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Hedge Fund Index Investing Examined

By Jimmy Liew¹

We argue that indexing, a seemingly attractive way to get general exposure to the hedge fund industry, may expose investors to a large number of unskilled managers. We find that after adjusting for market exposure and non-synchronous pricing/liquidity issues, the majority of hedge fund managers in our sample do not have statistically significant skill. Moreover, we find that index investing does not provide adequate diversification benefits in times of market dislocation - a serious drawback to investors that seek alternative investments purported to be non-correlated to traditional markets. Finally, our simulations show that an actively managed fund of funds, with good discernment, can outperform a passive hedge fund investment. In sum, we argue that investors should be wary of taking a passive approach to investing in hedge funds. Unlike traditional money management, our evidences suggests that passive index funds are not a good alternative to actively searching for skilled hedge fund managers.

¹ Vice President Carlyle Asset Management Group. Comments are welcomed, please send them to: 1133 Connecticut Ave NW, Suite 810, Washington, DC, 20036; Voice: 202-331-3418, Fax: 202-452-6099, email: jliew@camg.com.

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While 2000 and 2001 were dismal years for the stock market, the hedge fund industry experienced tremendous growth. Whether as a stand-alone investment or as an inclusion into a traditional portfolio, hedge funds have gained the spotlight. The demand by investors for hedge fund exposure appears to be increasing. Many investors are intrigued by the stable returns and strong diversification arguments in support of hedge funds. However, some high profile hedge fund debacles have left investors concerned about the risks involved in picking individual hedge funds. Consequently, investors are considering indexing as another route to gain hedge fund exposure. Hedge fund indices are constructed to represent the broad hedge fund market. Recently, we have seen significant growth in the hedge fund index arena. At first glance, indexing appears to be a cheap, low risk strategy to get exposure to hedge funds. A more careful analysis, however, argues to the contrary.

Hedge fund managers attempt to generate alpha return streams by employing their skills to extract profits from market inefficiencies. They choose from a broad range of trading styles, and as such, their returns are more heterogeneous than those of traditional fund managers. Moreover, not all hedge fund managers are equally skilled. Our evidence suggests that the dispersion in returns generated by “good” and “bad” hedge funds is widening over time. This dispersion should be particularly troublesome to hedge fund investors especially if managers, in the aggregate, do not exhibit skill. Previous studies have shown that after adjusting for market exposure and accounting for non-synchronous

pricing issues, it is difficult to find evidence of hedge fund manager skill in aggregate.² Our analysis supports these results and show that the vast majority of managers do not exhibit statistically significant skill. In our sample, only 30% of the managers demonstrate statistically significant skill. A corollary to this result is that a hedge fund index that includes a large fraction of unskilled managers will be significantly inferior to a portfolio of actively picked “good” hedge funds.

The most common argument made in favor of using hedge fund indices is diversification. The hedge fund index is viewed as an attractive mechanism for diversifying returns. Investing in a hedge fund index is looked on as a means for reducing the overall volatility of a traditional equity and bond portfolio without sacrificing expected returns. Not surprisingly, asset management firms have begun to offer investors the opportunity to invest in baskets of hedge funds that closely track hedge fund indices. Our study suggests that the expected diversification benefits are illusory, and disappear under extreme market conditions, irrespective of the nature of index construction: equal or asset weighted. In down markets, hedge fund aggregate exposure to the market tends to increase rapidly. At exactly those periods that an investor needs the diversification benefits, hedge fund indices fail to deliver.³ At these times, the negative returns generated by the large market exposure dominates the alpha benefit generated by the hedge fund index.

² See Asness, Kraill, and Liew [2001] for a detailed discussion of non-synchronous pricing issues. They argue that stale or managed prices lead to underestimation of hedge fund risk. We extend their results to show that these problems also occur at the hedge fund component level.

³ This section builds on previous work by Edwards and Caglayan [2000].

In the final part of the paper, we examine the magnitude of edge necessary to beat the returns of the hedge fund index. Our study shows that an investment in a fund of funds manager with a portfolio that has more than 70% of “good” managers performs better than an investment in the hedge fund index even after accounting for the additional layer of incentive fees charged by the fund of funds manager.

Other studies have criticized the use of hedge fund indices. A brief summary of their arguments is given below:

(1) Data Biases: Since the quality of hedge fund data is poor, constructing indices based on hedge fund data will result in biases in the index. Some of the biases include survivorship bias, instant-history bias, self-selection bias, and post-selection bias.⁴ As a result the returns of hedge fund indices may not be meaningful.

(2) Representation Biases: Hedge fund indices do not capture the returns of the universe of hedge fund managers. Hedge fund managers have no disclosure requirements and, in fact, some of the best hedge fund managers do not disclose fund information to the public. If the assets held by these managers make up a large portion of the assets in the hedge fund universe, then hedge fund indices will under-represent the returns of the universe.

⁴ See Brown, Goetzmann, and Ibbotson [1999], Fung and Hsieh [1997], and Edwards and Liew [1999] for summary of biases in hedge fund databases.

