# The Return in Hedge-Fund Strategies

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## ABSTRACT

This paper deeply examines the difference between traditional and absolute return hedge funds. It also described the development and characteristic of hedge funds as well as the different types of hedge fund investments. In addition, it also surveys some of the pitfalls that investors face when they try to make investment decisions using hedge fund data from commercial sources. Although hedge funds are often branded as a separate asset class, a point can be made that hedge fund managers are simply asset managers utilizing other strategies than those used by relative return (long-only) managers. The major difference between the two is the definition of their return objective: Hedge funds aim for absolute returns by balancing investment opportunities and risk of financial loss. Long-only managers, by contrast, define their return objective in relative terms.

*JEL:   G1, G11, G12*

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## I.    INTRODUCTION

Since the early 1990s, there has been a growing interest in the use of hedge funds among both institutional and private investors.[1] Due to their private nature, it is difficult to obtain adequate information about the operations of individual hedge funds and reliable summary statistics about the industry as a whole. Hedge funds are claimed to have been among the few bright spots in the investment world for the last two years. But just how well these alternative investment vehicles stack up against stocks, bonds, and mutual funds is difficult to gauge. This is because there is no generally accepted benchmark for measuring the performance of the nearly 6,000 hedge funds now operating around the world.

Hedge funds are known to be growing in size and diversity. In practical terms, it is not easy to estimate the current size of the hedge funds industry unless all funds are regulated, or obligated to register their operations with a common authority. Brooks and Kat (2001) estimated that, as of April 2001, there are approximately 6,000 hedge funds with an estimated US$ 400 billion in assets under management and US$ 1 trillion in total assets.

Three different features differentiate hedge funds from other forms of managed funds (e.g., mutual funds). Most hedge funds are small and organized around a few experienced investment professionals. In fact, more than half of the United States' hedge funds manage amounts of less than US$ 25 million. Furthermore, most hedge funds are leveraged. It is estimated that 70% of hedge funds use leverage and about 18% borrowed more than one dollar for every dollar of capital (Eichengreen and Mathieson (1998)). Another unique feature of hedge funds is their short life span. According to Lavino (2000), hedge funds have an average life span of about 3.5 years. Very few have a track record of more than 10 years. These features lead many investors to view hedge funds as "risky" and "opportunistic." But what exactly is the difference between traditional and absolute return investing? How did the hedge fund industry evolve? Which different types of hedge funds can be distinguished and what does their performance structure look like? Finally, what are the risks, returns, and pitfalls of investing in hedge funds?

This paper will carefully examine these critical issues. It will introduce the reader to the basic elements of portfolio theory as well as the differences between long-only and absolute return funds. The focus lies on portraying what hedge funds are, the different types that exist, their history, and their performance structure. As mentioned before, it will also show advantages, disadvantages, and critical issues regarding hedge fund investing.

## II.    THE DIFFERENCE BETWEEN LONG-ONLY AND ABSOLUTE RETURN FUNDS

How does traditional portfolio management work? First of all, traditional long-only portfolio management can be divided into two groups: passive and active portfolio management. The fundamental idea behind passive portfolio management is the market efficiency hypothesis. Fama (1970) reasons that, "A market in which prices always

fully reflect available information is called efficient." This follows that in efficient markets prices always reflect all available information and expectations. So in the long run it is impossible to outperform the market by applying changing portfolio weights. In an efficient market, more performance can only be realized by taking more risk. Hutchinson (1999) puts it the following way: "[…] you cannot beat the market so you had better joined it." The benchmark helps the passive manager to allocate the funds and serves as a pattern for the creation of the investor's portfolio.

Possibilities to duplicate the benchmark include the "full replication approach," through which the whole benchmark is exactly duplicated as well as the "sampling approach," which reproduces the benchmark as well as possible but with fewer holdings as the benchmark. The advantage of the sampling approach lies in the much lower cost, but nevertheless it leads to an active risk in falling short of the benchmark ("tracking error").

$$TE_P = \sqrt{\frac{1}{T}\sum_{i=1}^{T}(e_t - \mu_e)^2} \times \sqrt{M} \qquad (1)$$

Here $TE_P$ is the tracking error of the portfolio, T is the number of the overall periods, $e_t$ is the active return of the portfolio in t, $\mu_e$ is the arithmetic mean of the active returns $e$, and M is the factor for periods less than a year.

