How do hedge funds perform compared to mutual funds?

Bachelor Thesis Finance

Bram Bergshoeff
ANR: 987933
Supervisor: Baran Duzce

Table of content

Chapter 1

1.1 Introduction

In today's world the number of hedge funds is increasing significantly. Liang (1999) report an increase from the first hedge fund in 1949 to around 100 in the late 1980's increasing further to more than 1000 in the early 1990's. Now 20 years later the number of hedge funds has gone up even further to around 9400 according to Maslakovic (2010). Clearly hedge funds have become a more important financial vehicle for investors. In short a hedge fund is a private investment fund which provides an actively managed portfolio in publicly traded assets. According to Baquero, ter Horst and Verbeek (2005) hedge funds have a broad flexibility in which type of security they hold and in which type of position they take. These funds try to invest in a way to maintain a hedged portfolio to protect itself from downturns in the market and maximize its return in upswings of the market.

On the other hand investors have the possibility to invest in a mutual fund. In the year 2010 there were 7691 mutual funds according to the Investment Company Fact book (2010). The Securities and Exchange Commission (SEC) sees mutual funds as a type of investment company with many investors. These funds pool the money of their investors and invest it in stocks, bonds, money-market instruments, other securities or even in cash. Fama and French (2008) state that the total mutual fund industry holds a portfolio which looks much like the market portfolio. The whole industry realizes a return close to the market returns before expenses and fees.

Hedge funds differ from mutual funds mainly in government regulations, managerial incentive and investment strategies. Ackermann, McEnally and Ravenscraft (1999) analyze hedge fund performance by making use of a large sample and include both U.S. and offshore funds next to that they analyzed it on a monthly return instead of annual. Finally they compare hedge funds with mutual funds and conclude that hedge funds have a clear performance advantage over mutual funds. Liang (1999) investigates the differences between hedge and mutual funds and

what influences their performance. He discovered that there was a low correlation among different strategies. He concluded that hedge funds are a more efficient investment than mutual funds. Agarwal and Naik (2000) find that persistence among hedge fund managers is short-term in nature. This is in sharp contrast with mutual funds literature.

In this paper the claim that hedge funds outperform mutual funds is investigated. This will be done by investigating the differences in performance between hedge and mutual funds and the factors that influence them. One of the largest factor influencing performance is government regulations. Due to less governmental restrictions hedge funds are able to take extreme positions in the market with high risks. This is in sharp contrast with mutual funds which are much more restricted in their investment strategies. Also the managerial incentive differs greatly. In hedge funds managers obtain a large percentage of the profit of the fund which almost never happens in the mutual fund industry. Due to these differences are hedge funds able to deliver a higher performance? In this paper the focus will be on United States funds.

In chapter two of this paper the factors influencing hedge and mutual fund performance will be discussed. In chapter three performance studies and performance measures and in chapter four a small empirical research will be done to compare hedge and mutual fund performance over four years. In chapter five there will be an overall conclusion.

In order to assess the data in chapter four, the Sharpe ratio will be used. The data consist of monthly return of an hedge fund index and the monthly return of a large mutual fund namely the Vanguard S&P 500. This is due to the fact that an mutual fund index was not found nevertheless the monthly data of an large mutual fund is a good substitute. From the results of this research there can be concluded that hedge funds have indeed a greater return compared to the mutual fund and have a higher Sharpe ratio. Hedge funds therefore outperform mutual funds.

Chapter 2

In this chapter the concept hedge and mutual funds will be discussed in order to get a clear understanding of both financial vehicles. The main focus will be on how factors like government regulations, managerial incentives and fund specific factors influence the fund performance.

2.1 Introduction to hedge funds

According to Ackermann, McEnally and Ravenscraft (1999), hedge funds started in the beginning as investment partnerships which could take short and long positions in the market. From this simple structure hedge funds evolved into a complex organizational structure that is not simple to define. However there are some key features characterizing hedge funds. These key features are; a largely unregulated organizational structure, flexible investment strategies, relatively sophisticated investors, large managerial investment and high incentives for the managers. At first these investment partnerships were typically with fewer than 100 investors therefore they could be exempt from the Investment Company Act of 1940. In June of 1997 this amount was allowed to go up to 500 investors by the SEC but investors should have a minimum net worth of at least $5 million instead of $1 million. There are three different types of hedge funds: onshore funds, offshore funds and non-U.S. funds. Brown, Goetzmann and Ibbotson (1999) state that offshore hedge funds are different than the domestic vehicles in a way that they are corporations registered in a tax-haven. This is done so that tax liabilities for non-U.S. citizens are minimal. Most large hedge funds in the U.S. have an offshore vehicle to invest next to onshore limited partnerships. Because onshore hedge funds are restricted to a limited partnership, offshore funds are an opportunity to raise additional capital for hedge funds. The total offshore hedge funds industry is smaller than the total onshore fund industry; however these funds contain most of the large funds and their managers.

