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Tutor: PhD Stefan Engström
Examinator: Paolo Sodini
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Discussants: 20115 Berndt Gardell
20129 Wilhelm Hörberg

Are Manager Characteristics Affecting the Performance of Hedge Funds?

A study on Swedish data

Helena Blom 20920
Marie Lundberg 20945

The purpose of this thesis is to examine if and how the hedge fund manager's background characteristics and strategy applied affect the fund's performance, as measured by average monthly return, risk and risk-adjusted monthly return. This is done by collecting data on 41 different hedge fund managers in Sweden and then performing robust OLS regressions. Our main results are that applying a long-short equity strategy generates higher return, higher risk, and higher risk-adjusted return compared to the other strategies. Hedge fund managers with previous studies in business and economics generate lower return, take on less risk and generate lower risk-adjusted return. We find modest evidence of lower risk taking among former students of Lund University. Investing private funds in the hedge fund are found to have a negative impact on risk-adjusted return.

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An investment in a hedge fund is really an investment in a manager and the specialized talent he possesses to capture profits from a unique strategy.

Sanford J. Grossman, *The Wall Street Journal*, September 29, 2005

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1 Introduction

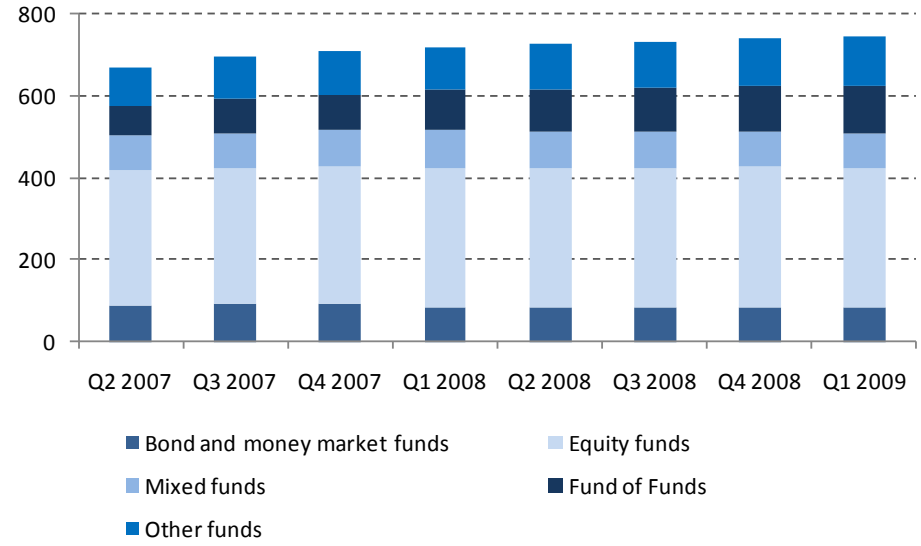
1.1 Motivation and background

This thesis concerns a certain type of special funds, named absolute return funds or more commonly hedge funds. These funds have clearly stated objectives of absolute return, that is, positive expected return independent of how the stock market does.

Why is the industry of hedge funds interesting and relevant to study? There are several reasons for this. A lot of money is invested in these funds in Sweden every year. During the last decade fund of funds and hedge funds have become increasingly popular among investors, and in 2007 these two types of funds made up more than half of net saving in Sweden. Between 1998 and 2007, the number of all types of funds registered in Sweden increased from 370 to 700, mainly due to an increase in the number of hedge funds, fund-of-funds and generation funds. One reason behind the increase in popularity of these funds could be the desire for a more diversified portfolio among investors (Fondbolagens Förening, 2008). What has happened since then?

As can be seen in *Graph 1*, the total number of active funds has increased slightly from the first quarter of 2007 to the first quarter of 2009. The number of active fund of funds and other funds, which mainly include absolute return funds, has continued to increase in the last two years despite the economic climate. Between the first quarter of 2007 and the first quarter of 2009 the number of other funds has increased from 95 to 123, corresponding to a 30 percent change.