Because it is the goal of the passive strategy to minimize the risk of falling short of the benchmark, the tracking error must be minimized. Independent from the efficiency of the various capital markets the biggest advantage of the passive portfolio management is that the costs of managing the portfolio are very low, because no complex and extensive market research is needed.

In contrast, active portfolio management is based on the thought that due to information inefficiencies, an out performance in relation to the benchmark can be realized in the long run. Thus the active portfolio manager systematically deviates from the benchmark in search for an active return, which is called "alpha." Nevertheless it can be that no "bets" are made against the benchmark in search for alpha, and the portfolio is set to neutral. So even in active portfolio management the benchmark has an important function. It serves as a basic module of the investor's portfolio and the bets are made by over and underweighting in relation to the benchmark.

At this point it must be mentioned that active portfolio management leads in most cases to an underperformance against the benchmark. Drobetz and Köhler (2002) confirm that, "on average, active management [...] has not even been neutral to fund performance, but rather destroyed a significant portion of investors' value." This confirms the hypothesis that, in general, markets tend to be highly efficient. In addition, the costs for the active management squeeze the performance.

What is the problem with the traditional long-only approaches? One answer to that question lies in the interpretation of returns. In the traditional portfolio management, the return is seen as an active return in relation to the benchmark. So even

if—in absolute terms—the return is negative, the evaluation of the returns is still positive.

**Table 1**
Comparison of absolute and active returns

| Portfolio | Absolute Return | Return of the Benchmark | Active Return |
|---|---|---|---|
| Portfolio A | - 5% | - 10% | + 5% |
| Portfolio B | + 3% | + 7% | - 4% |

In consideration of the benchmark return, portfolio manager A has shown more of his abilities. This is because he was able to lessen the highly negative trend of the market. Whereas portfolio manager B could have earned a better return if he just "copied" the market and invested passively in the benchmark. As the example shows, the problem is that even if markets go downturn, the portfolio manager must stay invested ("be long"). Therefore there is no chance for the manager to realize high absolute returns when the capital markets are plummeting.

For most investors it is a cold comfort if they beat the benchmark but the absolute returns are still negative. Especially in the last few years—characterized by biases in the equity markets—the absolute returns were highly negative in the double-digit area. This led to an increase in the risk aversion of the investors. Their preferences shifted to products that offered absolute returns even in the event of falling markets. Most of these products are referred to as being "alternative investments." These include hedge funds as well as private equity and venture capital. In the following, the investment form of hedge funds shall be portrayed intensively.

## III.      WHAT ARE HEDGE FUNDS?

There is no universal definition of hedge funds. Hedge funds represent distinctive investment styles. Their investment objectives as well as their strategies are very different compared to more traditional funds. "Hedge funds" is a term used to describe an innovative investment structure first created by Alfred W. Jones. In 1949, Jones opened an equity fund that was organized as a general partnership to provide maximum latitude and flexibility in constructing a portfolio. Jones took both long and short positions in securities to increase returns while reducing net market exposure and used leverage to further enhance the performance. Nevertheless it must be mentioned that the term should not be misunderstood, because not all strategies work with a protection of the positions. According to Stanton (2000), the term takes on a much broader context today, as different funds are exposed to different kinds of risks.

Currently, most hedge funds are set up as limited partnerships with a lucrative incentive-free structure. It is also not unusual that hedge fund mangers have a significant proportion of their own capital invested in these partnerships.

### A.      Types of Hedge Funds

Due to the diversity of the industry, there is no standard method to classify hedge funds neatly. I follow the classification used by Eichengreen and Mathieson (1998). Under this classification, there are eight categories of hedge funds with seven differentiated styles and a fund-of-funds category:

(a) **Event driven funds.**  These are funds that take positions on corporate events, taking an arbitraged position when companies are undergoing re-structuring or mergers. For example, hedge funds would purchase bank debt or high yield corporate bonds of companies (known as "junk bonds") undergoing re-organization. Another event-driven strategy is merger arbitrage: These funds seize the opportunity invest just after a takeover has been announced. They purchase the shares of the target companies and short the shares of the acquiring companies. Occasionally, the reverse is carried out if the deal is likely to fail.

(b) **Global funds.**  This is a catch-all category of funds that invest in non-U.S. stocks and bonds with no specific strategy reference. It has the largest number of hedge funds, and it also includes funds that specialize on the emerging markets.