2.2 Hedge fund government regulations

There are three regulators that oversee the financial industries in the United States. According to Fung and Hsieh (1999) these regulators are the Securities Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC) and the Federal Reserve. The SEC is responsible for overseeing publicly traded securities, the corporations that issue these securities and the broker-dealer that makes markets for them. The CFTC regulates the futures industry. The Federal Reserve oversees commercial banking and the thrift industry. These institutions were created to regulate institutions that deal with the general public. However hedge funds are private investment vehicles, for wealthy investors and institutional investors that do not deal with the public. So hedge funds are outside the direct jurisdiction of these regulators. Liang (1999) finds that due to the limited regulations hedge funds can be extremely flexible in their investment decisions and take large risks on speculative strategies like program trading, short sale, swap and arbitrage. Due to the nature of hedge funds they are not allowed to advertise to the public. It may seem that hedge funds are exempt from almost all regulations however this is not true. According to Fung and Hsieh (1999) they are not exempt from regulations that are designed to monitor and protect the integrity of the markets. Traders are required to report to the U.S. treasury large positions in foreign currencies and treasury securities. Traders are also required to report positions in a publicly traded firm that exceed 5% of the shares to the SEC. There are margin requirements regulated by the Federal Reserve for stock purchases that are obligated to all market participants. The CFTC obligates traders to file daily reports if they hold large futures positions. Next to that the futures exchanges and CFTC can set limits on futures contracts and set futures margins as well as position limits. These regulations hold for all markets participants, so they also include hedge funds. Hedge funds are therefore not completely unregulated and that influences their performance. For hedge funds revealing their large positions in foreign currencies, treasury securities and positions in companies exceeding 5% means that they cannot hold their investments secret. This will result in lower profits because other investors could react to their positions in the market. Next tot that if these funds cannot take for example unlimited positions in futures contracts it withholds them from making

full use of the markets potential. As reported by Brown, Goetzmann, Liang and Schwarz (2007) the latest important rule change affecting hedge funds was in December 2004. The SEC required hedge fund managers, mainly of large hedge funds, to register by the SEC under the Investment Advisors act of 1940. Hedge fund managers would be required by this new rule to register as investment advisers by February 1, 2006. The SEC had several reasons to increase the regulatory controls over hedge fund managers. According to Thompson and Knight (2005) the main reasons for the SEC to implement this rule are; they can detect and/or deter fraud within hedge funds better. Secondly the fast growth of the industry could also increase incentive for riskier strategies. This would stimulate the growth of fraud. Thirdly nowadays the exposure to other market investors/participants to hedge funds directly or indirectly through funds of hedge funds is larger. The last argument of the SEC was to gather information on this growing industry of which not much is known. However, Brown, Goetzmann, Liang and Schwarz (2007) state that, U.S. court of Appeals for the District of Columbia Circuits vacated the rule changes on June 23, 2006. Far fewer hedge fund managers are now required to be registered as investment advisors after the rule changes. This action undertaken by the SEC indicates that rules for regulating hedge funds are still in development. It could mean that in the near future hedge funds could be regulated much more which could influence their performance.

2.3 Hedge fund managerial incentive

Brown, Goetzmann and Ibbotson (1999) say that hedge fund managers are not judged on their capability to beat a passive benchmark. Therefore the compensation structure in this industry is largely based on performance. Typical hedge fund compensation consists of an annual fee of 1% - 2% of the fund's assets, and a managerial incentive fee of 5% - 25% of the annual profits. Normally the incentive fee is benchmarked at 0% return each year, or compared to an index like the U.S. or U.K. treasury rate. Liang (1999) states that managers only receive a fraction of the fund return if it is in excess of the high-water mark provision. Managers are required, due to such a provision, to make up for previous losses before incentive fee is paid. For each investor the maximum share value of the high-water mark is his or her investment in the fund (see

Goetzmann, Ingersoll and Ross (2003)). An ideal structure would be a structure that aligns investor's goals with that of the fund manager incentives according to Ackermann, McEnally and Ravencraft (1999). Starks (1987) find that to align risk preferences of investors and managers a symmetric contract is better than a bonus contract. However in the hedge fund industry incentive plans are most of the time bonus plans. The model of Starks does imply that bonus plans compared to relatively no incentives plans enhance managerial effort. This should result into greater performance for funds with a bonus incentive plan. Edward and Caglayan (2001) find that there is a positive correlation between hedge fund performance and incentive fee paid. They say that when the incentive fee is higher the better a fund's after-fee performance is. By paying more could be a possible explanation for the superior performance of hedge funds compared to other funds. This way the hedge funds possibly attract better skilled fund managers. Brown, Goetzmann and Ibbots (1999) find that a asymmetric payoff created by a bonus incentive plan clearly has implications for the manager incentives. The manager gets rewarded if the funds performs well and receives a minimum compensation when the fund performs poorly. Obviously hedge fund managers get an incentive to take risks.