(3) Construction Biases: The debate on how indices should be constructed, i.e. equally weighted, asset weighted, and/or NAV weighted rages on. Some hedge fund indices use dollars under management as the weighting for the individual components. In practice this figure is difficult to determine, since many hedge fund managers have managed accounts and on/off-shore vehicles. Moreover, hedge funds may have different levels of leverage and may vary their leverage employed through time. Standardizing for leverage is problematic in index construction.

(4) Herding Biases: Indices that use equal or asset weights, suffer from the problem that they overweight markets that have had strong historical performance. New money put into an index will have “followed” previous trends in the industry. If one believes that as more money or talent pours into a particular strategy, alpha within that strategy will diminishes, then following-the-trend indices will be biased towards strategies with lower alpha.

In this paper, we present evidence that skilled managers are a minority within the hedge fund universe. Once manager returns are adjusted for market exposure and non-synchronous pricing issues, we find that less than one-third of managers in our sample generate statistically significant alpha. If the majority of managers do not generate alpha, then investing in hedge fund indices is not an attractive option for investors since both the “good” and “bad” managers are lumped together. The paper also investigates the diversification benefits arising from hedge fund index investing. We show that the

diversification benefits of hedge fund index investments disappear in periods of market dislocation. Moreover, we find that the more extreme the dislocation, the lower the diversification benefits. In fact, hedge fund indices fail to provide adequate protection under extreme market conditions. Finally, we show through a simple simulation that if a fund of fund manager can construct a portfolio with 70% “good” hedge fund investments, the fund of fund manager can justify the incentive fees charged to investors.⁵

In Section 1, we provide color on historical performance of hedge funds. Our results, in Section 2, show that the majority of hedge funds in our sample do not have statistically significant skill. In Section 3, we examine the deterioration of diversification benefits under periods of market dislocations. In Section 4, we estimate the edge necessary to justify the incentive fee charged by fund of funds managers. The last section concludes the paper.

Section 1

Background

The hedge fund industry has been in the spotlight of the financial community. TASS, a hedge fund tracker, estimates over \$22 billion dollars flowed into hedge funds during the

⁵ This section builds on prior work on incentive fees by Anson [2001]. Anson [2001] values the incentive free portion by employing option-pricing theory.

first three quarters of 2001.⁶ When compared with inflows for entire year of \$3.4 billion in 1999 and \$8 billion in 2000, the increased interest is apparent. Current estimates suggest that the industry has over \$500 billion dollars under-management, a considerable sum, although relatively small when compared to the \$10 trillion in mutual fund industry.⁷

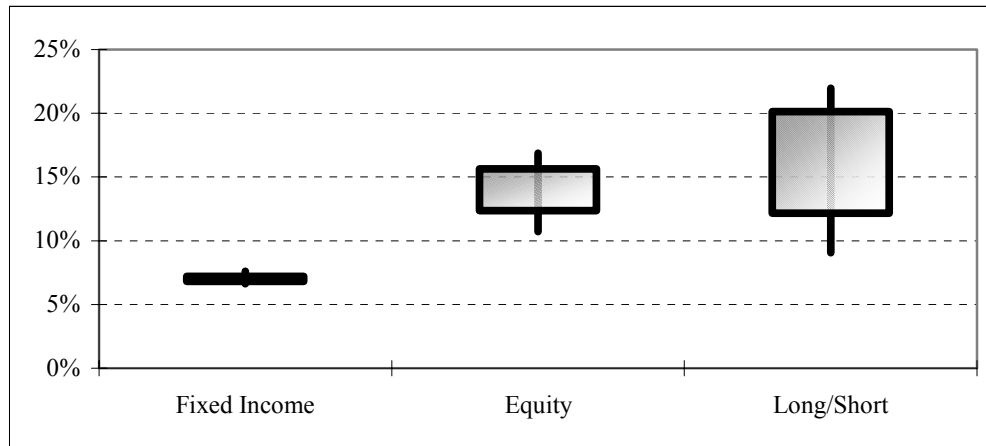
The hedge fund world has the “good” performers, the “bad” performers, and a large number in between. Below in Figure 1, we show the variation in returns across traditional and hedge fund managers. In our box-plots the box ends represents the 25th and 75th percentile. The tip of the lines or “whiskers” represents the 10th and 90th percentile of the distribution. Of the three manager groups the range of performance is greatest for hedge fund managers as proxied by long/short managers.

Figure 1

Variation of Performance of Fixed Income, Equity, and
Long/Short Managers from January 1994-December 2001

⁶ http://www.hedgeworld.com/research/reports/hri_cat.cgi?cat=21

⁷ See Morgan Stanley Quantitative Strategies’ “Hedge Funds – Strategy and Portfolio Insights” by Anjilvel, Boudreau, Johmann, Peskin, and Urias [2001]. They estimate the supply of assets is \$35 trillion in Global Equities and \$20 trillion in Global Bonds. The demand side breaks down to \$500 billion in hedge funds, \$10 trillion in mutual funds, and \$44.5 trillion private moneys.



