July 2008

A Bet Against Buffett – Can Hedge Funds Beat the Market?

Fortune magazine recently revealed, in an article by Carol Loomis on June 4, 2008, that earlier this year we entered into a charitable wager with Warren Buffett in which we challenge his contention that high hedge fund fees inevitably will cause disappointing results for investors.[1] Warren proffered that a portfolio of hedge funds could not beat the S&P 500 over a ten year period; we took the other side. Once the negotiations were said and done, we formalized the wager as the performance of the Vanguard S&P 500 Index Fund against the average net performance of five hedge fund of funds that we selected.

In addition to seizing the opportunity to correspond with the world's greatest investor, our purpose for accepting Buffett's challenge was to inform the public about the benefits of hedge fund investing for sophisticated, institutional investors. The press reports every day about the risks of hedge fund investing, discussing high profile blowups, substantial compensation for the best managers, and short-term performance whenever it falters. But the corresponding story about the potential benefits of an institutional allocation to hedge funds goes untold. Private placement restrictions imposed by the SEC prevent practitioners in the space from offering a balanced debate in public. Our bet with Warren puts an entertaining spin on the discussion.

Since the announcement, the popular press picked up on the story and a few financial commentators made informed points about the potential outcome. In reviewing the literature, we found absent an exhaustive discussion of the merits of the wager. Only a fool would enter lightly into a wager against the Oracle of Omaha, especially when he has put his judgment about an important investment matter to the test. While the laws of probability will play a role in the ultimate outcome, we believe our odds of victory are high. The purpose of this White Paper is to explore our perspective on the bet and expose our friends to the academic research supporting this view.

A Relative Return Hurdle in an Absolute Return World

In positioning hedge funds against the S&P 500, Warren essentially has bet his apples against our oranges. Practitioners in the hedge fund business understand the limitation of comparing hedge fund investing to a confined market index. Hedge fund investing is an "absolute return" strategy that seeks to make money in good times and bad. The hedge fund investment style is the antithesis of so-called "relative return" strategies, where success is defined by beating a benchmark even if that means losing less than the bogey in a down market.

Hedge funds seek to deliver positive, equity-like expected returns while assuming less risk than the equity markets, and to generate a return stream in a fashion uncorrelated to global equity markets. In the words of David Swensen of the Yale Investments Office, absolute return strategies "provide equity-like returns with powerful diversifying characteristics…(where) managers reduce market risk by

[1] Carol Loomis, "Buffett's Big Bet." *Fortune*, June 4, 2008.

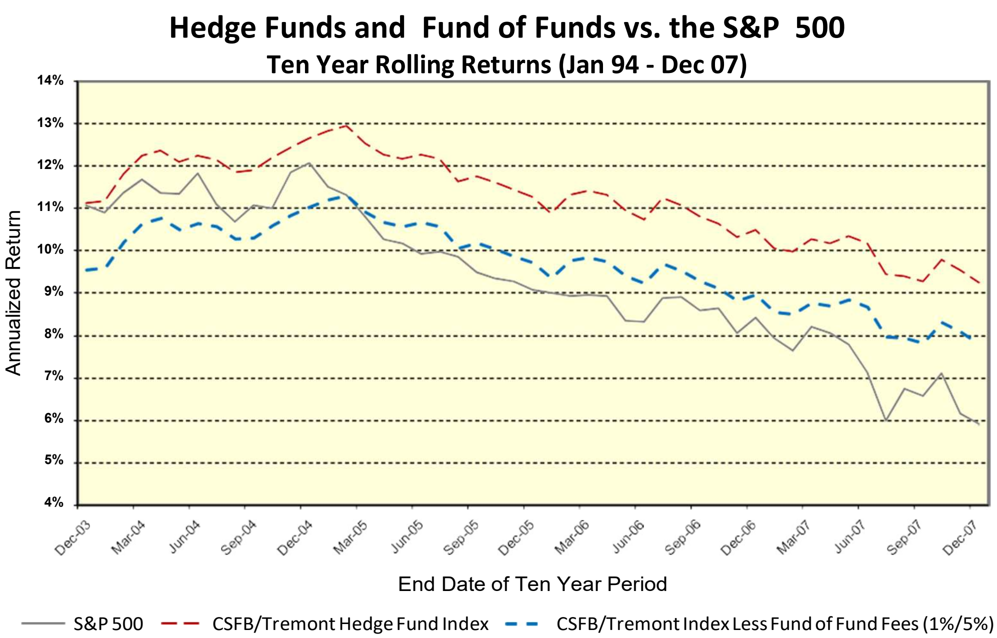
investing in event-driven or value-driven situations, expected to behave independently of market forces."[2]

In this description, "equity-like returns" refers to the long-term expected return on equities or approximately 7% real return per annum and has no required relationship to short-term equity results that may be substantially higher or lower in a given month, quarter, or year. [3] By implication, comparing hedge funds to the S&P 500, or any other market index, is not an appropriate measurement of success over the short time frame of most investors.

