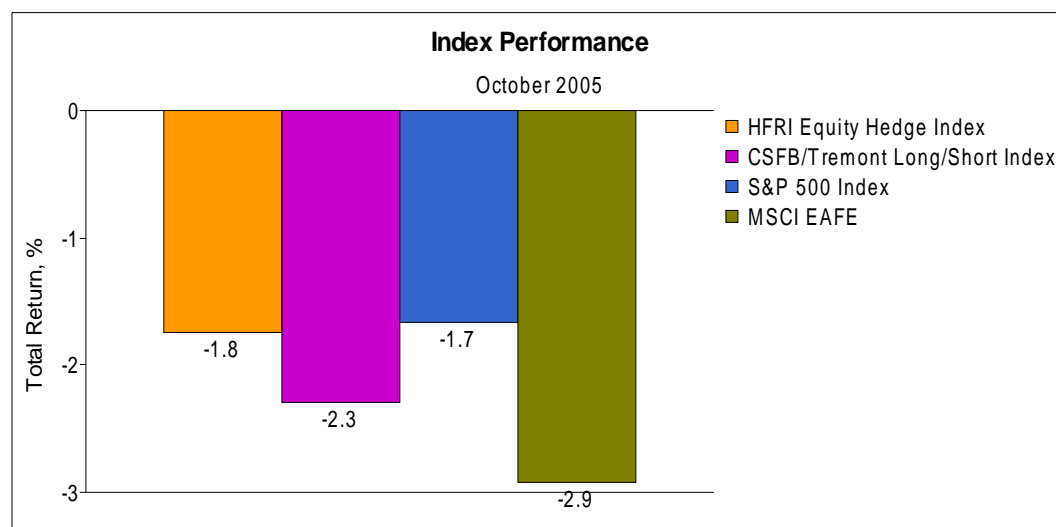MPI Quarterly Research
Q'4 - 2005

Recent Trends in
Hedge Fund Market Exposure

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Introduction

Most hedge funds were down in the month of October. CSFB/Tremont Hedge Fund Index was down -1.46% and HFR Weighted Composite Index was down -1.39%. Many hedge fund managers reported that their strategies "took a beating". At the same time, major markets were also down in the month of October and it is reasonable to assume that hedge funds are becoming more sensitive to market moves by taking significant net long positions. The analysis of this hypothesis will be the subject of this paper.

For our analysis we will use hedge fund indices representing Long/Short category – one of the most representative and popular among hedge funds. Indices representing category averages are readily available from a number of hedge fund database vendors. We will use monthly returns of the two most popular indices from CSFB/Tremont and Hedge Fund Research (HFR). The chart below compares October 2005 performance of the two major long-short indices to that of S&P 500 Index and MSCI EAFE Index.

Index Performance

October 2005

	■ HFRI Equity Hedge Index
	■ CSFB/Tremont Long/Short Index
	■ S&P 500 Index
	■ MSCI EAFE

Total Return, %

-1.8   -2.3   -1.7   -2.9

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We will first start with applying traditional CAPM single index approach to determine trends in exposures of the above indices. In the second part of the study we will focus on modern multi-factor technology that provides an accurate in-depth assessment of such exposure.

Using Market Beta as a Measure of Market Exposure of Long-Short Hedge Funds

The chart below shows beta computed vs. the S&P 500 Index over the 24-month trailing windows. Note that the levels of market beta are different for the two indices, which is not surprising given the different fund screening procedures that each index employs. At the same time, the trend is very similar for both indices and shows that over the past 2-3 years the net market exposure of hedge funds almost doubled to 50% net long level.