Data for traditional managers U.S. Core Equity Managers and U.S. Core Fixed Income was obtained from Wilshire Associates. We relied on our in house database⁸ classification for long/short managers. We restricted our hedge fund sample to long/short managers to standardize comparisons. No doubt there are flaws with this comparison; yet, the main point is to illustrate that there is a much greater variation across hedge fund performance than across traditional managers' performance. The sample was restricted to managers with returns over the entire eight-year period. Our results have a survivorship bias since it does not include new managers or defunct managers.

Over the eight-year period from January 1994 to December 2001, our sample of fixed income, equity, and long/short managers had median annualized returns of 7.06%, 14.02%, and 16.36%, respectively. The number of managers in fixed income was 58, equity was 64, and long/short was 38. Interestingly the performance range between the top decile and bottom decile managers was 0.98%, 6.16%, and 12.90%, respectively.

⁸ Our database consists of Hedgefund.net, Altvest, and internal data.

The larger variation in returns among the hedge fund managers represents the greater heterogeneity within this industry as compared to the mutual fund industry.

Traditional fund managers usually have exposure to a single dominant factor. Most equity manager return variations can be explained by variations in the S&P 500 returns. Similarly, bond portfolio managers have most of their return variation explained by variations in the Salomon BIG or Lehman Aggregate index returns.⁹ Variations in hedge fund returns, in contrast, have been less successfully explained by variations in market factors.

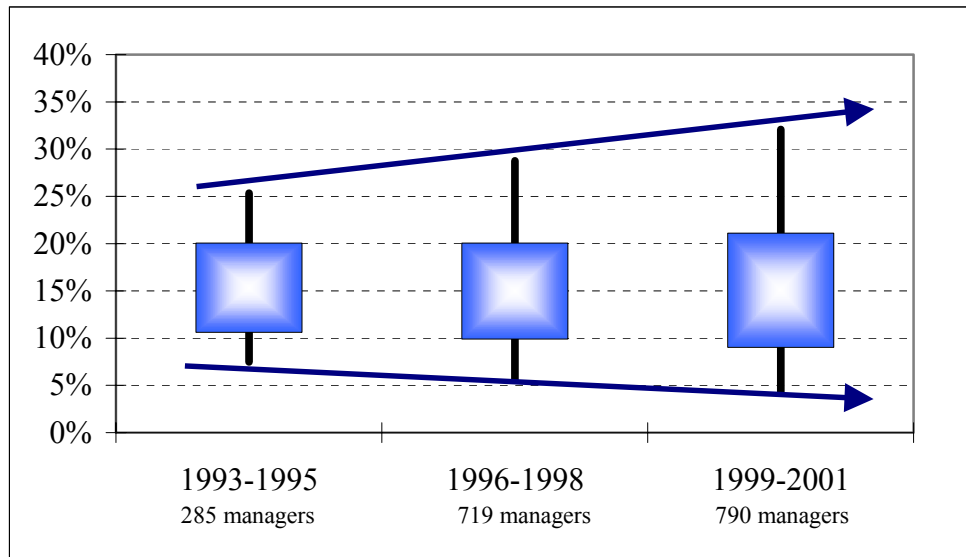
Variation of Hedge Fund Returns Over Time

Next we display some evidence that the range of hedge fund manager returns is increasing over time. We slice the data into three time periods of three years each: January 1993 to December 1995, January 1996 to December 1998, and January 1999 to December 2001. We computed the compound annualized returns for each hedge fund for each time-period. Next, we created box-plots to show the distribution of returns through time. We found the median returns are as follows: 14.5% for 1993-1995, 14.5% for 1996-1998, and 14% for 1999-2001. A drop in the median manager return is probably unrelated to the number of managers in the universe, but tends to support the hypothesis that prudent manager selection may be advantageous.

Figure 2

⁹ Sharpe [1992] presents an excellent refinement on this observation. His attribution technique allows investors to evaluate mutual fund performance in more detail.

Variation of Performance of Hedge Funds over Time



The use of a sample of hedge funds with a full three-year performance record once again introduces bias in the results. However, prior research has shown that data after 1994 is less affected by this bias. Figure 2 illustrates our observation that the variation in hedge fund returns has increased over time. It is unlikely that this expansion can be completely explained by data biases or other external factors.

Conventional wisdom suggests that as more new managers enter the industry and as more capital flows into the industry, the ability to extract profits due to market inefficiencies will become increasingly difficult. As the market becomes more efficient, the portion of skilled managers who can generate incremental returns decreases. If this expectation is true, then gaining exposure to hedge funds using an index approach implies gaining exposure to a large and potentially growing pool of unskilled managers. This strategy may be a poor use of capital.

Section 2

Do Hedge Fund Managers Have Statistically Significant Skill?