(c) **Macro funds.**  These funds rely on macroeconomic analysis to take bets on major risk factors, such as currencies, interest rates, inflation rates, stock indices, and commodities.

(d) **Market neutral funds.**  This category refers to funds that bet on relative price movements utilizing strategies such as long/short equity, stock index arbitrage, convertible bond arbitrage, and fixed income arbitrage. Long/short equity funds use the strategy of Jones by taking long positions in selective stocks and going short on other stocks to limit their exposure to the stock market. Stock index arbitrage funds trade on the spread between index future contracts and the underlying basket of equities. Convertible bond arbitrage funds typically capitalize on the embedded option in these bonds by purchasing them and shorting the equities. Fixed income arbitrage bets on the convergence of prices of bonds from the same issuer, but with different maturities over time. This is the second largest grouping of hedge funds after the Global category.

(e) **Sector funds.**  They concentrate on selective sectors of the economy. For example, they may focus on technology stocks if these are over-priced and rotate across to other sectors.

(f) **Short sales funds.**  These funds focus on engineering short positions in stocks with or without matching long positions. They play on markets that have risen too fast and also on mean reversion strategies.

(g) **Long only funds.**  Long only funds take long equity positions typically with leverage. Contrary to short sales funds, these funds to not sell short any positions. Emerging market funds that do not have short-selling opportunities also fall under this category.

(h) **Fund of funds.**  This category refers to funds that invest in a pool of hedge funds. They specialize in identifying fund managers with good performance in the past and also rely on their good industry relationships to gain entry into hedge funds with good track records.[2] For example, a hedge fund of funds can consist of several long only funds and additionally some sector funds and macro funds.

**Table 2**
Hedge fund categories: December 1997
Mean and standard deviation of returns (1990-1997)

| Category | Number | Assets (US$ billions) | 1990-1997 | | |
| --- | --- | --- | --- | --- | --- |
| | | | Mean return (%) | Standard deviation (%) | Risk-adjusted returns |
| Event driven | 120 | 8.6 | 18.9 | 5.9 | 3.2 |
| Global | 334 | 30.9 | 17.7 | 9.4 | 1.9 |
| Macro | 61 | 29.8 | 28.1 | 16.3 | 1.7 |
| Market neutral | 201 | 18.0 | 8.6 | 2.1 | 4.1 |
| Sectors | 40 | 1.8 | 29.6 | 15.9 | 1.9 |
| Short sales | 12 | 0.5 | 7.0 | 15.2 | 0.5 |
| Long only | 15 | 0.4 | 27.3 | 15.4 | 1.8 |

Source: Eichengreen, B. and D. Mathieson (1998), p. 37[3]

Table 2 presents statistics about the various categories of hedge funds and past performance. The sectoral hedge funds provided the best mean return over the period studied, while the market neutral funds had the lowest standard deviation of returns. On a risk-adjusted basis,[4] the category of fund that ranks highest is the market neutral funds followed by the event driven funds. But, before this conclusion is valid, more discussion follows on the empirical problems through the use of the data obtained from incomplete databases. However different all the strategies may appear, they all share one basic idea: the search for alpha. The only difference is the method of generating the alpha.

## B. Why Invest in Hedge Funds?

Hedge funds are a clear example of active investment management. The active manager tries to earn superior returns through a combination of diligent research, insightful analysis, savvy treading, and intelligent risk management. In contrary to the traditional investment approach, hedge funds trade more actively, use leverage and short selling, and they are willing to make even bigger bets away from the indexes.

For example, as the concept of long/short equity funds reveals, the systematic risk is almost completely eliminated, and they only deal with the unsystematic risk. This is exactly the opposite of the traditional approach, which means taking long positions in order to eliminate the unsystematic risk (due to diversification effects) and take the systematic risk. The important point is that these hedge funds can achieve absolute returns relatively independent from the overall market. Ideally, these funds as well as market neutral funds have very low standard deviations, which in some circumstances can be as low as those of bonds.

From Table 2, there is also apparent evidence that hedge funds, as a group, have returns that are impressive. For example, over the period 1990-1997, all the hedge

funds had positive returns. Macro funds obtained average returns of 28.1% per year with a standard deviation that is comparable to equity funds.