24 Month Rolling Beta

(vs. S&P 500 Index)
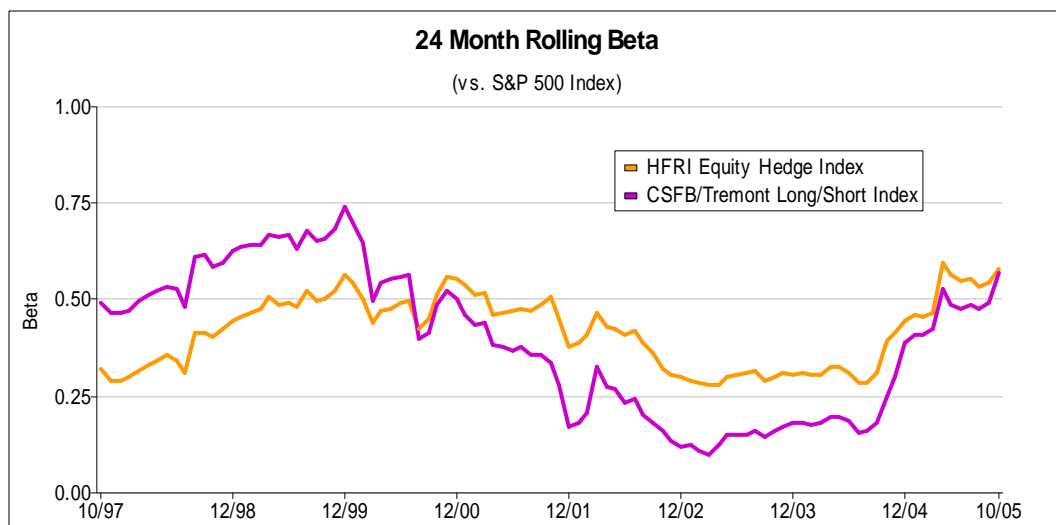
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This chart provides a very good historical perspective: the levels of net exposure (which may be interpreted as optimism) are back to pre-Sep 11th levels. If one compares it with the chart below showing 24-month rolling performance for the S&P 500 Index, it become apparent that the direction of change in beta is trailing the direction of market performance. Thus, one may conclude that it took about two years of solid market gains for hedge fund managers to become more optimistic and increase their net exposure in 2004-2005.

**24 Month Rolling Performance**

11/95 - 10/05
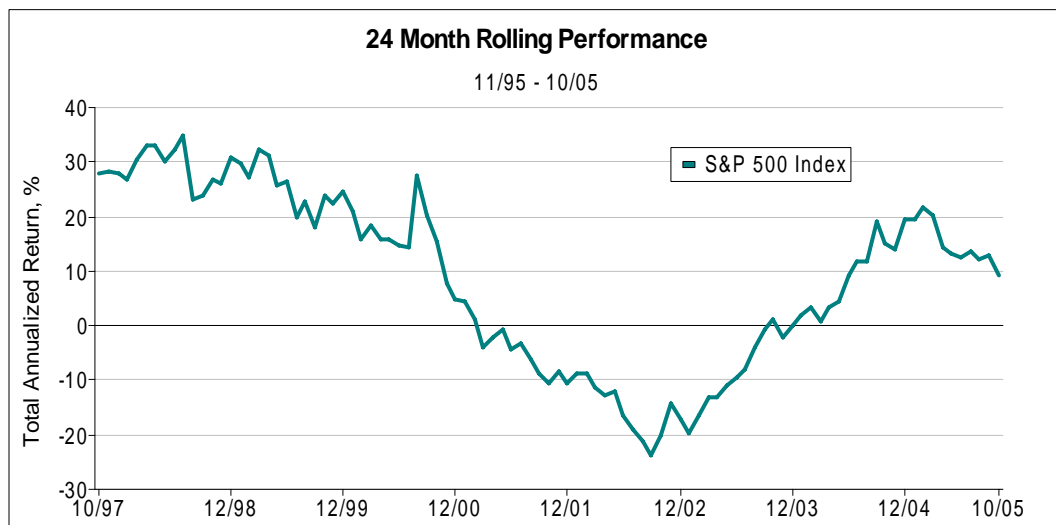
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Such simple analysis provides at least some level of benchmarking, something that many hedge funds routinely are trying to avoid. The truth is that an average hedge fund performs similarly to a balanced portfolio with varying degrees of equity allocation. Therefore, investors should be comparing monthly results of their funds to either a 50/50 mix of stocks and bonds (or cash) or a balanced mutual fund. Unfortunately, that's not what is happening and results are routinely compared to a fixed hurdle rate which prevents any attribution analysis.