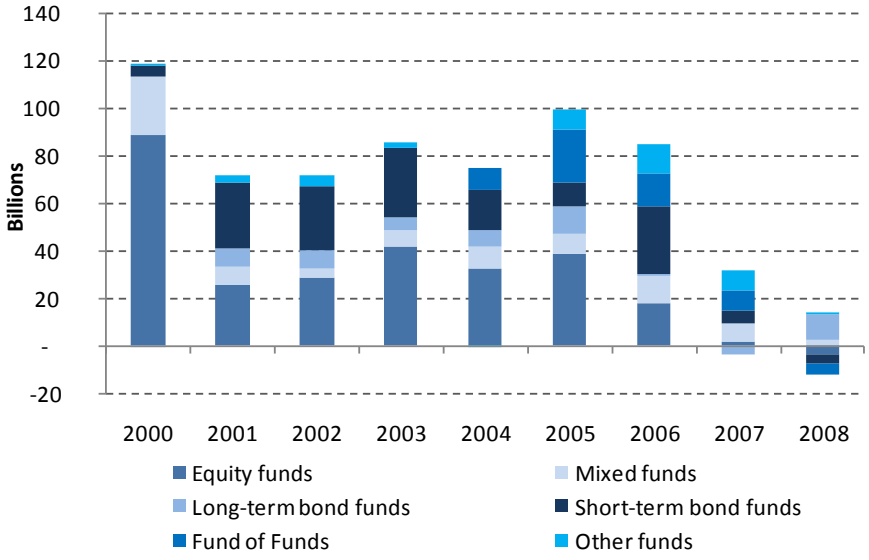
Graph 1: Number of active funds



Source: Swedish Financial Supervisory Authority and Statistics Sweden, 2009

Net saving in funds has followed the economic cycle relatively closely, but as can be seen in *Graph 2*, saving in the category of equity funds has not followed equally close. Rather, the interest among investors for other types of funds has increased, and in 2007 hedge funds were among the most popular types of funds. The sum invested in the category of other funds has grown from approximately BSEK 0.7 in 2000 to BSEK 12.5 in 2006 when the historical peak in popularity took place as measured in funds invested, down to BSEK 0.5 in 2008. Even though the amount invested in these funds decreased in 2008 as compared to 2007, their share of total net saving increased from 30 percent in 2007 to 61 percent in 2008 (Fondbolagens Förening, 2008).

*Graph 2: Net saving in funds**



* Reinvested dividends are not included in net saving after 2006

Source: Fondbolagens Förening (2009)

The total market value of funds in Sweden increased from BSEK 883 in end-2000 to BSEK 1 571 in end-2007, but during this period the distribution of market value between the different fund types changed away from having equity funds dominating the market to a larger diversification among different fund types. Hedge funds had its largest relative share in 2008, with 5.5 percent of the market's total fund value, supporting the statement above that hedge funds are becoming increasingly important players in the investment fund market and well worth examining.

Why, more specifically, is Swedish hedge fund managers' background characteristics' effect on hedge fund performance relevant to examine? An important reason for this subject to be examined is that hedge fund managers are left with relatively more discretion as compared to equity fund managers and many other fund managers when making their decisions as where to invest the money managed in the fund. This makes the manager more important to the resulting performance of the fund (Swedsec, 2009). Hedge funds are, according to the Investment Funds Act (SFS 2004:46) allowed to invest a larger share of the portfolio's funds in unlisted companies (Aktiespararna, 2006), thereby exposing themselves to less liquid and thereby riskier investments. Related to this is the issue of low transparency, where some critics argue that hedge fund managers can make up their portfolios as they please, without any rules for providing information on holdings. This is not completely correct though, at least not in Sweden, as there are rules considering the information that a special fund such as

a hedge fund has to provide its investors (SFS 2004:46). But as long as this transparency remains low, there is a motive for investors to screen the managers even more and this thesis can provide information on what properties to look for in fund managers' backgrounds.

Relatively high minimum requirements on capital invested by investors in hedge funds (Swedsec, 2009) make up another reason for examinations of the hedge fund managers. Also, illiquidity plays an important role. The time from applying for withdrawal of funds by a hedge fund investor to the reception of the money by the same investor is often longer than is for other fund types, and sometimes there is a minimum requirement on investors to keep their funds invested for a certain period of time. When investors' funds are locked in this way, they have larger incentives to screen the managers.

Since the performance data in this thesis is ranging from May 2007 to May 2009, it will examine how different backgrounds affect performance in a hard economic climate. Managers' background characteristics should still be relevant to examine during this period, and maybe even more than in good economic times when it is sometimes claimed that "anyone" can generate positive return.