The goal of hedge funds to generate benchmark-independent returns seems to be tailored to the needs of today's investors. The risk/return profile as well as the extension and continuity of the returns is—compared to conventional assets— extremely favorable.[5] The resulting low correlation to the other asset classes (e.g., equities, bonds, and commodities) makes these funds even more interesting.

For example, Morgan Stanley Dean Witter (2000) reported that hedge funds "exhibit a low correlation with traditional asset classes, suggesting that hedge funds should play an important role in strategic asset allocation." Therefore hedge funds can be seen more as complementary instead of alternatively to traditional assets in the portfolio. Table 3 shows a common presentation of the underlying relationships between hedge funds and the other assets.

**Table 3**
Performance measures for hedge fund indices
Mean, standard deviation, and correlation of returns (Jan 1990-Apr 2000)

|  | Annualized return (%) | Annualized standard deviation (%) | Correlation with S&P 500 | Correlation with Lehman Brothers Gov/Corp |
|---|---|---|---|---|
| EACM | 15.2 | 4.4 | 0.37 | 0.19 |
| Equity market neutral | 9.1 | 3.2 | -0.11 | 0.15 |
| Equity hedged | 20.6 | 10.3 | 0.20 | 0.00 |
| Event driven | 13.7 | 5.4 | 0.48 | 0.09 |
| Global | 20.8 | 11.5 | 0.61 | 0.15 |

Source: Schneeweis, T. and G. Martin (2000).[6]

An additional reason to invest in hedge funds is that even in a bear market these funds may provide the possibility of obtaining positive absolute returns. Many hedge fund managers find it uninteresting to merely beat the market index, which may have negative returns. They would prefer to go short or avoid long positions to have positive returns.

The foregoing provides persuasive reasons to consider hedge funds as "alternative investments."[7] However, relying on statistics culled from public databases is fraught with data biases. An uninformed investor may be misled into common misperceptions about the return and the risk of hedge funds.

## V.     COMMERCIAL DATABASES AND STATISTICAL INFERENCES

### A.     Data Collation Issues

Because hedge funds are organized as private limited partnerships, and frequently as offshore investment vehicles, hedge funds activities are generally not disclosed to the

public. This has resulted in frequent complaints about the lack of transparency. Fortunately, many funds do release selective information to publicize themselves, their performance, and to attract new investors. These data are collected by a small number of data vendors and fund advisors. A few large advisors and vendors are currently publishing performance data and indices periodically corresponding to the various investment strategies. A listing of hedge fund databases and some descriptive details is provided in Table 4. However, voluntary participation in performance reporting leads to incompleteness of information regarding the hedge fund business as a whole. Thus, sampling biases are present whenever an investor analyses a hedge fund database on a stand-alone basis. Some of these biases are discussed below.

## B.      Survivorship Bias

Mutual fund data as well as hedge fund data suffer from survivorship bias. Grinblatt and Titman (1989); Brown, Goetzmann, Ibbotson, and Ross (1992); Malkiel (1995); and Elton, Gruber, and Blake (1996) found that survivorship biased mutual fund returns upward between 0.5 and 1.4% a year. Survivorship bias occurs when data samples exclude markets or investment funds, or individual securities that disappeared. The data sample of survivors describes a business that overstates real-world return and understates the real-world risk.

   For hedge funds, it is unclear by how much survivorship bias inflates returns of hedge funds as a whole. Poorly performing hedge funds, as well as those with a stellar performance, exit the database. Inferior hedge funds exit because of poor performance. Brooks and Kat (2001) stated that around 30% of newly established funds do not survive the first three years. Whereas stellar hedge funds can close to new partners and—as a result of good performance—stop reporting returns to the data vendor. Some hedge funds do not enter the database at all. Brown, Goetzmann, and Ibbotson (1999) and Fung and Hsieh (2000) both estimated survivorship bias in hedge fund indexes to be around 3% per year.