To provide a sense of the distribution of results in the category, we usually show a "floating bar chart"(which depicts a peer group of managers divided into quartiles), as shown below with the roughly 600 funds in the HFR Equity Hedge category. The distribution of beta values is pretty

wide, but what's interesting is that most of the funds are now in the net long area (beta is positive).

**24 Month Rolling Beta**

(vs. S&P 500 Index)
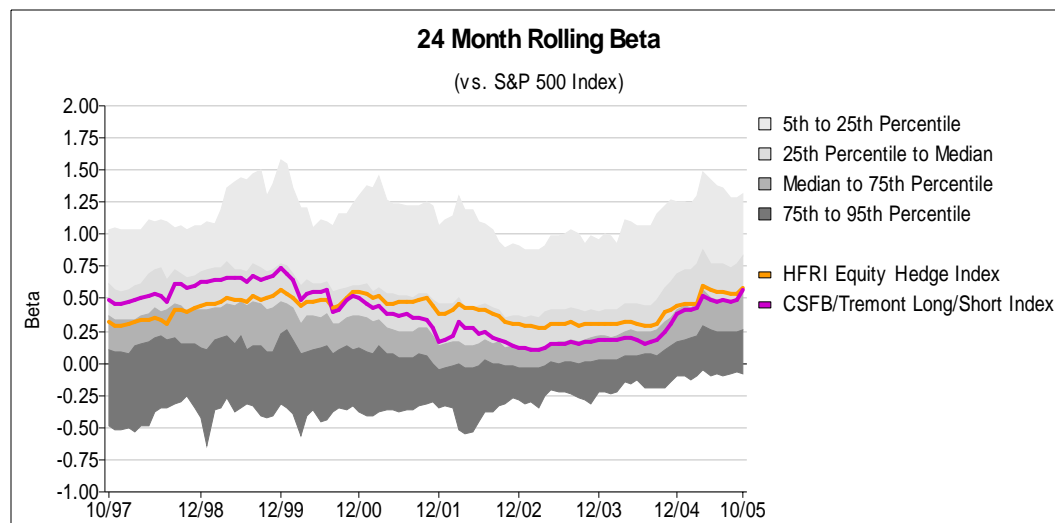
When presenting market beta we usually show R-squared chart for the same periods to make sure that our analysis can be trusted. R-Squared measures the "goodness of fit" of the regression analysis and explains the amount of return variability that is being explained by the single-index regression. An R-Squared value of 100% indicates that the returns are being completely explained by the market. The chart below shows R-squared numbers corresponding to the rolling beta chart. Note that results are quite different for both hedge fund indices, which means that (a) screening procedures are different and (b) coverage (the number of funds in each index) maybe different. The HFR index has a consistently higher level of R-squared, possibly due to a larger number of funds included in the index. The recent levels of 70% are relatively high, so the results of the beta calculations are meaningful.

**24 Month Rolling R-Squared**

vs. S&P 500 Index
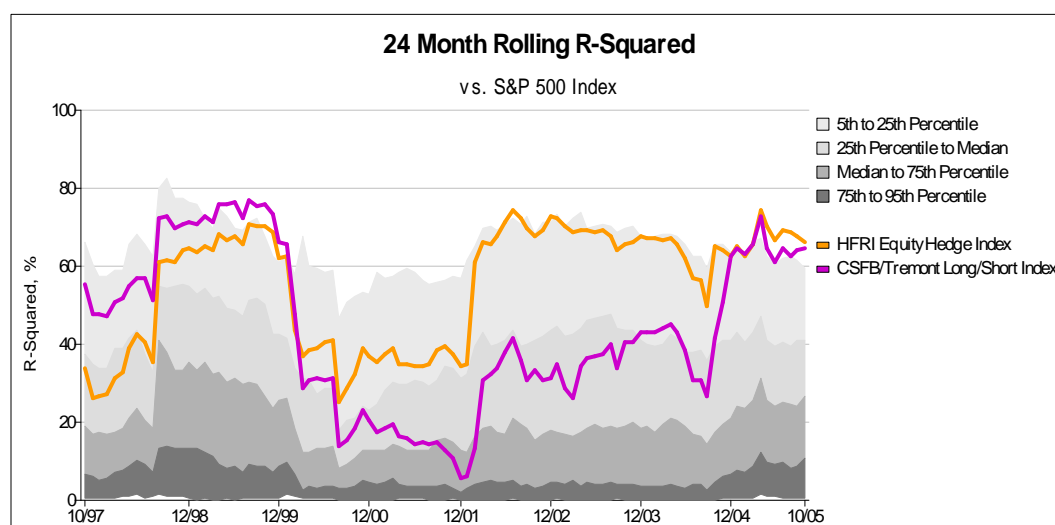
At the same time, a lot of funds have much lower values of R-squared, which signals that a more sophisticated analysis is required to determine true market exposure of an individual hedge fund. The trailing 3-year risk-return scatter below provides a hint on what such an analysis could