In measuring the success of a hedge fund portfolio, investors are sensible in comparing hedge fund returns to the long-term average return on equities of 7% real. Should the S&P 500 approximate those returns over the next ten years, it *coincidentally* may constitute a fair comparison.

Historical Results of an Apples-to-Oranges Comparison

We do not condone the practice of comparing hedge funds to the market. Nevertheless, we are aware of the realities that the press takes such liberties daily and that the premise of Buffett's bet includes a direct comparison. As such, we felt it prudent to review the historical data and see what we could learn.



[2] David F. Swensen, *Pioneering Portfolio Management*, The Free Press, 2000. Page 205.

[3] *Ibbotson SBBI 2008 Classic Yearbook, Market Results for Stocks, Bonds, Bill, and Inflation 1926-2007*, Morningstar, Inc., 2008. Page 120.

Since the first date the CSFB/Tremont Hedge Fund Index collected live data, the S&P 500 has never beaten the hedge fund index over a ten-year period. If we apply a standard 1%/5% fund of funds fee structure to the data, we find that the fund of fund investors also exceeded the market in 69% of the ten-year periods net of all fees and expenses. As would be expected, the manufactured fund of funds underperformed during the strongest decades for the market and outperformed in the weakest.

The brief history of hedge funds as an institutional investment alternative does not allow for a robust data set. Still, we make no excuses for the results. Hedge funds have been a winner's game for institutional investors who adopted hedge fund strategies as a portfolio diversifier over the last decade and a half.

The use of hedge fund indexes to represent the experience of investors introduces a host of issues in theory and practice. Academic researchers have long criticized hedge fund indexes for overstating results due to survivorship and backfill bias. In the Appendix that follows, we discuss why these studies fail to distinguish the forest from the trees. The academicians are correct in highlighting flaws in certain hedge fund indexes; however, the truth is hedge fund indexes are likely to have understated, not overstated, the actual experience of investors.

The historical returns reported by CSFB/Tremont give us further comfort about our prospects for winning the bet, especially as the outperformance by hedge funds came across a range of market environments. That said, we had very little interest in picking a hedge fund index on our side of the wager. The notion of indexing hedge funds flies in the face of the premise of talent-based strategies. As described by David Swensen, "absolute return strategies require active management, since without accepting market risk or identifying security mispricings, investors earn only the risk-free rate."[4]

A Referendum on the S&P 500

To a large extent, the outcome of our wager may prove little more than a referendum on the S&P 500 over the coming decade. The annualized ten year return of the S&P 500 will fall into one of the following three bands:

1. Poor Performance: +1.7% real (approximately 5% nominal) or lower, which represents one standard deviation below the mean rolling ten year real return of equities since 1926.
2. Average Performance: +1.7% to +12.5% real (5% - 16% nominal), falling within a range of the long-term, expected real return of U.S. equities.
3. Strong Performance: + 12.5% real (16% nominal) or higher, representing one standard deviation above the long-term real return.

Should the U.S. equity market deliver superb or sub-par results over the coming ten years, the probability is high that the market return will determine the outcome of the bet. If the S&P has a bad