Human capital theory predict that education, experience and professional certifications improve performance, while capital markets theory suggest these factors to be irrelevant. According to the Efficient Markets Hypothesis (EMH), a fund's return should be independent of fund manager characteristics, given information symmetry and adjustment for risk level. Will older or more experienced managers perform better than younger ones due to their experience or will the young managers be "hungry" for success and therefore work harder to find good investment opportunities? Will results differ when performance is adjusted for the risk level taken in the investments? Will the managers' educational backgrounds affect results, even though in most cases many years have passed since they left school? Or can the seat of learning rather be seen as a proxy for the person's level of ambition, something that could be reflected later on in the shape of hedge fund return performance?

What finally makes the question of what impact hedge fund managers' characteristics have on fund performance interesting to study is that the subject seems relatively, if not completely, unexplored when based on Swedish data.

1.2 Purpose

This thesis aims at obtaining a better understanding of *if* and *how* a fund manager's background affects the performance of the fund. It will also try to find out if there is any evidence of a certain type of experience affecting fund performance. More exactly, the thesis aims at explaining whether there is any link between hedge fund performance and the manager's educational background on a post-upper secondary school level, the manager's main subject of study on a post-upper secondary school level, the manager's age, his or her trading experience, equity analyst experience, time as manager of the current fund, and finally whether the manager has made an investment of private funds in the hedge fund. We will also analyze if the strategy applied by the fund affects performance. This is a proxy for fund characteristics rather than manager characteristics. Will any of these variables affect performance of the hedge funds, and if so, how?

In practice, this thesis could contribute to the industry in several ways. Investors can be helped in their choice between different hedge fund managers and it can facilitate investors' screening process and contribute with new variables for investors to control for before investing their money. As mentioned above, transparency is sometimes claimed to be low in hedge funds and therefore alternative methods for evaluating and forming opinions of managers could be helpful. Current hedge fund managers can be helped in their creation of skilled and competitive investment teams where the members add relevant and important backgrounds in order to maximize the portfolio's return. Future hedge fund managers can receive guidance as to what kind of experiences that pay off when making their choice of career until the day they start managing their own hedge fund or become part of a hedge fund management team.

In theory, as there does not seem to have been any academic examination on this subject based on Swedish data, this thesis could make up a ground for further research within the area. The area of behavioral finance has been discussed since the concept was first introduced, but it now seems like it is increasingly gaining acceptance and popularity (Ineichen 2003, p. 170).

The characteristic variables chosen should capture the most important parts of the hedge fund managers' backgrounds and their skills sufficiently well in order to explain the resulting fund performance if there are any such linkages.

1.3 Disposition

The first part, introduction, which has already been presented, consists of a background to the topic and a motivation as to why this subject is interesting and important to study closer. Following this is a part regarding the purpose of this thesis. The rest of the thesis is disposed in the following way: The second part of this thesis presents previous research conducted on similar topics. This part is divided into two subparts where the first deals with hedge funds, and the latter with previous research on mutual funds. After this, we present our hypotheses on all variables tested for in the three regressions in the third section. Then the methodology section follows in section four. This section consists of a specification of the gathering of data and the regressions and tests made. The fifth section reports the results and provides the analysis. Finally, in section six, our main results are reported and we also discuss the possible implications of our study and give suggestions for further research on this topic.

2 Previous research

The hedge fund market is a considerably new one in the financial world. Even newer is the topic about whether the characteristics of hedge fund managers makes a difference in the return of the funds. This has some implications when it comes to previous research; there are not that many studies or articles on this topic.

We have chosen to divide our findings into two different parts. The first one describes the papers that deal with how the characteristics of hedge fund managers' impact the return of the fund. The second part describes the characteristics' of mutual fund managers' impact on the return of the fund. Within these categories we have chosen to first look at a national level and then include international studies.

2.1 Hedge fund performance linked to manager characteristics

To our knowledge, there has not been any research done about hedge fund managers' characteristics on Swedish data. One of the reasons might be the fact that the hedge fund market is even newer in Sweden than it is in, for example, the US. Furthermore, not that many Swedish hedge funds have had the same manager for a sufficient time period in order to qualify for studies, and this is also a problem we have been facing during the work with this thesis.