2.4 Hedge fund specific factor

A specific factor influencing hedge fund performance is a lockup period. Liang (1999) find that in general a lockup is a minimum investment from $250.000 to $1 million for investors as wells as for fund managers. Aragon (2007) observes that younger funds and funds that hold more illiquid assets are more likely to have a lockup period. This policy frequently involves a redemption notice period and/ or a lockup provision. A redemption notice period requires the investor to provide notice before redeeming his shares in a pre-specified time. The lockup provision obliges the investors and fund managers to not withdraw the initial money paid to the fund before the end of the period. Liang (1999) discovered that when the lockup period increases the fund performance is better. This is due to the fact that lockup periods reduce the cash holding, prevent early redemption, and permit managers to focus on relatively long-term horizons. Derman (2007) state that for the investors, a lockup period takes away their

opportunity to withdraw their money from a poorly performing fund and to reinvest the money in a more successful one. The expected premium for committing to the lockup has to be the value of that lost future opportunity. Aragon (2007) investigates funds with lockup periods and finds that these funds have annual returns of approximately 4% higher than for non-lockup funds.

2.5 Introduction to mutual funds

A mutual fund is a financial vehicle that consists of a collection of stocks and/ or bonds. These funds bring together a large group of people and pool their money to invest in stocks, bonds, money-market instruments, other securities or even in cash (SEC). Ackermann, McEnally and Ravenscraft (1999) find that typical for mutual funds are the small minimum investments and daily withdrawals. For these funds an incentive fee for its manager is very rare. Fung and Hsieh (2004) observe that managers of most mutual funds have investment mandates which are almost the same as for traditional asset managers with relative return targets. The managers are most of the time constrained to hold assets in a well-defined number of asset classes and are often limited to little or no leverage. Their goals are to meet or surpass the returns on their asset classes. They are therefore expected to generate returns that are likely to be highly correlated to the returns of standard asset classes.

2.6 Mutual funds regulations

Ackermann, McEnally and Ravenscraft (1999) Regulation of mutual funds is done by the SEC. The regulations of the SEC along with the prospectus of mutual fund disclosure requirements are designed to inform the investor and limit a few potential risky activities. Mutual fund managers' restrictions are not only opposed by the SEC but also by mutual fund investors (see Almazan, Brown, Carlson and Chapman (2002)). Due to these restrictions the investment policy is limited in many ways. Fund managers may be prohibited of making use of short positions in stocks, from borrowing money to finance the portfolio, holding positions in a diversity of

securities; this includes equity options, index futures and restricted stock. Almazan, Brown, Carlson and Chapman (2002) show in their results that older funds face, compared to younger funds, more policy constraints regardless of when they were created. They do not give an explanation for this result. However funds overall have become constrained less over time. Almazan, Brown, Carlson and Chapman (2002) say that in the 1930s the United States Congress enacted regulations that define the general way in which mutual funds can carry out their operations. “These regulations cover topics from how funds may issue shares, to how and when they must distribute dividends and capital gains, to how they must report their policies and performance to investors.” For mutual funds the most important legislation governing their operations is the Investment Company Act of 1940. This act forces certain restrictions on mutual fund activities namely; limited concentration of portfolio positions, leverage use and investments in illiquid securities. The main purpose of this legislation is to make sure proper disclosure of the fund’s financial condition and investment policies are done and to specify registration requirements of investment companies. Also companies are prohibited from making fundamental changes in management contracts or in the nature of their business without shareholder approval. It is nowadays more and more common practice for a mutual fund to divide its policy into two parts: fundamental and non-fundamental. Fundamental policy goal is to give managers as much investment flexibility as possible within the boundaries of the legislation of the act in 1940. The fundamental policy can be altered by its shareholders approval. The non-fundamental policy are the richer set of restrictions that are, considered by investors and managers, best to define the fund’s investment style. The non-fundamental policy can be changed by the fund’s board of directors. Mutual funds are limited in their investment styles which influences ultimately their performance. Due to the fact that these funds have these restrictions they cannot exploit the market full potential. Next to that if a fund ages the policy constraints increase. Mutual funds are also prohibited to make fundamental changes in the nature of their business without approval of shareholders. Therefore they cannot change fast of strategy which will cost them money. A mutual fund manager is required by the non- and fundamental policies to negotiate with investors and directors before he/she can change the investment style.