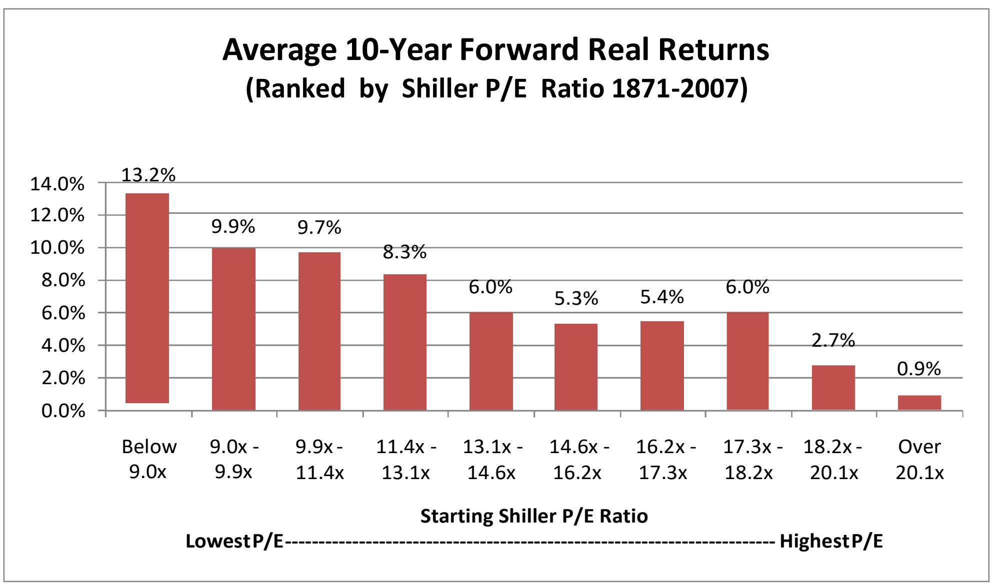
[4] Swensen, Pg 216.

run, hedge funds are likely to outperform. Conversely, if the S&P has a strong decade, hedge funds should not be expected to keep up.

When reviewing history as a possible guide to the future, our conviction in the bet has as much to do with a prognosis for the S&P 500 over the next ten years as it does a statement about the superiority of a well selected portfolio of hedge funds. Recalling economic fundamentals, stock returns are a function of the growth in earnings generated by corporations and the change in multiple paid by investors on those earnings. Breaking down the first factor, earnings growth is the sum of the rate of change in dividend yield and retained earnings. On each of these drivers of stock returns, the market sits at the least favorable end of the distribution of historical values, suggesting that market returns may be weak over the coming period.

P/E Multiple

Following the intuitive logic of "buy low, sell high," long-term stock returns should be inversely correlated with the initial P/E ratio. That is, when the P/E ratio is high, future stock returns are low and vice versa. Historically, the degree to which stock returns have corresponded with end point sensitivity in valuation is dramatic. The following chart, created with the assistance of money manager GMO, organizes a data set of rolling ten year real returns of the S&P 500 into ten groups ranked by the starting Shiller P/E ratio.[5] The bars represent the subsequent ten year real return of the S&P 500 for periods in the given range of starting P/E ratio.

