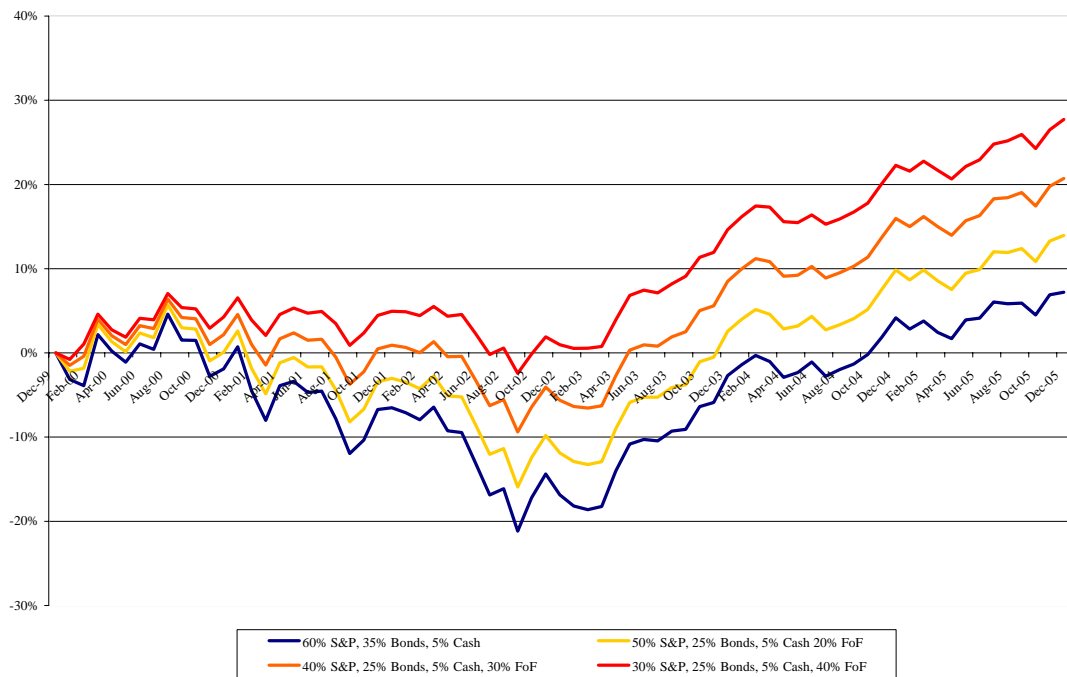
Performance 1994 - 2005



Performance 1997 - 2005



Performance 2000 - 2005



Asset Correlations and Alpha Generation

In the following regressions, the HFN fund of funds aggregate average is regressed against the S&P 500 and Lehman Aggregate Bond Index during different time periods. The analysis shows that fund of funds have not historically had large exposure to fluctuations of stocks and bonds and they have generated significant alpha.⁴ The low exposure to stocks and bonds is seen in the low betas, while the significance of the alphas is seen in the low p-values. Thus, funds of funds improve the diversification of traditional portfolios and generate a return (alpha) above the return that is not related to movements in the stock and bond markets.

- Performance = alpha + beta * (factor) – expenses
- For example, if a manager is adding 5% of alpha annually, the fund has a beta of .5 to the S&P 500, and expenses are 1%, then if the S&P 500 index rises by 4% in a year, the fund can be expected to perform at: $5\% + .5 * (4\%) - 1\% = 6\%$
- P-values are used for testing whether each individual variable's impact is significant on the dependent variable. A p-value of .05 implies that the variable is statistically significant at a 95% confidence interval.

Regression with S&P 500 and Lehman Aggregate Bond Index over period January 1994 to December 2005			
R Square	0.27		
Observations	144		
	<u>Value</u>	<u>P-value</u>	
Alpha	4.47%	0.00	
Beta to S&P 500	0.16	0.00	
Beta to Lehman			
Aggregate Bond Index	0.11	0.21	

Regression with S&P 500 and Lehman Aggregate Bond Index over period January 2000 to December 2005			
R Square	0.20		
Observations	72		
	<u>Value</u>	<u>P-value</u>	
Alpha	3.87%	0.01	
Beta to S&P 500	0.11	0.00	
Beta to Lehman			
Aggregate Bond Index	0.23	0.04	

Regression with S&P 500 and Lehman Aggregate Bond Index over period January 1997 to December 2005			
R Square	0.26		
Observations	108		
	<u>Value</u>	<u>P-value</u>	
Alpha	5.10%	0.00	
Beta to S&P 500	0.15	0.00	
Beta to Lehman			
Aggregate Bond Index	0.11	0.33	

Regression with S&P 500 and Lehman Aggregate Bond Index over period January 2003 to December 2005			
R Square	0.39		
Observations	36		
	<u>Value</u>	<u>P-value</u>	
Alpha	3.71%	0.03	
Beta to S&P 500	0.22	0.00	
Beta to Lehman			
Aggregate Bond Index	0.15	0.18	

⁴ All regressions were performed using excess returns. Excess returns are the returns of a fund or index once Libor has been subtracted.

Conclusion

Based on historical data, our analysis concludes that hedge fund of funds to portfolios results in a number of benefits:

1. Potentially higher return and lower volatility than other investment assets
2. Investment protection during times of major market downturns
3. Improvement on the performance of portfolios of stocks and bonds with higher returns and reduced volatility resulting from diversification from traditional assets
4. Generation of alpha in diversified portfolios because of low correlations with traditional markets.