be. If one draws a strait line through the risk-free rate index ("cash") and either of the hedge fund indices, such a line would pass very close to the Russell MidCap Value index and MSCI EAFE and far above the S&P 500 index. This is an indication of the true drivers of the hedge fund performance being more specialized than a broad market index such as S&P 500. An approximately 60/40 combination with either MSCI EAFE or Russell MidCap Value and cash would have provided the same level of risk and return as an average long/short equity hedge fund.

Performance vs. Risk

11/02 - 10/05
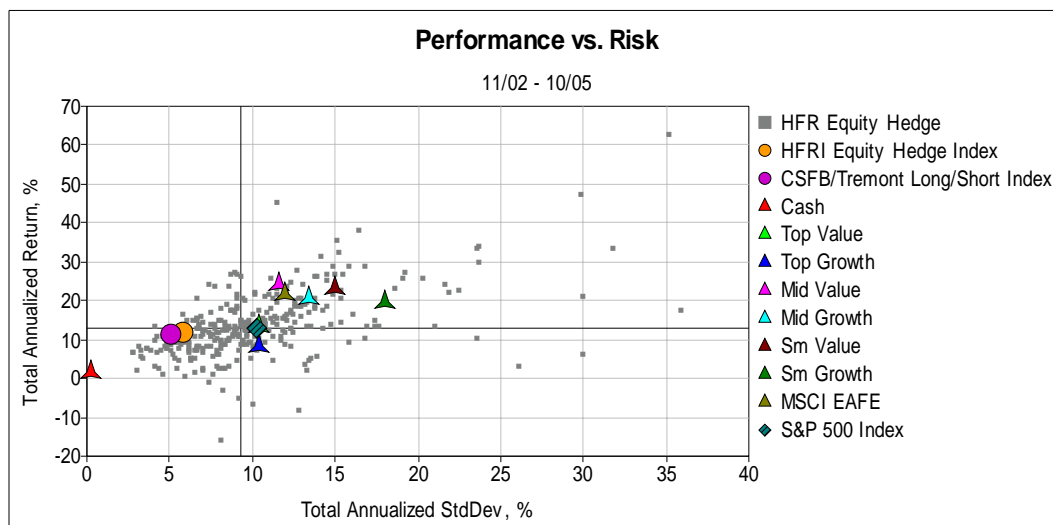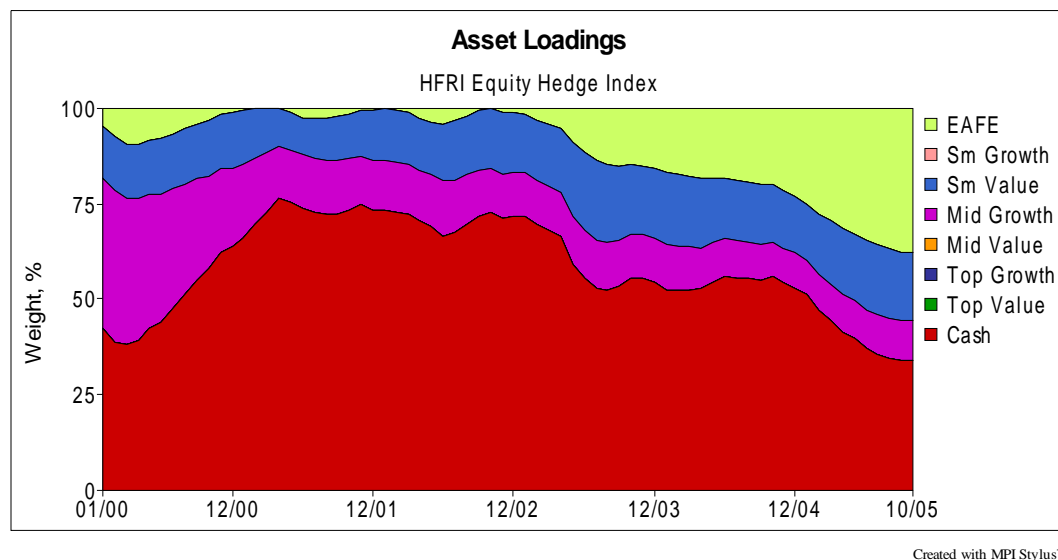