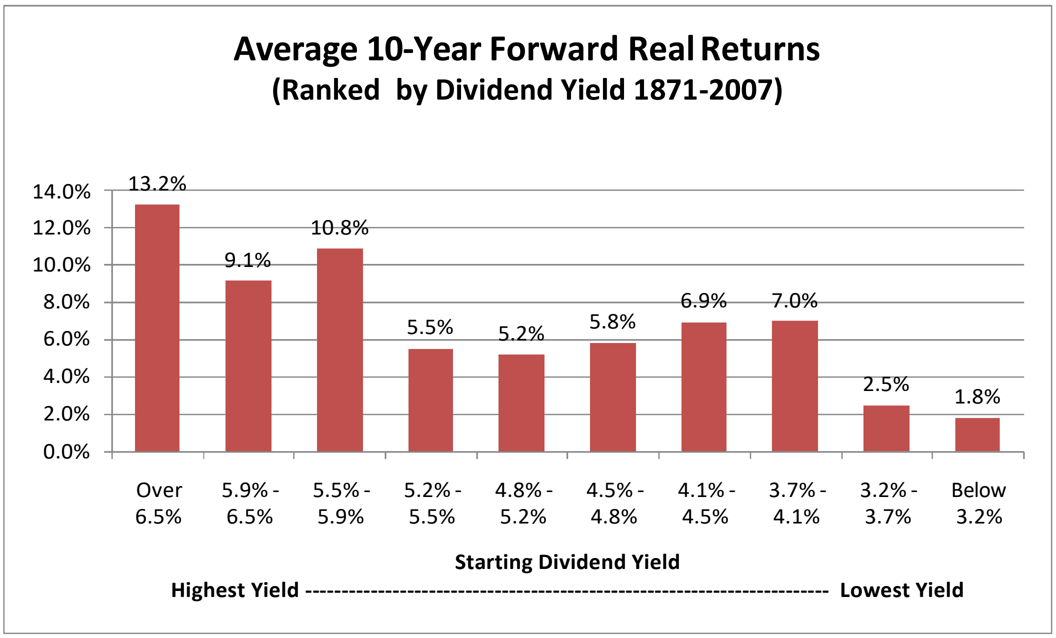


[5] The Shiller P/E Ratio compares current price to 10 year average real earnings. This long-term comparison smoothes short-term cyclical earnings in the data, a potential short-coming of using a simple P/E ratio. In this case, however, employing a simple P/E ratio instead of the Shiller P/E yields ostensibly the same result, with the lowest (best) P/E group returning 12.0% real and the highest (worst) returning 3.2% real.

When our bet kicked off on January 1, 2008, the Shiller P/E stood at 26.0 times, falling well within the worst decile that averaged returns of just 0.9% real over the subsequent decade. Only once in the past (1994-2003) did a decade start in the worst decile and attain an above average result.

Earnings Growth - Dividend Yield

Last summer, noted economist Peter Bernstein revisited the question of the importance of dividends to stock returns. In an era of stock buybacks, share issuance, and lower dividend payout ratios, Peter questioned whether dividend yields are as important as they once were. He crunched the numbers and concluded "dividend yields do matter, not just in our pockets, but as harbingers of things to come." [6] Research from GMO renders the same conclusion that the current sorry state of dividend yields does not bode well for the S&P.



With a starting dividend yield on the S&P 500 of 1.9%, less than half the historical average and again within the worst decile, the second leg of the tripod seems as weak as the first.

Earnings Growth - Retained Earnings

Since history informs that the starting P/E ratio might offer S&P 500 real returns of just 0.9% over the next decade, the prospects for improved stock market results weigh heavily on earnings growth. The long-term average annual real earnings growth on the S&P 500 has been 4.7%, and over

[6] Peter L. Bernstein, *Economics & Portfolio Strategy*, "Do Dividend Yields Matter – And How About Sub-Prime," April 1, 2007.

the last 20 years grew at an impressive 5.8% annual clip.[7] In part as a result of the recent windfall, profit margins on U.S. companies are at peak levels and face the possibility of mean reversion typical in capitalist systems. The possibility of inflation and even stagflation challenges U.S. companies to pass along costs during a slowdown. With low dividend payout ratios, corporations may be challenged to reinvest earnings at the high levels they have experienced in recent years. We are stretched to envision how earnings growth will match historical averages, let alone exceed the mean by the 5%-6% necessary to compensate for high valuations and low dividend yields.[8]

Adding together the constituents of return, GMO projected a 7-Year Forecast of -1.1% real for large cap U.S. equities starting January 2008.[9] Lacking the robustness of their research to make a precise projection, we are comfortable concluding that the probability of the S&P having a tough ten year period is high. As Carl Spackler said of his interaction with the Dalai Lama in the classic film *Caddyshack*, "so we've got that going for us, which is nice."

<u>The Hedge Fund Side of the Ledger</u>

The most informative outcome from the comparison of the relative merits of hedge fund investing to the market would arise only if the S&P 500 approximates its long-term expected return over the coming period. Assuming this would occur, we then faced the decision of which bet we wanted to make, or more accurately, which risk factors we wanted to magnify. One of the virtues of hedge fund investing is the flexibility it affords practitioners to choose among strategies, geographies, asset classes, and risk levels to best meet goals in a given market environment. When pondering our options, we narrowed the decision to a few.

1. Degree of Risk or Leverage (a.k.a. the easy way out).

   The easiest way to game our wise opponent would be to choose strategies and managers that assumed substantially more risk than the market. Should markets rise over ten years, these strategies would be expected to outperform independent of skill, and it would be a trivial exercise to construct investment strategies that more than made up for the layers of fees involved.

2. Geography

   Were we to choose five fund of funds that focus only on Asian equities, the relative performance of Asia against the U.S. would likely have the greatest impact on the outcome of the bet rather than the particular skill of managers in the region.

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[7] Robert Shiller, "Long term stock, bond, interest rate, and consumption data." Available at www.yale.edu/~shiller/data.htm.

[8] For perspective, the standard deviation of ten year real earnings growth is 3.7%. In fact, S&P 500 real earnings have achieved double digit growth in only one decade in the last 137 years (1897-1906).