2.7 Mutual fund managerial incentive

Blake, Elton and Gruber (2002) conclude that incentive fees are not often used in the mutual fund industry. From the total of 7716 bonds and stock mutual funds in 1999 only 108 funds used incentive fees. The incentive-fee funds are for 1.7% represented of the total number of bond and stock funds; however they held 10.5% of the total assets of the industry. Ackermann, McEnally and Ravencraft (1999) state that the mutual fund fees are mostly based on the size of the fund. There are however also indirect performance incentives if size and performance of the fund are strongly linked. Blake, Elton and Gruber (2002) find that calculation of incentive fees is based on cumulative performance over periods ranging from three to five years. The managers who receive an incentive fee have also a fixed component. The purpose of the incentive fee is to attract managers who are more skilled or will exert more effort than managers who do not have an incentive fee. The funds which have an incentive fee show better stock selection abilities and have lower expense ratios. So fund holders will benefit from this because performance will be better due to better stock picking abilities and lower costs. On average incentive fee funds are more likely to take more risk than non-incentive-fee funds. They tend to decrease the risk after a period of good performance and increase the risk after a period of poor performance. To conclude an investor is better of investing in an incentive fee fund than investing in a fund with no incentive fee because performance of an incentive fee fund is significantly better.

2.8 Mutual fund specific factors

Hendricks, Patel and Zeckhauser (1993) observe a phenomenon they called hot hands. They discover that mutual funds that perform well are more likely to give better results for the next year than funds that haven't. Also the counter part of hot hands is discovered which is called icy hands. These are funds that underperform in the most recent year and tend to perform poorly in the near term. However Malkiel (1995) finds that hot hands theory is influenced by survivorship bias and relationship on persistence is not robust.

In mutual fund industry there are actively managed funds and non-actively managed funds. Cremers and Petajisto (2009) define non-actively funds as funds with a buying and holding strategy that replicate the return on an index. Avramov and Wermers (2005) conclude that active management in mutual funds did add significant value and that for locating outperforming funds industries are important. Cremers and Petajisto (2009) say that there are two different ways an active mutual fund manager can create a positive alpha. It could be achieved by stock selection or also by factor timing (or both). The selection of stock is based on the manager's expectations of the stock to outperform its peers. By factor timing a manager uses time-varying bets on systematic risk factors such as whole industries or more usually any systematic risk relative to the benchmark index. Due to the fact that most funds favor one approach over the other, how to determine actively managed funds across all funds is not clear. Ackermann, McEnally and Ravencraf (1999) find that daily withdrawals and small minimum investments are common for these funds. These withdrawals and investments also influence their investment strategies.

2.9 Differences between both funds

Some aspects of hedge funds are in strong contrast with mutual funds which ultimately influence their performance. Mutual funds face restrictions from the government as well as from mutual fund investors. These restrictions influences their investment possibilities. Hedge funds also face restrictions however less than mutual funds. They can therefore exploit the market potential much more than mutual funds.

Due to difference in managerial incentive plans hedge funds managers are much more persuaded to put more effort in the fund. Which ultimately results in better performance. Bonus plans possibly attract also better managers for the hedge funds. Some mutual funds also have bonus plans however it is a small percentage of the total mutual fund industry.

Hedge funds have a lockup period and therefore the managers are able to focus on long-term horizons and are able to achieve a higher return. Mutual funds do not have such a lockup period so they therefore are forced to have greater cash holding which influences their

investments. A mutual fund can be actively managed or not. When managed actively they achieve higher returns than those who are not.

In this paper, when taken all factors into account, hedge funds are assumed to perform better than mutual funds.

Chapter 3

In this chapter performance studies and performance measure on hedge and mutual funds will be discussed.

3.1 Performance studies

Capocci and Hübner (2004) the interest in hedge funds is increasing however there are, compared to mutual fund performance studies, a few studies on hedge fund performance. This can be to some extent explained by their private characteristics and the problems to access individual fund data.

Performance studies on mutual fund can be, in general, mainly classified in two categories. The studies that conclude that mutual funds significantly outperform mutual funds following passive strategies and the ones who deny it.

Numerous papers investigate mutual funds persistence in superior performance which identify persistence in performance of mutual funds for a short period (1-3 years), and ascribe it to the hot hands theory or to general investment strategies. Hendricks, Patel and Zeckhauser (1993) indentified the no-load growth-oriented mutual funds to be the most superior performers in the near term. They conclude that a strategy based on picking every quarter the top performers, based on the last four quarters, can outperform the average mutual funds extensively. Goetzmann and Ibbotson (1994) find that persistence in performance is present in raw and risk-adjusted returns to equity funds at intervals from one month to three years. Brown and Goetzmann (1995) use methods that are designed to control for survivorship bias. They find evidence that historical data of mutual fund performance can be used to earn returns which are in excess of ex ante benchmarks. Wermers (1996) discovered persistence in performance of mutual funds over a short-term horizon of one to three years. He attributes this persistence to common investment strategies or hot hands. Carhart (1997) and Daniel, Grinblatt, Titman and Wermers (1997) proofed that the momentum effect in the returns of share's explain the hot hands effect detected by Hendricks, Patel and Zeckhauser (1993).