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Analysis of correlations with Russell benchmarks, market and MSCI EAFE over the trailing two years shows that Long/Short indices have higher correlation with some of these indices than with the market as whole represented by the S&P 500 index. Note that these correlations change over time, as net exposure of hedge funds changes. Ideally, we should be able to come up with such a dynamic combination of market indices that would have the highest possible correlation with the hedge fund index. Determining such a combination is the goal of returns based style analysis.
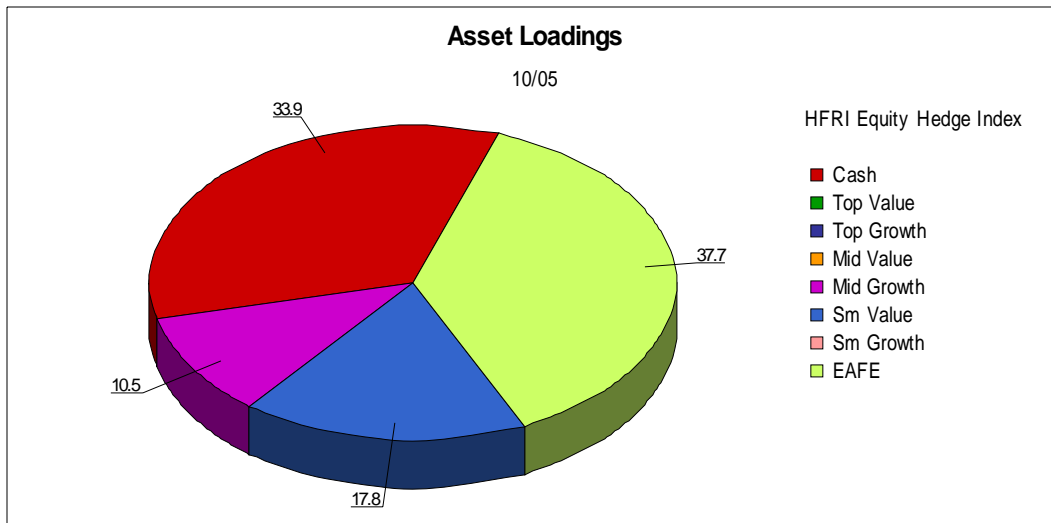
Correlation