In this section, we demonstrate that a majority of hedge funds we examined do not exhibit statistically significant skill. Asness, Krail, and Liew [2001] show that hedge funds in aggregate have more exposure to the market than previously estimated. They employ the Scholes and Williams [1997] technique of including lagged-betas to correct for managed and/or stale month-end prices in the hedge fund data. Once betas are adjusted to account for non-synchronous pricing issues, they find that hedge fund perform poorly. We employ a similar methodology, but use it to analyze individual hedge funds rather than indices. We define skilled-managers as those with intercepts (alpha) with a t-statistics greater than two.¹⁰ In sum, we find that only 30% of our managers have statistically-significant skill.

For our analysis we use 452 hedge funds with 5 years of data from January 1997 to December 2001. Betas and summed lagged betas are estimated by running regressions using excess returns on the S&P500 as our market proxy. The Salomon Brother's one-month Treasury Bill Index is used to measure the risk-free rates. Restricting funds to those that have 60 months of data biases these results toward surviving or "good"

¹⁰ We defined statistical significance at the 95% confidence interval. This corresponds to a T-statistic approximately 2.

performing funds. The sample period is kept relatively short to mitigate the survivorship bias, however, must be long enough to estimate the parameters with reasonable precision.

Hedge Fund Liquidity Factor Empirically Uncovered

Liquidity risk as a factor has been extensively discussed throughout the hedge fund community; however, there is no clear empirical evidence that shows the cross-sectional relationship of this factor with hedge fund returns. In this section, we document the cross-sectional pricing of the liquidity factor. We employ the difference in summed beta and the standard beta as a proxy for liquidity exposure. If our specification is correct, funds with large positive differences are expected to have larger liquidity exposure while those with low to negative differences are expected to have less liquidity exposure. We expect managers with large/positive exposures to have poor performance and managers with small/negative exposure to have good performance over periods in which the liquidity risk manifests itself.

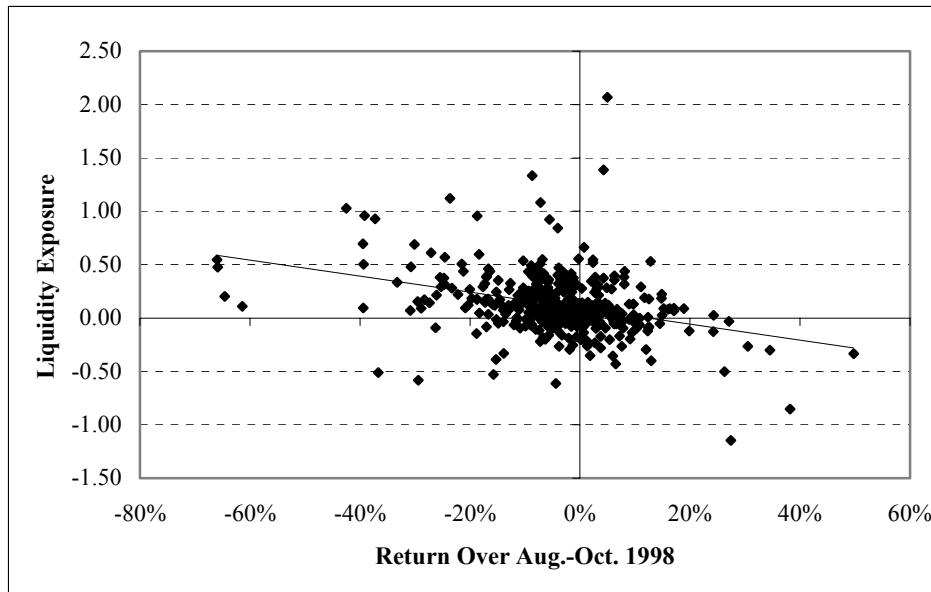
Our belief is that the liquidity factor tends to be dormant over time, but when it does appear, it becomes extremely significant over a short time horizon. We have experienced at least one major liquidity crisis in the hedge fund community. The three months from August through October 1998 was clearly a period of crisis. LTCM's near collapse sent reverberations throughout the financial markets. An interesting aspect of this period is that while it was a tough one for many hedge funds, it was not a bad period for the overall

market. In those three months the excess returns on the S&P returns were, -14.5% , 6.4% , and 8.1% , respectively, i.e. the equity market quickly recovered. On the other hand, some hedge funds were cumulatively down by more than 40% over the same three months.

Figure 3 represents the results from the cross-sectional regression of liquidity exposure against returns over August-October 1998. There is a strong relationship between our liquidity exposure proxy and average returns. The slope coefficient is -0.75 with a t-statistics of -7.81 .

Figure 3

Cross-Sectional Regression of Liquidity Exposure on Return over Aug.-Oct. 1998



The regression results are as follows:

$$\text{Return over Aug.-Oct. 1998} = 0.0925 - 0.7495 * \text{Liquidity Exposure}$$

$$(7.35)^* \quad (-7.81)^*$$

R-Squared of 11.96%

* Significant at the 1% Level

These results provide support to the proposition that the lagged betas represent an important measure of liquidity risk. In sum, it is important to account for liquidity exposure when evaluating the skill of the hedge fund manager.