There are many papers which find some sort of predictability in the return of mutual funds over a longer period of time. Grinblatt and Titman (1992) find a positive persistence in mutual fund performance over a longer period of time. This positive persistence cannot be explained in the benchmarks by inefficiencies. Elton Gruber, Das and Blake (1996) apply a portfolio theory technique to past data which allows them to construct a portfolio of mutual funds that clearly outperforms a rule based on past rank alone. They find that when future performance is evaluated over 3-year periods, selection on previous 3-year alpha conveys the same, or even more, information about future performance than using other time horizons. They also conclude that there is a longer persistence in performance than noted in hot hands literature. Sirri and Tufano (1998) observe that consumers of equity funds excessively flock to high performing funds and that these flows are fee sensitive. Zheng (1999) finds that funds which receive more money perform considerably better than those that lose money. However there is no significant evidence that these funds subsequently beat the market.

On the persistence of hedge fund performance studies are less frequent. Ararwal and Naik (2000) support the theory that persistence in hedge funds does exist. They discover a considerable amount of persistence on a quarterly horizon, however the persistence is reduced as one moves to yearly returns. This indicates that persistence in hedge funds is short term in nature which is in sharp contrast to mutual fund literature, which observes on average a 2 year time horizon. This is important in the case of hedge funds because other studies found that the survivor bias of hedge fund is lower than that of mutual funds like in Brown et al. (1999). Brown, Goetzmann and Park (2001) define the contributing factors to fund disappearance. The factors that influence fund survival are the absolute and relative performance next to excess, volatility and the age of the fund. The asymmetric performance contracts do not seem to influence survival because their results imply that fund survival is much more valuable than short-term profits through risk-taking.

Brown et al. (1999) showed that offshore hedge funds adjusted for risk have positive returns however they ascribe this performance to style effect and conclude that there is almost no evidence of differential manager skills existence. Ackermann et al. (1999) and Liang (1999) compared in their paper the performance of hedge and mutual funds. More than a few indices

show that the performance of hedge funds is constantly better than mutual funds, it is however lower than the indices of the market considered. They showed that the returns of hedge funds are more volatile than the returns of mutual funds as well as those of the market indices. Ackermann and Ravenscraft (1998) stress that the influence of legal limitations is greater for mutual funds than for hedge funds and this ultimately hinders their performance. Brown, Goetzmann and Park (2001) show evidence that funds which do exceptionally well in the first half of the year reduce their volatility. This reduction is the most in the utmost decile of performance. On the contrary hedge funds which perform worse tend to increase their volatility. Fung and Hsieh (1997) show that when a hedge fund is added to a portfolio it can improve significantly the portfolio's risk-return profile. This is due to the hedge fund weak correlation with other financial securities. Amin and Kat (2003) discovered that stand-alone investment hedge funds do not present a superior risk-return profile. The majority of these funds are classified as inefficient on a stand-alone basis however they are capable of producing an efficient payoff profile when mixed with the S&P 500. The optimal results are obtained when 10-20% of the portfolio is invested in hedge funds. When all these studies are considered, hedge funds seem a good investment tool.

3.2 Performance measures

There are different methods in order to calculate performance; therefore the three most well know measures are discussed in short.

Sharpe ratio

Sharpe (1966) developed the Sharpe ratio; it was known than as the reward-to-variability ratio. Later academics and financial operators began to call it the Sharpe ratio. The ratio helps to make the performance of one portfolio similar to that of another by making an adjustment for risk. Amin and Kat (2003) state that the ratio is calculated as a ratio of the average excess return and the return standard deviation on the fund that is being evaluated. This way the excess return per unit of risk is calculated.

$$S = \frac{R - R_f}{\sigma} = \frac{E[R - R_f]}{\sqrt{\mathrm{var}[R - R_f]}}$$

R = Rate of return

R_f = Risk-free rate of return

σ = Standard deviation

S = Sharpe ratio

The Capital Asset Pricing Model (CAPM) tells us, when all asset returns are to be normally distributed, that when in equilibrium the highest attainable Sharpe ratio is that of the market indexes. If the ratio is higher than it indicates superior performance. In other words, the set of return distributions is represented by the market index's Sharpe ratio that is obtained when statistically combining the market index with cash. With the index of the market being very much diversified, these distributions generate the highest achievable expected return for every possible standard deviation.