Worldwide, there is not that much research done in this specific field either. However, there is one American article by Maxam et al (2006) that deals with the very same thing as we will do in this thesis. This is also the study that inspired us to write about this particular topic. The article analyzes 147 hedge funds over the years 1994-2004 and uses the Four-factor alpha (calculated by using the Fama-French-model, 1993), the Omega measure and the Stutzer index to measure the performance of the hedge funds. When looking at the manager characteristics they use dummy variables specifying what strategy the fund is using, the age of the manager, if the manager has prior trading-, research analyst- or other banking background, if the manager has a master's degree, what type of major the manager has on an undergraduate degree level and if the undergraduate education is from a top-ranked university according to Barron's. The results from the regression analysis performed in this article conclude that managers with degrees from top-ranked schools in the US outperform their

peers, except for economics and technical fields. Managers with undergraduate degrees in economics from top-ranked US schools significantly underperform their peers. The same result is found for managers with a technical degree, but not with the same significance. Prior work experience was less influent, but trading experience was the most contributing variable within this group. Research analyst experience did not seem to influence performance very much, and neither did other experience. Concerning the funds' strategies, "special funds" outperformed the other strategies, consisting of long-short equity, arbitrage, market neutral, and multi-strategy. Special funds were defined as hedge funds using special situations strategies, such as Global Macro and Commodities classifications with high leverage opportunities.

Another thesis on this topic is written by Li et al (2009). They investigate whether manager characteristics such as SAT scores for the managers' undergraduate institutes, the total number of years working, the number of years working at the specific hedge fund and each manager's age influence the performance of the hedge funds. 4 131 funds where investigated in this study and the main findings were that managers from higher-SAT undergraduate institutes tend to have higher raw and risk-adjusted returns, more inflows and take less risk. In addition, they find that more experienced managers tend to have lower returns and take less risk, but also that managers with more years of working have lower risk-adjusted returns. However, the results regarding experience are weaker than those concerning SAT scores. In order to get these results, they used the Fama-McBeth regressions on a quarterly basis.

Boyson (2002) investigates whether experienced hedge fund managers, in contrary to managers of mutual funds, tend to take on less risk as their age and hence tenure increases since they might have "more to loose". The sample tested includes 982 funds with at least MUSD 5 under management and a track record of at least 24 months between January 1994 and December 2000. Furthermore, Boyson (2002) used standard deviation (absolute), tracking error (relative) and beta deviation (relative) as measures for risk. Performance is measured in three ways: simple excess of risk-free-rate return, a return adjusted for exposure to a number of passive indices (Carhart, 1997) and a put-option return (Agarwald and Naik, 2003) and the last measure which controls for exposure to hedge fund indices (Sharpe, 1992, 1994) and these indices should serve as a proxy for the specific risks faced by hedge funds. The main results of this study are that as age, tenure or fund size increases, both return and risk is reduced. When adjusting the returns for risk, they are no longer affected by tenure. The decrease in risk is motivated by career concerns. If the fund would fail, older managers have

more to loose in terms of reputation, current income and personal wealth. Firstly, older managers with longer tenure generally have more assets under management, and therefore the fund provides the older manager with their compensation. Secondly, hedge fund managers who have failed generally do not start a new hedge fund and only sometimes switch to the mutual fund industry where compensations are lower. This pay cut is more significant for older managers. Finally, older managers have invested more in the fund. These findings are contrary to findings within the mutual fund industry, where older managers take on more risk than do younger managers. The results regarding returns are, as far as manager tenure is concerned, that each additional year of experience reduces the annual return by -0.8 percent. Age is also negative and statistically significant.

Kouwenberg and Ziemba (2007) study how incentive fees and managers' own investment in the fund affects the investment strategy of hedge fund managers. They use hedge fund data from January 1995 to November 2000 where also terminated hedge funds are included to avoid the problem of survivorship bias. The results show that if a substantial part of the manager's own wealth (at least 30 percent) is invested in the fund, the risk taking is considerably reduced. The impact of higher incentive fees on volatility is however insignificant. Fund size is also an important factor in explaining the difference in risk between different funds, where larger funds have significantly higher returns and lower risk.

2.2 Mutual fund performance linked to manager characteristics

When broadening the subject to include mutual funds, there are much more research to be found. However, the characteristics of fund managers are not by far as explored as other topics regarding fund performance.