Empirical Probability of Manager Skill

We find that after accounting for market exposure and for pricing/liquidity issues, the majority of hedge fund managers do not possess statistically significant skill. We measure manager skill using traditional statistical techniques developed by Jensen [1968].¹¹ We calculate three statistics: the t-statistics of a hedge fund's monthly excess returns, the t-statistics of the intercept from a single factor CAPM model, the t-statistics of the intercept from a single-factor lagged beta CAPM model. Given the lack of theoretically justifiable pricing models for hedge funds, we take an agnostic view and use all three methods.¹²

¹¹ The Jensen's alpha depends upon the benchmark employed. Dynamic benchmarks could be used to capture trading strategies that are less passive. For example, a perfect market timer may be attributed a negative significant alpha. We decided to use this statistic due to the ease of computation and the ability to glean a statistical measure with regard to the magnitude of alpha.

¹² Edwards and Caglayan [2001] have examined a six-factor model for hedge fund returns that is motivated from the past financial literature.

More specifically, the t-statistics were computed for the three measures for each hedge fund in our sample. For fund manager j , we compute:

1. Monthly excess returns:

$$R_j - R_f$$

2. Alpha from single-factor CAPM - Jensen's Alpha

$$R_j - R_f - \beta_0 x (R_m - R_f)$$

3. Alpha from single-factor summed-beta CAPM

$$R_j - R_f - \beta_0 x (R_m - R_f) - \beta_1 x (R_{m1} - R_{f1}) - \beta_2 x (R_{m2} - R_{f2}) - \beta_3 x (R_{m3} - R_{f3})$$

Where R_j the rate of return to fund j , R_f the rate of return on the risk-free asset, R_m the rate of return on the S&P 500, R_{fk} and R_{mk} the k -month lagged returns with k equal to 1, 2, and 3, β_0 the slope on the contemporaneous market returns, and β_k the slope on the k -month lagged beta with k equal to 1, 2, and 3.

Table 1 provides the results. It is worth noting that the probability estimate of managers with skill is biased upwards due to the survivorship bias discussed earlier. We believe

that the true probability of manager skill is perhaps lower than the 30% estimated by this analysis.

Table 1

Historical Probability of Managers with Skill

T-statistics from (1) Monthly excess returns, (2) Single-factor CAPM alpha, and (3) Single-factor summed beta CAPM alpha

	(1)	(2)	(3)
Number of funds with T-statistics > 2	166	147	134
Total number of funds in sample	452	452	452
Percent with “Skill”	37%	33%	30%

As evident from the Table 1, accounting for market exposure and non-synchronous pricing issues reduces the percent of statistically skilled managers from 37% to about 30%.¹³ Finally, the evidence in this section is consistent with earlier research on index level data.

¹³ We also computed the T-statistics for manager returns without subtracting the risk-free rate. We find that the percent with skill becomes 60%. Given that the null hypothesis is the average of monthly fund return equal zeros, we would expect more rejections of the null as the average is increased by the risk-free average rate.

Our estimates for single-factor alphas are consistent with Clark, Rosengarten, Tyagi, and Winkelmann [2002]. They find that 26% of funds that they examined have statistically significant Jensen’s alpha. Their sample is from a much larger sample from TASS with 2,493 funds over the period from January 1994 to May 2001.

Section 3

Hedge Fund Diversification Benefits

Previous studies have documented the changes in hedge fund correlation in bull and bear markets, see Edwards and Caglayan [2001a], and Schneeweis and Spurgin [1998] and [1999]. We build on their work by bifurcating hedge fund index returns into two components. The first component is the skill or alpha defined as the intercept from the regression. The second component is the risk premium defined as the product of the beta from the regression and the market return. We examine these components in periods of extreme market stress. We confirm that in extreme markets, betas strengthen for hedge fund indices. The higher betas multiplied by the poor market returns results in risk premium dominating the beneficial skill component.

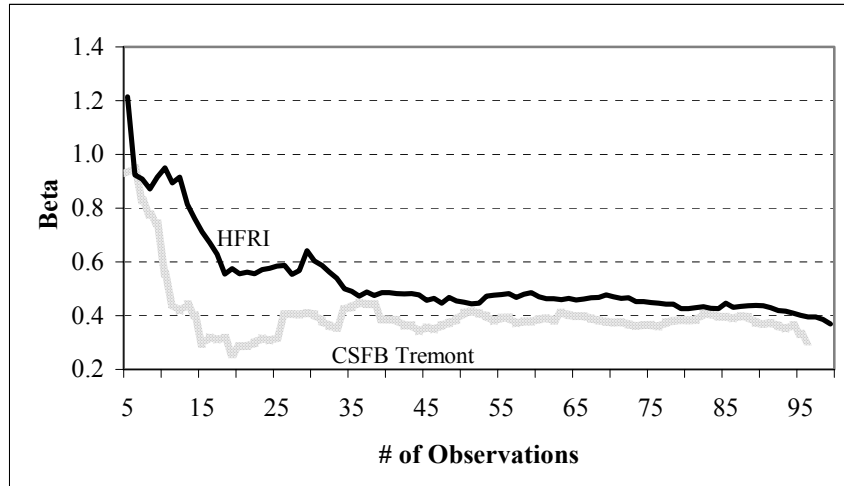
First, we assume that an investor can receive the following index returns: (1) the CSFB/Tremont Hedge Fund Index and (2) the HFRI Composite Hedge Fund Index. This assumption is strong as achieving the exact return stream of these indices, in practice, is difficult. A few companies do attempt to provide the CSFB/Tremont index returns to clients with 100 to 200 bps of tracking error. However, in other cases, such as the HFRI index, tracking can be more difficult, since the HFRI is an equally weighted index and has a number of diverse small managers.