Jensen's alpha

Jensen (1968) develops a method to calculate an alpha which represents the ability of a fund to perform better or worse than a buy-the-market-and-hold policy. It is named the Jensen's alpha. The method is derived from theoretical results of the CAPM.

$$\alpha_J = R_i - [R_f + \beta_{iM} \cdot (R_M - R_f)]$$

α = Jensen's alpha

R_i = Portfolio return

R_f = Risk-free rate of return

β_{iM} = Portfolio beta

R_M = Market return

Blocher and Chatterjee (1992) state that Jensen's alpha can be used as a measure of returns from holding a stock in a firm that is larger or smaller than the return adjusted for systematic risk, or the risk influencing all businesses. Lubatkin and Rogers (1989) find that the alpha is a better measure to evaluate returns associated with strategies than event related measures of abnormal returns. This is due to the fact that strategies do not have a clear starting date. They state that if a firm demonstrates a positive or negative alpha over a long time period than a firm will have to act in an unexpected manner compared to its industry group.

Fama-French three factor model

Fama and French (1992) develop a method to calculate common stocks. They find that the three-factor model works well on the cross-section of average stock returns. Fama and French (1993) state that it is a useful model for calculating the returns on portfolios formed on size and book-to-market-equity. Capocci and Hübner (2004) say that the model is estimated from a suspected form of the CAPM regression. The model takes the book-to-market ratio and the size of the firms also into account.

$$r = R_f + \beta_3(K_m - R_f) + b_s \cdot SMB + b_v \cdot HML$$

r = Portfolio rate of return

R_f = Risk-free rate of return

K_m = Return of whole stock market

SMB = Small market capitalization Minus the Big

HML = High book-to-market-ratio Minus the Low

According to the Fama-French model, the portfolio expected return depends on three factors. First the relations to excess market return as measured by β_3. Second the SMB in which β_s stands for the risk associated with market capitalization of the market portfolio. In the last part covering the HML, β_v measures the risk associated with market to book ratio.

Chapter 4

4.1 Data analysis

For the empirical part of this paper I will make use of the Sharpe ratio from Sharpe (1966). For the analysis the rate of return, risk-free interest rate and the standard deviation are needed. The data of the Vanguard bond S&P 500, which is a large mutual fund, is gathered from Morningstar.com. The hedge fund index data is gathered from hedgeindex.com. The risk-free rate is retrieved from the Fama and French data library. The analysis will be done on a monthly basis, however to obtain a reliable standard deviation a return period of 12 months is taken.

4.2 Results

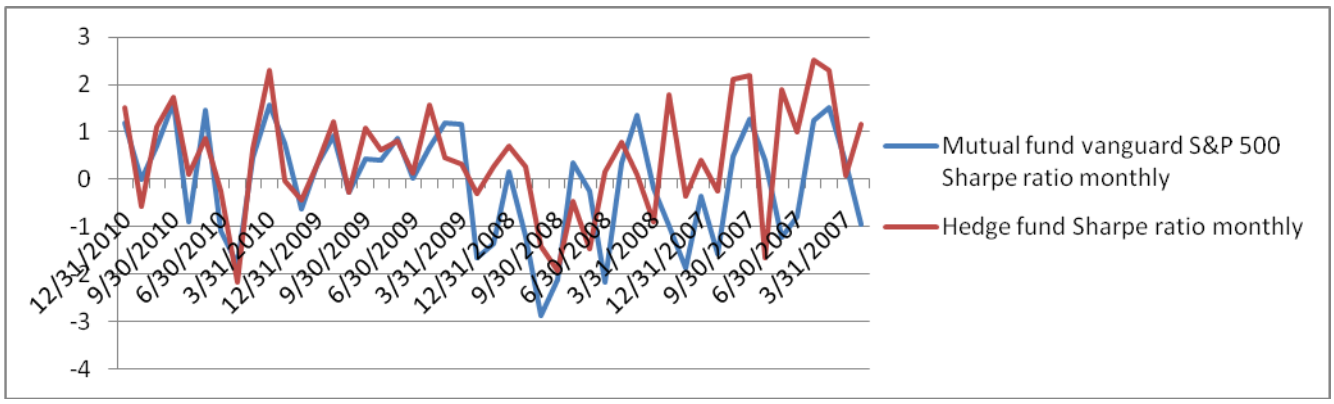
The average results are presented in table 1.

Table 1

	Average return	Average standard deviation	Average Sharpe ratio
Mutual fund Vanguard S&P 500	0,09%	0,04852	-0,06383
Hedge funds index	0,69%	0,017624	0,426302

From table 1 there can be observed that hedge funds have a higher average return and a lower average standard deviation compared to the average return of mutual funds. This results in a higher Sharpe ratio which implies that hedge funds have a better return to risk ratio. To illustrate this result the monthly Sharpe ratio data is plotted in a graph.