Nov-03 - Oct-05
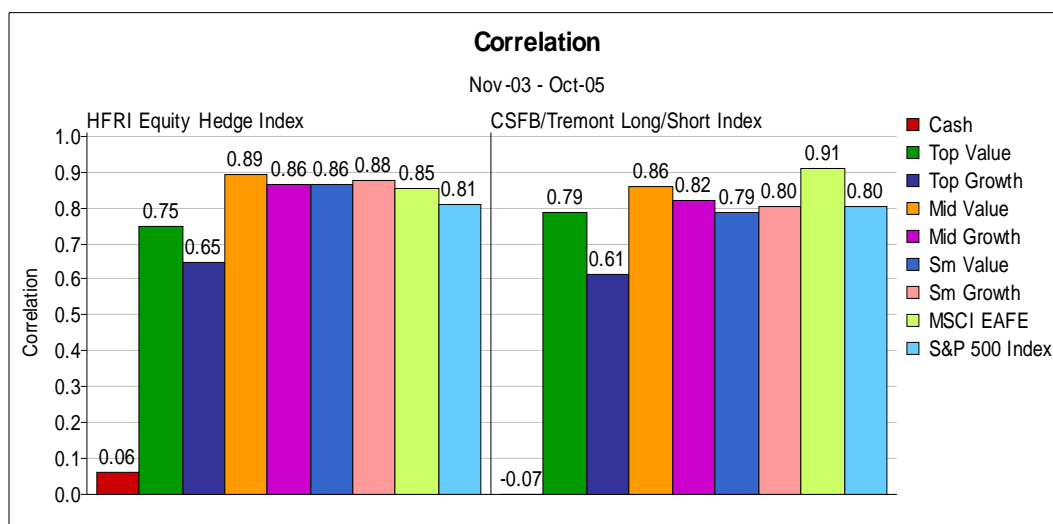
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In-Depth Analysis of Net Market Exposure

The concept of returns based style analysis of a portfolio or fund lies in finding the combination of market indices or factors that best explain the return behavior of the fund , i.e., has the highest R-squared. We performed such an analysis of the HFR Equity Hedge index using MPI Stylus Pro software. MPI's Dynamic Style Analysis Model ("DSA") was specifically developed for hedge fund analysis as traditional returns-based analysis can often struggle with the leverage, shorting and frequent style shifts of these alternative investments. The main result is presented in the chart below showing how net market exposure changed over time.

Asset Loadings

HFRI Equity Hedge Index

Legend:
- EAFE
- Sm Growth
- Sm Value
- Mid Growth
- Mid Value
- Top Growth
- Top Value
- Cash

Y-axis: Weight, %

X-axis: 01/00, 12/00, 12/01, 12/02, 12/03, 12/04, 10/05
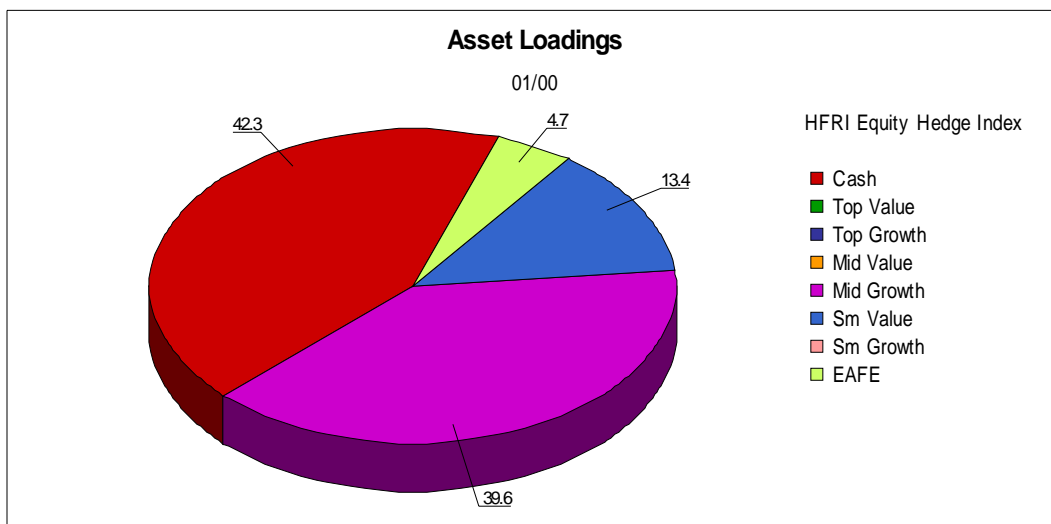
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A vertical line drawn for every time period would show a breakdown of 100% allocation to various market indices. It is important to note that returns-based analysis does not determine the actual investments held by the, but rather the factors that best explain its performance. Note that market exposure has increased dramatically over the last two years (especially to international markets represented by EAFE index), almost to year 2000 levels. For example, the last datapoint October 2005 shows the most likely breakdown to be as follows:

Asset Loadings

10/05

33.9

37.7

10.5

17.8

HFRI Equity Hedge Index

- ■ Cash
- ■ Top Value
- ■ Top Growth
- ■ Mid Value
- ■ Mid Growth
- ■ Sm Value
- ■ Sm Growth
- ☐ EAFE

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Therefore, there's a significant exposure to international equities and Small Cap Value US equities. Overall market exposure is about 66% (net 34% "cash") but it's more complex than just a single market beta number of 0.66, and it provides a better indication of what kind of performance to expect from the Long/Short category funds in the near future.

Chart below shows breakdown during the last "tech bubble days" with a significant exposure to Russell Mid Growth, dominated by technology stocks.

Asset Loadings

01/00

42.3

4.7

13.4

39.6

HFRI Equity Hedge Index

- ■ Cash
- ■ Top Value
- ■ Top Growth
- ■ Mid Value
- ■ Mid Growth
- ■ Sm Value
- ■ Sm Growth
- ☐ EAFE

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Our analysis provides a very high level of explanatory power with R-squared being in 90's and high predictability of results (MPI's proprietary statistic – Predicted R-squared). High predictability means that one can replicate such an index with a very low tracking error.

R-Squared, %

96.6

91.3

■ Style R-Squared   ■ Predicted Style R-Squared
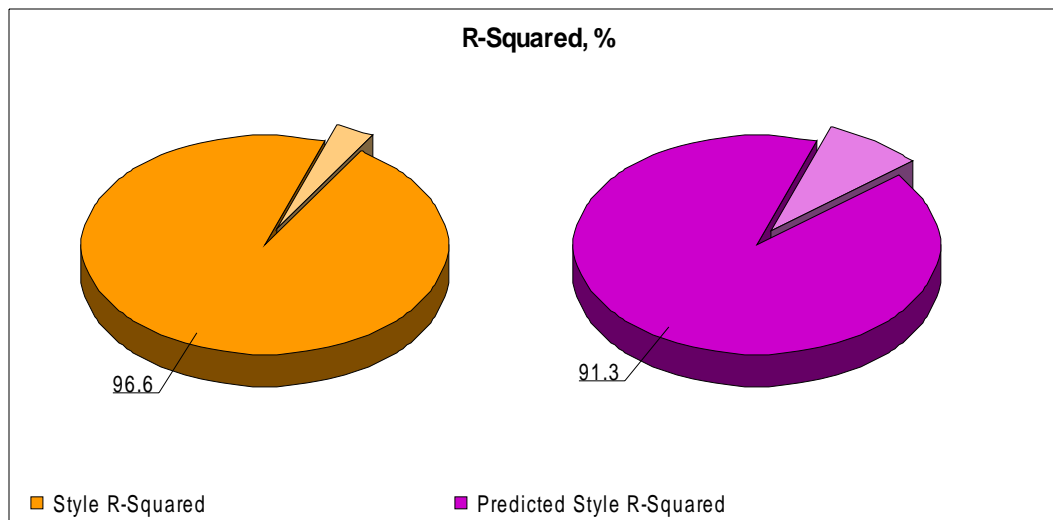
Finally, we use net exposures obtained above to construct a portfolio of market indices and compare its performance to performance of the HFR Equity Hedge Index and also a 50/50 Cash/SmallCap portfolio. The chart below shows trailing 3-year performance of the index ("Total" - red), the tracking portfolio of market indices ("Style" – blue) and the fixed allocation 50/50 benchmark (green). The blue line tracks the index amazingly well. At the same time, it is clear that the 50/50 mix also provides a decent assessment of risk and return of the average hedge fund.