Second, we create a monthly series for the excess returns of the S&P 500 over the risk-free rate. We then identify the first extreme market condition by using the five most negative S&P 500 excess return months between January 1994 through December 2001. These occurred on August 1998, February 2001, November 2000, September 2001, and March 2001, and the negative excess returns were -14.9% and -9.5%, -8.4%, -8.4%, and -6.7%, respectively. We then identify the second most extreme market condition by using the six worst monthly excess returns, the third most extreme market condition by using the seven worst monthly excess returns and so forth. Given below in Figure 4 are extreme state-of-nature points on the x-axis starting with the first (5 most negative months) and ending with all the data or 96 observations. Ninety-six represents the total number of data used in the regression, i.e. monthly returns from January 1994 to December 2001. As we move to the right on the x-axis, we use more data and move away from extreme market dislocations and towards a normal market. The y-axis represents the betas estimated using the data from the months related to the extreme market condition.

Figure 4

Betas versus Different Degrees of Market Dislocation

CSFB/Tremont and HFRI



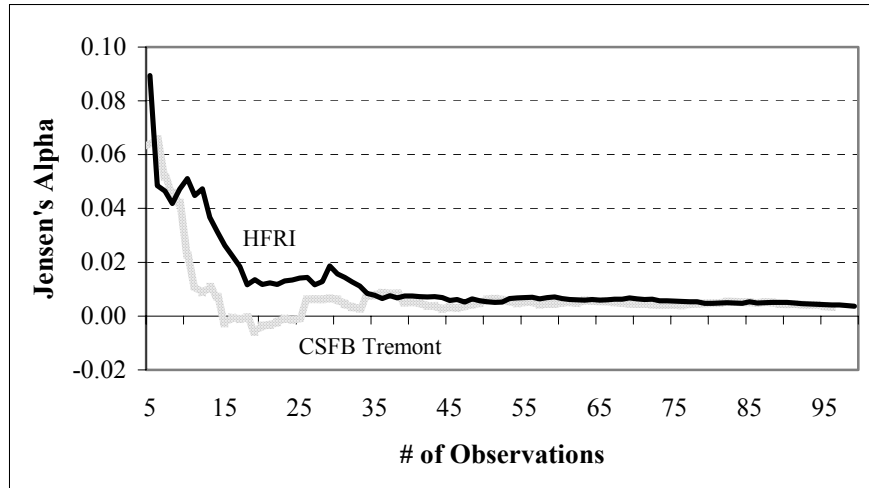
Clearly, betas increase in periods of market dislocation with betas near unity in the first most extreme case. This result is independent of whether we use an equal or asset weighted index. The betas are 0.92 and 0.95 in the second most extreme case using 6 observations.

Third, we examine the skill return component of the hedge funds returns. In Figure 5 are the Jensen's Alpha generated from the same monthly regressions as before. In aggregate, hedge fund managers do provide positive alpha in periods of extreme market dislocation. In fact, they generate the most alpha in these periods of extreme dislocation.

Figure 5

Jensen's Alphas versus Different Degrees of Market Dislocation

CSFB/Tremont and HFRI



Consequentially, it is fair to state that a passive hedge fund index has positive alpha in extreme markets. Yet, the benefit of the skill component is dominated by the negative returns generated from market exposure component. In Figure 6, we provide the actual hedge fund returns over the different markets.

Figure 6

Monthly Average Excess Returns versus Different Degrees of Market Dislocation
 CSFB/Tremont and HFRI