Graph 1



As can be seen in graph 1 the monthly Sharpe ratio of hedge funds is much more above the Vanguard Sharpe ratio than beneath it. This enhances the findings in table 1 that hedge funds have a better return to risk ratio. The data from this small empirical research suggest, like the literature, that hedge funds are a better investment vehicle, on a risk adjusted base, compared to mutual funds.

4.3 Discussion

Hedge funds and mutual funds are evaluated in this paper by making use of the Sharpe ratio; however there are some papers which imply that the Sharpe ratio is not a good evaluation method. According to Leland (1999) the majority of practitioners measures investment performance based on the Capital Asset Pricing Model (CAPM). By making use of the CAPM they define portfolio "alphas" or Sharpe Ratios. However Leland argues that the validity of this analysis is based on the validity of the CAPM, which presumes either normally distributed returns, or mean-variance preferences. In Leland's paper a world in which the market portfolio has the same and independently distributed returns is considered. Therefore the mean-variance of the market portfolio will be inefficient and the CAPM alpha will not measure the value added by the investment managers. Leland developed a simple modification for the (CAPM) beta to correct risk measurement for portfolios with arbitrary return distributions. This

way it measures precisely for any distribution of asset or portfolio returns as long as the market return is independently and identically distributed.

Darolles, Gourieroux and Jasiak (2008) find that the Sharpe ratio is not a good method to asses for the unconditional distributions of hedge fund returns. They find that Sharpe's main shortcoming is that it relies on only two statistics namely the sample mean and the volatility. These statistics do not always provide a sufficiently exact characterization of return distributions, particularly when these distributions feature skewness and thick tails. Especially the sample mean may not give a sufficiently robust estimate of the location parameter and the standard error may not appropriately account for the size of the tails. According to them the Sharpe ratio can be misleading for investors like banks or it could be misleading for regulators.

In this paper a period of four years is considered. This period could be too small to give a true overview of the performance of these two kind of funds. Next to that only the Vanguard S&P 500 is considered which can be used as an benchmark of the mutual fund industry however it can never represent the total industry.

Chapter 5

5.1 Conclusion

In this paper hedge and mutual funds are both evaluated. There are several difference between these funds. The largest difference is the regulations which restrict mutual funds much more in their strategies than hedge funds. The managerial incentives play also a large role in the main difference in performance between these two kind of funds. The overall conclusion of this paper is just like in the literature, on hedge and mutual funds, that hedge funds perform better than mutual fund. Therefore hedge funds are a better investment vehicle for investors than mutual funds.

Reference list

Ackermann C., Ravenscraft D., (1998) The impact of regulatory restrictions on fund performance: a comparative study of hedge funds and mutual funds. Working Paper, University of Notre-Dame.

Ackermann C., McEnally R. and Ravencraf D., (1999) The performance of hedge funds: Risk, return, and incentives. The journal of finance, Volume 54, Number 3.

Amin, G.S., Kat, H.M., (2003) Hedge fund performance 1990 – 2000: do the 'money machine' really add value? The journal of financial and Quantitative Analysis, Volume 38, Issue 2.

Andres A., Brown K.C., Carlson M. and Chapman D.A., (2004) Why constrain your mutual fund manager? The journal of financial economics, Volume 73, Issue 2.

Aragon G.O., (2007) Share restrictions and asset pricing: Evidence from the hedge fund industry. The journal of financial economics, Volume 83, Issue 1.

Agarwal V. and Naik N.Y., (2000) Multi-period performance persistence analysis of hedge funds. The journal of financial quantitative analysis, Volume 35, Issue 3.

Avramov, D., and Wermers, R., (2006) Investing in mutual funds when returns are Predictable. The journal of financial economics, Volume 81, Issue 2.

Baquero G., ter Horst J. and Verbeek M., (2005) Survival, look-ahead bias, and persistence in hedge fund performance. The Journal of Financial and Quantitative Analysis, Volume 40, Issue 3.

Blake C.R., Elton E.J. and Gruber M.J., (2003) Incentive Fees and Mutual Funds. The journal of finance Volume 58**,** Issue 2.

Brown, S.J., Goetzmann, W.N., (1995) Performance persistence. The journal of finance, Volume 50, Issue 2.

Brown S.J., Goetzmann W.N. and Ibbotson R.G., (1999) Offshore Hedge Funds: Survival and Performance, 1989–95. The Journal of Business, Volume 72, Issue 1.

Brown S.J., Goetzmann W.N., Liang B. and Schwarz C., (2007), Optimal disclosure and operational risk: evidence from hedge fund registration. Yale ICF Working Paper Number 06-15.

Brown S.J., Goetzmann W.N., Park J., (2001) Careers and survival: competition and risk in the hedge fund and CTA industry. The journal of finance, Volume 56, Issue 5.

Carhart, M.M., (1997) On persistence in mutual fund performance. The journal of finance, Volume 52, Issue 1.