## C.      Nature of Hedge Funds, Trading Strategies, and Performance Measurement

It is clear that because of the method of collection and reporting of the hedge fund databases, there are biases in the data collected. Some of the returns can be viewed as the upper bound and the averages are likely to be smaller than actually reported. The wide range in returns and dispersion indicates that mean and variance may not capture "the full picture" regarding the activities of hedge funds. Indeed, the organization structure of hedge funds, their investment objectives, trading strategies, and managerial compensation differentiate them significantly from the usual mutual fund. Most mutual funds are generally—as stated earlier—engaged in the so-called "buy-and-hold" activities. This means acquiring and managing stocks and bonds over a long period of time. Although some mutual funds would engage in activities like leverage or short-selling, most do not.[8]

**Table 4**
List of commercial hedge fund databases

| Name | Description | Features of Indices |
|---|---|---|
| HFR | Hedge Fund Research (HFR) is a hedge fund research and consulting firm that has collected data on approximately 4,000 different hedge funds | Approximately 1,500 funds are used to calculate 33 indices that reflect the monthly net of fee returns on equally weighted baskets of funds. |
| Zurich Capital Markets | Originally developed by Managed Accounts Reports (MAR). | Database contains 1,500 hedge funds, which are used to calculate 19 indices that reflect median monthly net of fee returns. |
| CSFB/Tremont | The TASS database tracks about 2,600 funds.  There are strict rules for fund selection.  The universe consists only of funds with a minimum of US$ 10 million under management and a current audited financial statement.  Funds are re-selected quarterly as necessary. | Using a subset of around 650 funds, CSFB/Tremont calculates 10 inches that the monthly net of fee returns on an asset-weighted basket of funds.  Large funds have a larger influence in these indices. |
| Hennesse | The Hennesse Group is a hedge fund advisory firm that maintains a database of around 3,000 funds. | Based of subset of about 500 funds, Hennesse calculates 23 indices that reflect the monthly net of fee returns on equally-weighted baskets of funds |
| Van | Van Hedge Fund Advisors is a hedge fund advisory firm with a database of about 3,400 funds. | Using a subset of around 500 funds, Van calculates 15 indices that reflect the monthly net of fees returns on equally-weighted baskets of funds. |
| Alvest | Alvest is a hedge fund website that provides information on alternative investments.  The Alvest database contains information of around 2,000 hedge funds. | Alvest calculates 14 equally-weighted indices from the monthly net of fee returns of the funds in its database. |
| TUNA | Hedgefund.net is a website providing free hedge fund information and performance data.  Its database covers 1,800 hedge funds. | Hedgefund.net calculates 35 equally-weighted indices from the monthly net of fee returns of the funds in its database. In TUNA's case, if a fund shuts down, it is completely removed from the indices.[9] |
| AsiaHedge | AsiaHedge is a subscription database that provides information on the hedge fund industry in the Asia Pacific Region. It publishes a league table of 156 funds. | AsiaHedge established the Bank of Bermuda AsiaHedge indices. There are 4 indices to measure the performance of hedge funds in 4 geographies based on the median net of fee returns of funds in its league table. |

Source: Brooks, C. and H.M. Kat (2001), Hedge Fund Intelligence

There is now increasing evidence that hedge fund returns and hedge fund indices returns are not normally distributed. And, it is the strategies of hedge fund investments that have directly contributed to this situation. Typically, hedge fund investments are based on absolute return strategies. They are expected to deliver performance regardless of market conditions. To achieve this goal, hedge fund managers use two main approaches to fulfill absolute return targets. They are the directional and non-directional approaches.

The directional approach dynamically bets on the expected directions of the market. Funds will invest a lot of "sell-short" securities to capture gains from their advance and decline. In contrast, the non-directional approach attempts to extract value from a set of implemented arbitrage opportunities within and across countries. The non-directional approach typically exploits structural anomalies in the capital markets.

Mean-variance analysis is appropriate when returns are normally distributed. The reliability of mean-variance analysis therefore depends on the degree of non-normality of the returns data. So in case the returns are not normally distributed, this presents a serious problem.

According to Fung and Hsieh (1999), "[…] when returns are not normally distributed (as in the case for hedge funds), the first two moments (i.e., mean and standard deviation) are not sufficient to give an accurate probability." Fung and Hsieh found that hedge fund returns are leptokurtic or "fat-tailed."[10]

Brooks and Kat (2001) found that hedge fund index returns are also not normally distributed. Many hedge fund indices exhibit relatively low skewness and high kurtosis, especially in the case of hedge funds investing in convertible arbitrage, risk arbitrage, and distressed securities. These can be seen as non-normal profiles. Brooks and Kat argued that investors obtained a better mean and a lower variance in return for more negative skewness and higher kurtosis. This again supports the basic idea in portfolio theory that there is no free lunch.