Cumulative Performance

HFRI Equity Hedge Index
■ Total   ■ 50% Cash + 50% SmCap Equity   ■ Style
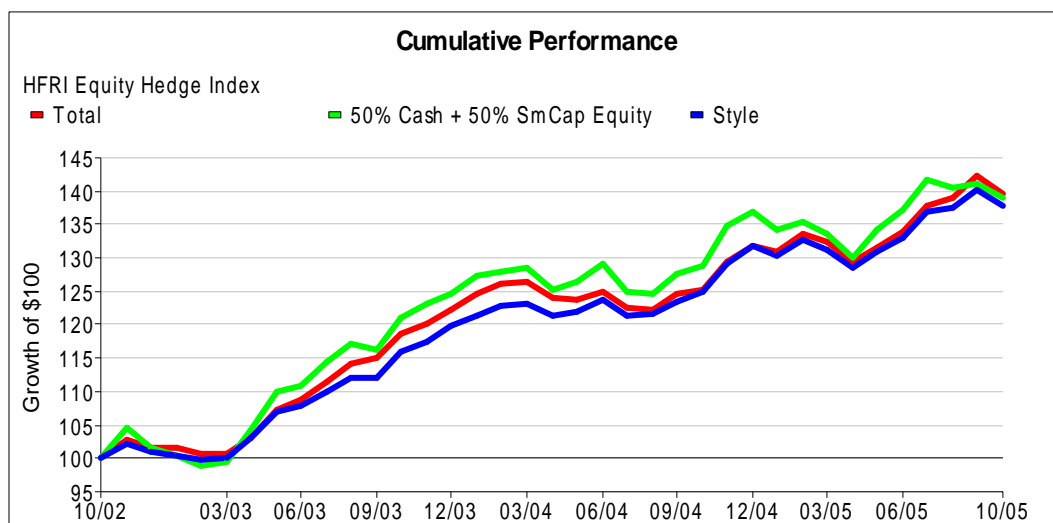
The above result is very important. It shows that on average, when investing in a long/short hedge fund, investors are essentially getting an equivalent of an asset allocation portfolio with a big chunk of assets invested in TBills. Typically, investors are not very happy when 50% of their investment is kept in cash. Here, they don't say a word – moreover, they pay premium fees to hedge funds for doing just that.

Another important observation: since blue and red line almost match, there's very little if any alpha generated by the category as a whole. That is expected: there are very few good

long/short funds and when you combine a large number of funds, alpha simply cancels out. One may argue that being in a 50/50 mix is an indication of skill by itself. This maybe true, but it's worth noting that most of long/short strategies are being "sold" precisely on the premise of alpha generating.

Note also that the above analysis is not limited to an obscure hedge fund index. We've seen very similar results with very close tracking in analyses of dozens Hedge Fund of Funds. Such funds produce very little alpha and most of the value comes from market exposure bets, something that investors should be aware of.

Summary

Our returns-based analysis reveals the following:
- net exposures of long/short hedge funds have increased significantly and returned to year 2000 levels;
- unlike in 2000, the major factors that are driving average hedge fund returns are primarily international equity and lesser domestic mid-to-small cap stocks;
- investors should not necessarily view hedge funds as a separate "asset class". Many strategies can often be explained as a traditional strategy adjusted for beta.;
- a simple balanced asset allocation mix could provide better guidance in evaluating hedge fund returns than a meaningless hurdle rate;
- when applied to individual hedge funds, Returns-Based Style Analysis provides much needed transparency and due diligence (especially when hedge fund holdings are rarely made available to investors and analysts).

Afterword

After the above report had been prepared, we received the November 2005 performance results for the HFR Hedge Fund indices, which provided an opportunity to test the predictive ability of the analysis above. We predicted that the portfolio of assets with weights taken through Oct-05 (presented in Figure 7) would generate a 2.34% return in November. The actual result of the HFRI Equity Hedge Index was reported at 2.39%. The numbers speak for themselves: while simple correlation analysis may guide you with respect to the direction of performance, RBSA, when applied properly, can often predict its magnitude with great precision. Note: as additional figures are reported the indices are updated with additional data which may be different from what was originally analyzed in this report.