Capocci D. and Hübner G., (2004) Analysis of hedge fund performance. The journal of empirical finance, Volume 11, Issue 1.

Chatterjee S. and Blocher J.D., (1992) Measurement of firm diversification: Is it robust? The academy of management journal, Volume 35, Issue 4.

Cremers M. K. J., Petajisto A., (2009) How active is your fund manager? A new measure that predicts performance. Review of financial studies, Volume 22, Issue 9.

Daniel K., Grinblatt M., Titman S., Wermers R., (1997). Measuring mutual fund performance with characteristic-based benchmark. The journal of finance, Volume 52, Issue 3.

Darolles S., Gourieroux C. and Jasiak J., (2009) L-performance with an application to hedge funds. The journal of empirical Finance, Volume 16, Issue 4.

Derman E., (2007) A simple model for the expected premium for hedge fund lockups. The journal of investment management, Volume 5, Issue 3.

Edwards F.R. and Caglayan M.O., (2001) Hedge fund performance and manager skill. Journal of Futures Markets, Volume 21, Issue 11.

Elton E., Gruber M., Das S., Blake C., (1996) The persistence of risk-adjusted mutual fund performance. The journal of business, Volume 69, Issue 2.

Fama E.F. and French K.R., (1992) The cross-section of expected stock returns. The journal of finance, Volume 47, Issue 2.

Fama E.F. and French K.R., (1993) Common risk factors in the returns on stocks and Bonds. The journal of financial economics, Volume 33, Issue 1.

Fama E.F. and French K.R., (2008) Mutual fund performance. Working Paper, University of Chicago.

Fung, W., Hsieh, D.A., 1997. Empirical characteristics of dynamic trading strategies: the case of hedge funds. Review of Financial Studies, Volume 10, Issue 2.

Fung W. and Hsieh D.A., (1999) A primer on hedge funds. The journal of empirical finance, Volume 6, Number 3.

Fung W. and Hsieh D.A., (2004) Hedge fund benchmarks: A risk-based approach. Financial analyst journal, Volume 60, Issue 5.

Goetzmann W.N., Ingersoll J.E. and Ross S.A., (2003), High-Water Marks and Hedge Fund Management Contracts. The Journal of Finance, 58, Issue 4.

Goetzmann, W.N., Ibbotson, R.G., (1994) Do winners repeat? Patterns in mutual performance. The journal of portfolio management Volume 20, Issue 2.

Grinblatt M., Titman S., (1992). The persistence of mutual fund performance. The journal of finance, Volume 42, Issue 5.

Hendricks D., Patel J. and Zeckhauser R., (1993) Hot hands in mutual funds: Short-run persistence of relative performance, 1974-1988. The journal of finance, Volume 48, Issue 1.

Investment company fact book (2010) http://www.icifactbook.org/pdf/10_fb_table01.pdf

Jensen M. C., (1968) The performance of mutual funds in the period 1945-1964. The journal of finance, Volume 23, Issue 2.

Leland H.E., (1999) Beyond mean-variance: Performance measurement in a nonsymmetrical world. The financial analyst journal, Volume 55, Issue 1.

Liang B., (1999) On the performance of hedge funds, Financial analyst journal, Volume 55, Number 4

Lubatkin M. and Rogers R.C., (1989) Diversification, systematic risk and shareholder return: A capital market extension of Rumelt's 1974 study. The journal of academy of management journal, Volume 32, Issue 2.

Malkiel B.G., (1995) Returns from investing in Equity mutual funds 1971 to 1991. The journal of finance, Volume 50, Issue 2.

Maslakovic M., (2010) IFSL hedge funds 2010, The hedge fund journal, http://www.thehedgefundjournal.com/magazine/201005/commentary/ifsl-hedge-funds-2010.php

Securities and Exchange Commission *http://www.sec.gov/answers/mutfund.htm*

Sharpe W.F., (1966) Mutual fund performance. The journal of business, Volume 39, Issue 1.

Sirri E.R., Tufano P., (1998) Costly search and mutual fund flows. The journal of finance, Volume 53, Issue 5.

Starks L.T., (1987), Performance Incentive Fees: An Agency Theoretic Approach. Journal of Financial and Quantitative Analysis, Volume 22, Issue 1.

Thompson and Knight Impact (2005) http://www.tklaw.com/resources/documents/Client%20Alert%20-%20Registration%20Under%20the%20Investment%20Advisers%20Act%20of%20Certain%20Hedge%20Fund%20Advisors.pdf

Wermers, R., (1996) Momentum investment strategies of mutual funds, performance persistence, and survivorship bias. Working paper, Graduate School of Business and Administration, University of Colorado.

Zheng, L., (1999) Is money smart? A study of mutual fund investor' fund selection ability. The journal of finance, Volume 54, Issue 3.