[9] GMO 7-Year Asset Class Forecasts (4Q 2007). http://www.gmo.com.

3. Asset Class

   As opposed to the definition of hedge funds offered above, many hedge fund strategies seek to generate bond-like expected returns with bond-like volatility, rather than equity-like expected returns with less than equity market volatility. By choosing fund of funds focused on bond-like strategies, the largest factor determining the outcome may have been the relative performance of equities against bonds.

4. Strategy

   Practitioners have defined the term 'hedge fund beta' to describe an imbedded return in certain hedge fund strategies, such as convertible arbitrage or merger arbitrage, that is available to all the participants involved independent of skill. Were we to select funds that only participated in one hedge fund sub-market, the determining factor would have been the relative performance of the S&P 500 against the selected hedge fund beta.

5. Execution

   If the S&P 500 cooperates and returns approximately 7% real over the next decade and were we to choose risk, geographies, assets, and strategies that resemble those in the S&P 500, the victor in the bet would most likely be determined by the execution capabilities of the fund of fund allocators and their underlying managers.

In the end, we chose to stay within the intended spirit of the wager and target strategies that typically assume less risk than the market (or are not highly leveraged), focus more on the U.S. than elsewhere in the world (consistent with the revenues derived by S&P 500 companies), invest predominantly in equities, and pursue long-short strategies with healthy market exposure.

Our focus on outstanding execution makes the bet especially intriguing. When referencing the impact of trading costs and spread on small cap stocks, our friend Ted Aronson is fond of saying "small cap stocks are sometimes cheap, but they are always expensive." We are fully aware that the same applies to hedge funds – hedge fund strategies sometimes deliver attractive rewards, but they always bear a substantial cost to the investor. Warren is absolutely correct in highlighting the costs borne by investors in hedge funds.

Warren's sound argument is one of the reasons why we contend that hedge fund investing should be left only to sophisticated institutional investors. A tidal wave of capital has entered the former cottage industry, as more institutions have witnessed the past success of early adopters. The increase in competition for a limited pool of attractive ideas has decreased the returns for 'hedge fund beta' over time. As a result, we contend the winner's game may be something of the past. Going forward, astute asset allocation and manager selection may be a prerequisite for success in hedge fund investing.

The evolution of our bet from a group of ten hedge funds, as initially proposed by Warren, to a set of five fund of funds has roots in the history of our interaction, the logistics of the bet, and the desire to fairly represent the intent of the discussion. We are cognizant of the extra layer of fees involved, but are confident that our selections can more than pay for their toll. The hedge fund industry is characterized by a wide dispersion of returns between the top and bottom quartile of managers, offering talented allocators the opportunity to substantially outperform industry averages. While we are not at liberty to disclose the names of those selected, we can share that they are not encumbered by institutional rigidity, care deeply about performance, and are willing to accept beta risk. They are indeed structured for success with the requisite skill set and experience to thrive.

Risk: The Missing Piece of the Equation

Given our methodology for selecting managers, it is unfortunate that the bet does not incorporate a risk-adjustment to returns. Whether defined by statistical metrics like standard deviation or more relevant metrics like maximum drawdown or stress tests, the funds on our side of the ledger assume substantially less risk than the market. As such, Warren has one advantage over our selections: he should expect to outperform because he is assuming more risk.

This missing component is more than just an important factor in an investment decision, as it goes to the heart of the experience of investors and the results they achieve. Investors are notorious for buying high and selling low, and recent research into mutual fund results demonstrates the wide gap between the long term, time-weighted returns of mutual funds and the returns earned by investors on a dollar-weighted basis.[10] The same is true in our bet – over the last ten years, if an investor had bought the S&P 500 index at the worst possible moment and then sold in a huff at the maximum point of pain, he would have lost 49% of his capital (March 2000-October 2002). Should the same investor have had the uncanny ability pick the worst endpoints in a hedge fund portfolio, he would have lost only 14% (August 1998-October 1998). The smoother return stream of hedge funds assists investors in avoiding the negative behavioral biases that plague us all. Come 2017, we surmise that the average hedge fund investor will have stood a far better chance of achieving the ten-year return on our side of the bet than would the average index fund investor on Warren's side.