When searching for thesis's and articles in this category on a national, Swedish level, we found only one thesis that has contributed to this field of research. Folkerman (2009) studied the relationship between the performance of funds and the fund managers. In particular, she examines if the replacement of the manager of a fund affects the performance of the fund and hence if there is anything such as manager performance persistence. This is done by event studies comparing Jensen's alpha before and after the replacement of a fund manager. The results show that when a poorly performing fund replaces a manager, the fund is likely to experience a significant increase in performance while there is no statistically significant

support showing that a well performing fund will observe decreasing result when replacing the fund manager.

There are several topics more explored within the international mutual fund research such as performance persistence and choice of strategy, rather than the relation between manager skills/characteristics and fund performance. However, we have discovered some articles that relate relatively closely to our topic and a brief summary of these follows.

Poole et al (2006) examined whether fund manager's educational level and experience affect the performance of the fund. The article is based on the performance of 76 funds and with the use of t-tests they tested for difference in risk-adjusted returns and asset size of funds. The results showed that managers with graduate degrees did not perform differently from managers without graduate degrees. However, managers with graduate degrees from the top 20 MBA programs outperformed those with MBA degrees from schools not listed on the top 50 Wall Street Journal list.

Baks (2003) examined the performance of domestic diversified equity mutual fund managers. The 2 086 American managers are examined over the time period 1992 to 1999. Baks (2003) uses a Cobb-Douglas production function with manager skill and fund skill in order to evaluate the manager's contribution. A regression is performed where the fund's alpha before the current manager is one explanatory variable, and the alpha generated by the manager before entering the current fund is the other explanatory variable. The result shows that the contribution of the manager ranges from approximately 10 to 50 percent, concluding that the fund manager's skill is not as important as the fund's skill when it comes to generating returns.

There are several other international studies regarding the relationship between fund performance and the level and quality of the manager's education. Chevalier and Ellison (1999) studied 2 029 mutual fund managers and their ability to predict the performance of their respective fund for the coming year. Their findings imply that, after having controlled for risk, survivorship bias and fees, the seat of learning was the most important variable in explaining future expected results. Fund managers from more selective undergraduate institutions performed better, where the level of selectiveness is measures by the mean composite SAT score. In addition, they found that age affected the performance, where younger managers outperformed others.

Golec (1996) examined the age, tenure and educational level of fund managers and found that younger managers with longer tenure and higher educational level produced higher risk-adjusted returns. Gallagher (2001) examined how Australian investment management organizations' characteristics and employed strategies affect performance. He evaluates performance for actively managed institutional balanced funds, Australian share funds and Australian bond funds. Balanced mandates are evaluated on strategy employed, the experience and qualifications of the investment professionals as well as tenure of the key investment professionals. Determinants of performance are alpha, beta and management fees. The strategy of the fund is statistically significant on a one percent level for all performance measures. Tenure of non-senior management has a negative impact on the alpha of the fund and is statistically significant on a one percent level. Gallagher found no link between manager's educational level and mutual fund performance. On the same topic, there is the study by Philpot and Peterson (2006) who analyzed the impact of individual manager characteristics on real estate mutual fund performance. 63 real estate mutual funds over the period 2001-2003 are included in the sample. For each fund, alpha, beta, management fees, turnover rate and net asset value are calculated, and for each fund manager, tenure in years, certification (professional or not professional), whether the manager works in a team or individually and whether the manager has previous experience from the real estate industry is documented. The impacts of the manager characteristics on the funds' returns, risk and fees are then examined by using regression analysis. Both the ordinary least squares (OLS) method and a three-stage least squares (3SLS) method are applied, and the results from these two regression methods are in line with each other. Findings imply that better compensated managers provide higher returns, but there does not seem to be any effect from turnover or assets on fund performance. Considering the manager characteristics variables, tenure, certification and experience do not seem to affect fund performance, while individually managed funds tend to outperform team managed funds. Other results are that funds with higher fees take on more risk, possibly to compensate for the large deduction from gross return when reporting net return. There does not seem to be any relation between turnover and risk level or between fund size and risk. Of the manager characteristics, only tenure seems to affect the risk level, where longer tenure increases the level of risk. Considering fees, funds with higher alpha have higher fees, but there is no such relationship between the turnover and the fees. There seems to be a slightly negative connection between assets under management and the fees, whereas none of the manager characteristic variables are related to the fees of the funds.