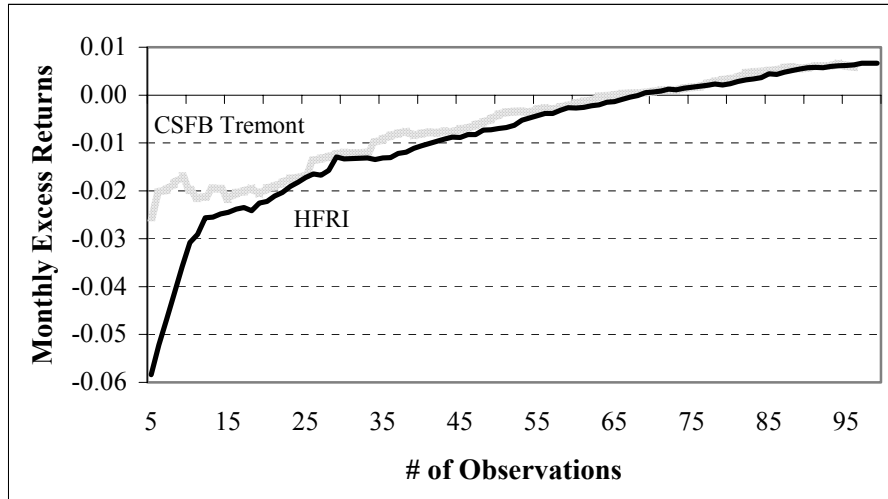


Figure 6 displays the average returns of the hedge fund indices during extreme market states. When the market was down, the indices were also down around -5% to -2% . We have shown that low probability but extremely negative market events have substantial negative effect on hedge fund index returns. Investors should be aware of vanishing diversification benefits in these circumstances. It is important to create portfolios that reduce downside risk and stress-test these portfolios under extreme market conditions.

Section 4

Simulations

Typically, fund of funds will charge a fee in addition to those charged by hedge fund managers. The double fee structure makes fund of funds (FOF) less attractive to investors. Hedge funds generally charge a 20% incentive fee and a 1% management fee. Additionally, FOF managers charge a 10% incentive fee and a 1% management fee.

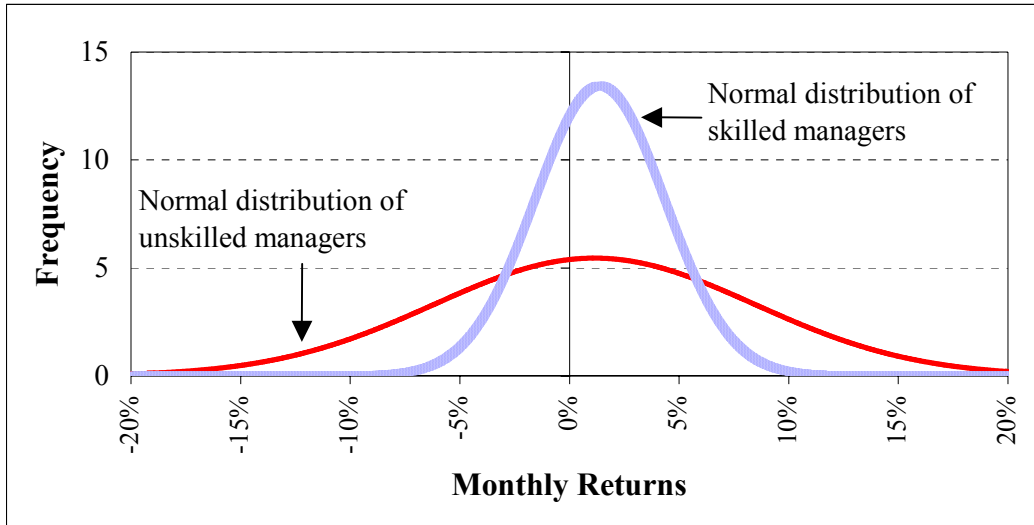
In this section we propose a simple model that simulates the annual returns generated by a hypothetical FOF manager to determine the effects of double fee structure. We find that if a FOF manager has a reasonable ability to differentiate between skilled and unskilled hedge fund managers then an actively managed FOF can outperform a passive portfolio of indexed hedge funds on an after fee basis.

Since the matter of concern is the 10% incentive fee charged by the FOF manager, we assume without any loss of generality that our FOF managers do not charge management fees. We used the t-statistics from the lagged beta single factor model, in Section 2, to separate our hedge fund managers into skilled and unskilled groups.¹⁴ We compute monthly mean returns and monthly standard deviations of these two groups. Unskilled managers have a monthly mean of 1.140% and monthly standard deviation of 7.316%, while skilled managers have a monthly mean of 1.386% and monthly standard deviation of 2.970%. Next, we calibrate two normal distributions to randomly generate monthly returns for skilled and unskilled hedge funds. Figure 7 depicts the normal distributions from which our monthly returns are drawn. Note that the distribution of skilled hedge funds has a larger mean and thinner tails than the distribution of unskilled hedge funds.

Figure 7

Normal Distributions for Skilled and
Unskilled Hedge Funds Employed for Simulations

¹⁴ Since these monthly returns are net of the hedge fund manager fees, we do not have to reduce the monthly returns by this first layer of fees.



Our first FOF is a passive hedge fund indexer identified as “Index.” Index invests with a discernment of 70/30. That is, 70% of Index’s portfolio is invested in unskilled hedge funds and 30% in skilled hedge funds. This follows our findings from Section 2. Moreover, we assume that the passive index manager does not charge a 10% incentive fee. Next, we have an active FOF manager with a better than 70/30 discernment. For example, in Table 7 below, FOF manager A, noted as “FOF A,” chooses only 60% from the unskilled distribution and 40% from the skilled distribution, while FOF G picks hedge funds exclusively (100%) from the skilled distribution. We assume that all “active” managers charge a 10% incentive fee.