Conclusion

While we await the results of our bet alongside of you, it is important to remember that we will witness just one data point of many that could occur. As Peter Bernstein likes to say when discussing risk, more things can happen than will happen. When we consider the historical experience of hedge funds, the tenuous starting point for the S&P, and the conviction we have in the skilled practitioners we selected, we are comfortable that the odds are stacked heavily in our favor.

[10] DALBAR Inc., "Quantitative Analysis of Investor Behavior." DALBAR's 2003 Update to its seminal work showed that from 1984 – 2002, the S&P 500 returned 12.2% per annum, but the average mutual fund investor took home a paltry 2.6% annually.

Appendix – A Discussion of Hedge Fund Indices

In order to accept the historical experience of the CSFB/Tremont Index as representative of the experience of investors, we need to say something about the accuracy of hedge fund index data. Some academics have argued that survivorship and backfill bias overstate hedge fund returns by as much as 2%-4% per annum.[11] As we describe here, not only do these conclusions miss the forest through the trees, but also we surmise that hedge fund indices actually understate the past results achieved by investors.

The conclusions derived by academic research are overshadowed by the absence of a proper asset-weighted hedge fund index to study. We have little critique to offer about the methodology or details of the academic papers casting doubt on historical hedge fund results. Even if we assume their work is flawless, the problem of survivorship bias is not relevant to a properly constructed index.[12] Should an index seek to measure the experience of investors, it must be asset-weighted. The S&P 500, Russell 2000, and MSCI World Indexes are all capitalization-weighted indexes where the largest companies are the biggest index constituents. Were a hedge fund index similarly asset-weighted, survivorship bias would dissipate. Just as is the case in capitalization-weighted market index construction, if a fund (or stock) performed poorly, it would decrease in importance in the index and eventually drop out altogether. Any subsequent performance weakness would be omitted. The common critique of survivorship bias in hedge fund indexes results from the significance of small funds in an equally weighted composite, where a $100MM fund that struggles counts the same as a $30B one that thrives. While the claim about survivorship bias is valid, it has little relevance in describing the experience of the average investor.

The compilation of an asset-weighted index suffers from the lack of availability of the data that matters most. The hedge fund industry is highly concentrated, with somewhere between 85% and 93% of assets in the hands of just 240 hedge fund firms.[13] An appropriate hedge fund index that reflects the experience of investors, therefore, must aggregate the returns of funds managed by a relatively small number of firms. Unfortunately, most of these 240 will not provide the necessary data detailing their returns and size and have no incentive to do so. Those funds that are closed to new investors see no benefit in public disclosure of their results, and those that are open may fear the regulatory ramifications of holding themselves out in public. As a result, all popular hedge fund indexes, with the exception of CSFB/Tremont, are equally-weighted. The CSFB/Tremont Index is an asset-weighted composite of approximately 500 funds, of which 125 are managed by firms in the top 240. Those 125 firms collectively manage approximately 40% of industry assets, but the funds in the index are a small

[11] Nolke Posthuma and Pieter Jelle van der Sluis, "A Reality Check on Hedge Funds Returns" (July 8, 2003), available at SSRN: http://ssrn.com/abstract=438840. Bing Liang, "Hedge Funds: The Living and the Dead" (February 2000)., available at SSRN: http://ssrn.com/abstract=213012.

[12] Backfill bias was a legitimate concern, but disappeared when index data went live in the mid-1990s.

[13] Data compiled from Morgan Stanley, Goldman Sachs, and Hedge Fund Intelligence as of 12/31/07. By comparison, the S&P 500 comprised approximately 83% of the U.S. equity market on 12/31/07.

subset of the offerings from these multi-product firms.[14] Although better than most, the CSFB/Index is not properly representative of aggregate investor experiences either.

The largest 240 firms have grown to such prominence in part because their past returns exceeded those of other funds. The largest among them delivered some of the best historical results, and these are the very funds that would have had the largest weightings in an index representing the aggregate investor experience. While we do not know the returns of a robust, well constructed hedge fund index, we do know that the experience of sophisticated institutional investors who have allocated assets to hedge funds for many years, like Yale University and other leading endowments and foundations, has been very positive and has exceeded hedge fund index results.

The understatement of hedge fund index returns and the historical success of large funds do not tell us anything about what the future will hold for the industry or the large funds that dominate it. However, it strikes us as undeniable that hedge funds have succeeded in meeting their goals thus far, and a proper index of past results would undoubtedly reveal this conclusion.

[14] http://www.hedgeindex.com and HedgeFund Intelligence Ltd.