Generally, the dynamic trading strategies of hedge funds render traditional mean-variance measures relatively meaningless.[11] While some hedge funds may have low standard deviations, this does not mean that they are relatively riskless. In fact, they accommodate skewness and kurtosis, which may be extremely risky.

## D.  Correlations of Returns

The benefit most often cited by portfolio managers is that hedge funds generate returns that have low correlations to the returns of mutual funds and standard asset classes. Having additional assets with a low or even negative correlation permits the diversification of risk in a mean-variance environment. However, there are complications that arise in the case of hedge funds where correlation-based diversification may not be valid. Lavino (2000) argued that many hedge funds are not consistent and continuously negatively or lowly correlated with other asset classes over time. Hedge funds also may not have meaningful standard deviations. In fact, many hedge funds have distributions with fat-tails, that is, exceptional events are more frequent than would have been predicted based on normal assumptions. Thus investors

need to be careful in using the correlation as a gauge to execute portfolio diversification.

Hedge fund managers have a great deal of freedom to generate returns that are uncorrelated with those of other asset classes. But, this freedom comes at a price. Dynamic trading strategies predispose hedge funds to extreme or tail events. Thus, correlations may come at a cost. The conclusion is that using means and standard deviations to report the returns and risks of hedge funds is not always adequate. This follows that only relying on simple correlation measures to diversify portfolio risks is not appropriate when deciding to add hedge funds to a portfolio of other assets.

### E.	Non-traditional Performance Measures to Measure Risk and Return of Hedge Funds (An Example)

Sortino and Price (1994) have proposed evaluating downside risks rather than total risks. They defined a new measure, which is termed the "Sortino Ratio." This is similar to the Sharpe Ratio,[12] except that it uses "downside deviation" instead of using standard deviation as the denominator.

The Sortino Ratio was developed to differentiate between deviations on the upside and on the downside, and is more consistent with the investors' concern over risk of losses in their investment. In other words, investors interpret risk more as a risk of loss than deviations on the upside—also known as capital gains.

The Sortino Ratio also allows for the setting of a user-defined benchmark, where the numerator is the difference between the return of the portfolio and the Minimum Acceptable Return (Mar). The Mar is usually the risk-free rate (as with the Sharpe Ratio), but can also be zero or user-defined (e.g., 5%).

### F.	Practical Issues

As mentioned earlier, data issues may unwillingly lead to meaningless comparisons of hedge fund performance. However, even if one possesses a set of clean and reliable data, it is unlikely that there will be a statistically computed measure of risk-adjusted return, which would satisfy a sophisticated investor. Hedge fund performance measures are beset by many practical business issues, which make it extremely difficult to have a simple measure to fully convey risk and return.

Specifically, hedge funds face many practical issues that increase their risk. Firstly, many hedge funds are assumed to have a pure and consistent style. This is rarely the case. Many funds may be opportunistic and operate with more than one style. This follows that many hedge funds do not always function exactly as their self-reported classifications indicate. Without looking "inside" in the specific fund, it is almost impossible to classify hedge funds neatly.

A hedge fund's style purity over time is definitely less consistent when compared to unit trusts and mutual funds, which by nature are "buy-and-hold" mandates. Fung and Hsieh (2001) and others have suggested using factor analysis to discern the underlying dimensions or "factors" that drive the returns for funds. This may then go below the surface to determine unique hedge fund strategies that

differentiate one fund from another. Hopefully, this would enable an investor to detect style purity, style consistency, and style deviations.

Till (2001) suggested that a number of hedge fund strategies might appear to "earn their returns due to assuming risk positions in a risk-averse financial world, rather than from inefficiencies in the market place." In this sense, returns are made from a sort of "risk transfer," and not due to managerial abilities. If indeed this is the case, then the skill of selecting the appropriate hedge fund styles and the types of managers who can execute the styles consistently, and how to allocate funds across these managers become important to achieve superior returns. Viewed from this standpoint, style purity and consistency are important attributes to measure exposure to hedge fund risks rather than statistical measures, for example variance and skewness.

A hedge fund's assets under management growth may be internally generated through performance, externally induced because of inflows, or magnified through use of higher leverage. Hedge fund size is a dimension that has significant implications for risk and return. A hedge fund's risks increase proportionally with its assets under management. This is because the use of specialized strategies naturally limits a hedge fund to some "optimal size" beyond which it becomes increasingly difficult to keep the same strategy or have the opportunities for execution (often with leverage). Hedge fund managers are inclined to close their funds for further investments as soon as a target size is reached. This is evidence that many managers understand the trade-offs between size and performance. Yet, many often neglect to focus on the relationship between size and risks.