Table: 7 FOF Managers with Varying Levels of Discernment

	Unskilled	Skilled
Manager	Hedge Funds	Hedge Funds

Index	70%	30%
FOF A	60%	40%
FOF B	50%	50%
FOF C	40%	60%
FOF D	30%	70%
FOF E	20%	80%
FOF F	10%	90%
FOF G	0%	100%

We compute net annual returns generated by the different FOF managers. For our active managers FOF A-G, we reduce the positive annual returns by 10% to reflect the incentive fee. We assume that the incentive fee is not subject to a hurdle rate. Finally, we assume that the all FOF managers hold thirty equal-weighted hedge funds at the beginning of the year.¹⁵ Monthly hedge fund returns used to create 1,000 simulated annual portfolio returns for each of our eight FOF managers.

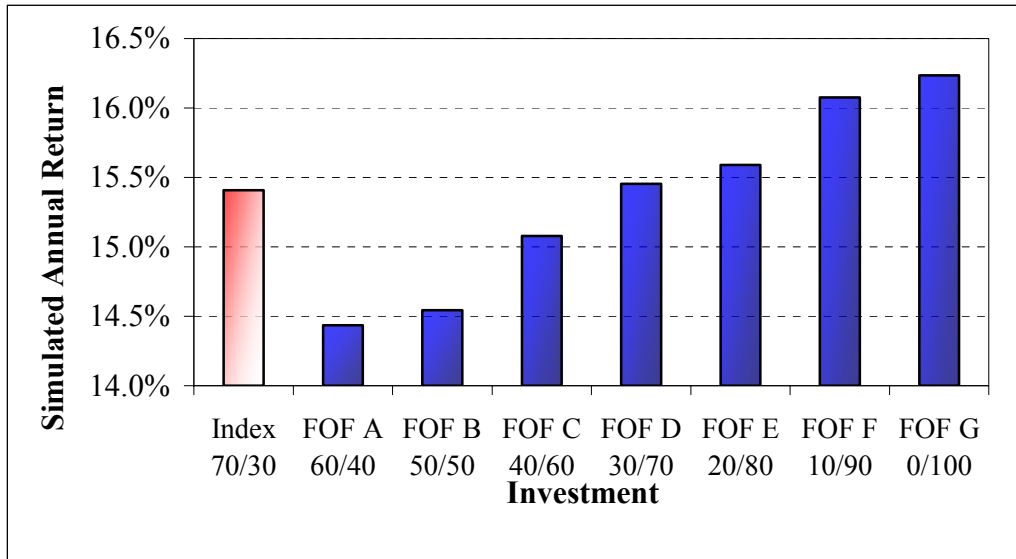
In Figure 8, we see that net of fees the passive index manager performs better than FOF A-C. The passive index manager averages 15.4% per year, versus 14.4%, 14.5%, and 15%, respectively for FOF A-C. Given the affects of the incentive fees, an investor is better off investing in the passive index manager and not paying the extra fee if the FOFs' discernment is less than 40/60. However, as the FOF managers' discernment is better, i.e. can pick 70% or more from the skilled distribution, these managers FOF D-G can

¹⁵ Gains to naïve diversification diminish rapidly as more investments are included in the portfolio. Diversifying past 20 to 30 managers results in marginal benefits.

overcome the additional costs of the incentive fee. The investor is better off paying the incentive fee as investment returns are more attractive than returns from the passive strategy.

Figure 8

Simulated Annual Returns for FOF Managers



Our simulated results show that the FOF's ability to differentiate between the skilled and unskilled drastically affects their attractiveness.

Section 5

Conclusion

In this paper, we argue that hedge fund index investing is not a wise choice for three reasons. First, aggregate hedge fund exposure is unwarranted since the majority of hedge funds do not exhibit statistically significant skill. Our evidence suggests that only a maximum of 30% of all hedge fund managers have real skill. An investment process that actively attempts to exclude unskilled hedge fund managers should provide material benefits. Second, the diversification benefits of hedge fund indices are not available to investors in extreme market conditions. Irrespective of whether one invests in an equally weighted index or asset weighted index, diversification benefits disappear in extreme down markets. Buying an index does not allow an investor to control exposure to tail movement risk in the market. Third, the incentive fee structure of fund of funds managers can be justified if they have even a reasonable ability to pick skilled hedge funds.

We believe that capital will continue to flow into the hedge fund industry at a rapid pace. Knowledge of the industry is mandatory for investors to make intelligent decisions. Blindly applying mutual fund past reasoning to this industry to extrapolate future investment decisions will lead to sub-optimal allocations of capital. Rather, more research will be needed to discover the optimal investment process for hedge fund investing. We recommend investors and researchers in hedge funds to consider these issues before following the trend of index investing. We believe that a fund of funds that has a disciplined allocation process and the necessary tools to separate skilled from unskilled hedge fund managers will outperform passive indices. Moreover, the competitive market place will continue to compensate them their incentive fees.

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