Menkhoff et al (2005) examined if inexperienced fund managers take higher risks. They performed a survey where 117 German fund managers answered a questionnaire. Tenure and professional experience were grouped into one category and herding was used as a measure of risk taking, where a higher degree of herding corresponds to lower risk taking. Another measure of risk taking was based on the answers to the question:

> Imagine someone offers you a bet and the odds are fifty-fifty. You will have to pay EUR 100, if you lose. What would be the minimum amount to win to lure you into accepting the bet?

The answers on the above question led to the conclusion that the degree of risk taking decreased with experience, but when using herding behavior as a proxy for risk taking, the opposite result was found. They discuss the possibility that the experience gained from a learning process helps to better estimate the true volatility in asset prices, which may lead to a more risk averse behavior. The more experienced the managers get, the less they herd since they regard their own ability as better than others. They therefore dare to take individual paths instead of herd. Over all, they come to the conclusion that inexperienced managers do take higher risks.

3 Hypotheses

Below is a presentation of our hypotheses regarding the explanatory variables for which we have chosen to examine the impact on return, risk and risk-adjusted return.

3.1 Strategy applied

The strategy variable is included in order to serve as a fund characteristic rather than a manager characteristic. As we explain further in section 4 Methodology, four different strategy categories were identified – *long-short equity*, *fixed income/FX/macro*, *multistrategy* and *managed futures*, which mainly includes managed futures and commodity funds. Regarding the strategy's effect on performance, the hypothesis is that the strategy applied will not have a significant effect on the return of the fund. The reason is that we believe that manager characteristics rather than the fund's characteristics will affect return.

One thing that could possibly make the strategy variable affect performance is the weak performance of equities during the time period examined here. The negative development of the equity market is hence perceived as a possibility of making the long-short equity strategy distinguish itself from the other strategies. However, absolute return funds choosing the long-short equity strategy have the possibility to sell short and thereby profit on the stock market's downturns. Some countries imposed restrictions on short selling in the autumn 2008, but it was never introduced in Sweden (Swedish Central Bank, 2009). It is however possible that these restrictions affected the funds included in the sample, but the hypothesis here is that the choice of strategy does not affect the return of the fund.

Considering the risk of the different strategies, our hypothesis is that long short equity funds have had higher risk, as measured by standard deviation. This is because the equity market was very volatile during the examined period and many companies' equity values declined heavily. Hedge funds can though sell short in order to make gains on declining equity markets, but despite this opportunity we believe the standard deviation to be relatively higher for equity funds. Thus, in contrary to the reasoning on strategy and return, we believe that the fund characteristic is important in this context, when explaining risk.

When adjusting the returns for risk, a relatively lower Sharpe ratio is expected for long short equity funds as compared to the other strategies. This is also a consequence of our previous

hypotheses considering strategy; the perceived equality in returns and the higher risk for equity funds directly imply that the Sharpe ratio should be lower for this strategy.

3.2 Seat of learning

Although many years have passed since most of the fund managers left school, seat of learning was included as a variable in our study. The idea behind including this variable was that it might serve as a proxy for level of ambition. The same kind of reasoning have been found in other studies, for example do Li, Zhang and Zhao's study from 2009 proxy talent by intelligence and education, and several other studies presented in section 2 Previous research, examine any possible relation between the ranking of fund managers' universities and the return of the managed funds. Since no formal ranking is carried out on Swedish seats of learning, we use the minimum entry qualifications of each university instead. The level of ambition is though something that might change with time, but despite this potential problem, the hypothesis here is that fund managers that have their degree from a university with a higher minimum entry qualification perform better.

Preferably, minimum entry qualifications from the 1970s and 1980s, when most of the fund managers in the sample were students would have been collected, but unfortunately these data were not available from SCB or VHS. Instead, we look at present data. The entry scores might have changed since the 1970s and 1980s when most of the fund managers were students, implying yet another potential problem. From VHS data on minimum entry qualifications from 2008/2009 were acquired (VHS, 2009). The school in the sample that had the highest minimum entry qualifications were Stockholm School of Economics with 20.00 out of 20.00. Below is a summary of the minimum entry qualifications from 2008/2009 for the educations in business and economics represented in the sample:

Table 1: Minimum entry qualifications autumn 2008

BUSINESS AND ECONOMICS	GPA*
Lund University	18.15
SSE	20.00
Stockholm University	18.27
Uppsala University	18.00
Örebro University	12.45
Gothenburg University	18.60
Mid Sweden University	11.30

ENGINEERING	GPA*
Lund University	15.73
Royal Institute of Technology	15.99
Kalmar University	8.62

*Out of 20.00

Within the business and economics educations no majors were taken into consideration for simplifying reasons, and at the seats of learning where several majors were offered, an average entry score for all these were calculated by weighting the number of seats on each major.