Hedge fund managers are drawn to the use of leverage to magnify potential returns from small arbitrage opportunities. They are also inclined to concentrate their potential investment funds in a small subset of potentially "rich" opportunities. Weisman and Abernathy (2000) demonstrated the importance of guarding against excessive leverage, which is compounded by a lack of liquidity when an extremely bad event strikes. Weisman and Abernathy (2000) also point out that if one were to construct a non-diversified, illiquid and/or leveraged portfolio and let it grow over time, it would eventually lead to bankruptcy of the fund in case a misfortune strikes. The potential risk is very high employing these strategies. The perceived risk may be low, as a well-constructed downside-oriented measure using past data may not reveal the potential risks from the occurrence of a future disastrous event. This is because a misfortune has not yet struck. But the potential risks, which are usually unforeseen, are large and threaten the eventual survival of the fund.

## VI.    SUMMARY

The paper presented an overview of both traditional and absolute return portfolio management. It described the development and characteristic of hedge funds as well as the different types of hedge fund investments. It also surveyed some of the pitfalls that investors face when they try to make investment decisions using hedge fund data from commercial sources. Given the dynamic trading strategies as well as the complexity of hedge fund investments, commonly used statistics such as mean, standard deviation/variance and correlations are not meaningful. These statistics must be used

with extreme caution, as the underlying distribution of hedge fund returns—and also the returns of hedge fund indices—is not normally distributed.

There is still a lot of mythology with respect to hedge funds. Although hedge funds are often branded as a separate asset class, a point can be made that hedge fund managers are simply asset managers utilizing other strategies than those used by relative return (long-only) managers. The major difference between the two is the definition of their return objective: Hedge funds aim for absolute returns by balancing investment opportunities and risk of financial loss. Long-only managers, by contrast, define their return objective in relative terms.

Hedge funds take skill seriously, and they take diversification seriously too. Indeed, the basic mission of the hedge fund manager is to use his investment skill to build a diversified portfolio that will produce an attractive absolute return. Some hedge fund managers use sophisticated optimization techniques to build portfolios, but most do not.  Still, they all accept Markowitz's notion that you "shouldn't put all your eggs in one basket." Therefore hedge fund managers are unwilling to confine themselves to long positions in stocks, bonds, and other financial assets. They want to be able to own non-financial assets too (e.g., gold and oil). These "extra layers" of freedom are important precisely because they improve the money manager's ability to build an intelligently diversified portfolio. But investing in hedge funds also has some disadvantages. However, high fees per se are not an argument against investing in hedge funds. Fees must always be put in the context of the value added. And many hedge funds really do add value.

## ENDNOTES

1.  Most common among the private investors are the so-called "high net worth individuals."
2.  The statistical inferences regarding the hedge fund performance reporting will be dealt later in this paper.
3.  The mean returns are annually compounded returns over the period 1990 to 1997, except for the Long only funds, which were computed from 1994 to 1997. The annualized standard deviation of monthly returns for each investment style. As aforementioned, the risk-adjusted returns are obtained by dividing the mean return by the standard deviation.
4.  This means dividing the mean return by the standard deviation.
5.  For example, George Soros was reported to have obtained returns in excess of 30% per year for a good number of years.
6.  The EACM 100 is an index of hedge funds representing a wide range of strategies.
7.  Alternative investments comprise many different investment opportunities. For example, also private equity and venture capital are considered to be alternative investments.
8.  The reason for this lies in the investment guidelines that mutual funds have to fulfill.
9.  Estimated returns may suffer from survivor bias (ranging from 1.5 to 3%). Around 30% of newly established funds do not survive beyond 3 years. Most data vendors

(with the exception of Tuna) do incorporate funds that have ceased to exist in their index to avoid this.

10. A reference to the tendency of many financial instrument price and return distributions to have more observations in the tails and to be thinner in the mid-range than a normal distribution. Assets that are prone to price jumps tend to exhibit fat-tailed distributions.

11. Examples for such measures are the Sharpe ratio and the Treynor ratio.

12. The Sharpe ratio is defined as the expected excess return of the portfolio over the risk-free asset divided by the standard deviation.

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