Another potential problem is that among the fund managers finally included three different technological educations were identified at two different seats of learning. At Lund University, two managers had studied Engineering Physics and one had studied System Sciences, whereas the two fund managers with backgrounds at The Royal Institute of Technology had both studied Mechanical Engineering. Hence, the comparison gets aggravated since different programs were enrolled at the different seats of learning. In addition, System Sciences is the only program out of these that does not lead to a Master of Science in Engineering, but for simplifying reasons and in order to be able to compare the minimum entry qualifications at the two different schools, an average of all educations leading to a Master of Science in Engineering was calculated. In these calculations, consideration was taken to the number of seats at each program, resulting in a weighted average of the minimum entry qualification requirements. The Royal Institute of Technology‘s weighted minimum score of 15.99 is slightly higher than Lund University’s 15.73.

A third potential problem is that most of the funds are managed by teams where several different backgrounds and in many cases several different seats of learning are represented. Therefore it might be hard to relate the performance of the fund to the responsible fund

manager and his or hers educational background. This is though a problem consistently throughout the thesis, something that is further discussed in section 4 Methodology.

The hypothesis here is that fund managers that have been studying at Stockholm School of Economics would generate higher returns than the other groups, since this is the only seat of learning where the maximum grade is required in order to be qualified and admitted.

Considering the risk, we expect there to be differences between the different seats of learning. Hence, we think there is a negative relation between individuals' risk aversion and their level of ambition, and more ambitious people will tend to take on more risk. When adjusting return for risk, a consequence of the above reasoning implies an ambiguous result where the effects might cancel out, but we believe that former SSE students generate lower Sharpe ratios due to a dominance of the risk effect.

3.2 Subject of study

Since most of the fund managers were students at post-upper secondary schools in the 1970s and 1980s, they have accumulated a lot of practical knowledge since their educational feats were achieved. Therefore, it might be the case that what they learned at university could be less relevant for what they perform today. A problem in this case too is that most of the hedge funds are managed by teams where several different educational backgrounds might be represented, and therefore the educational background of the responsible fund manager might not have a significant impact on the performance of the fund. However, we do think that students obtain knowledge in the subject studied, making up a ground for the future career. The subject of study also has a signaling value to employers, giving the graduates a possibility to reveal their interests and their wish to work within a particular area. We find the hedge fund industry to be more closely related to business and economics than to technological fields, and therefore our hypothesis is that former business and economics students will generate higher returns than others. Concerning the risk of the fund, we do not see any reasons why former studies in business and economics would affect the fund manager's level of risk aversion. It might though be the case that people with a certain attitude to risk choose to study a field such as finance, where risk plays a central role. However, we did not control for the major within the subject of study, and we also combined business and economics into one group, making the grouping relatively rough. In conclusion, the hypothesis is that the risk is not affected by former studies in business and economics for the responsible fund manager.

Since return is expected to be positively affected and risk is not perceived to be affected by the responsible fund manager's former subject of study, the hypothesis regarding the risk adjusted return is therefore that this will be positively affected by former studies in business and economics.

3.3 Age

Does age of the fund manager affect performance of the fund? We think there might be a connection between the age of the responsible hedge fund manager and the performance of the fund. The older managers often have more experience and are expected to be more skilled. The hypothesis is therefore that older managers generate higher returns.

Considering hedge fund managers' risk aversion, Boyson's study, as presented in section 2 Previous research, finds that older managers have higher risk aversion. With this background it would be interesting to test whether a higher age results in lower risk of the fund in our sample. Our hypothesis is that older managers will generate lower positive returns in a bullish market but also less negative returns in a bearish market. Therefore, the hypothesis regarding risk is that older managers are expected to take on less risk.

Considering the risk adjusted returns, younger hedge fund managers are here expected to take on higher risk and therefore, as a result of the time period from which the input data is taken, the hypothesis is that older managers will generate higher risk adjusted returns.

3.4 Trading experience

Traders who are responsible for their own positions get experience on an important part of the management of funds. One thing that trading and hedge funds have in common is the objective of generating absolute returns. There might also be cases where successful traders decide to become their own employer and therefore start a hedge fund, something that might imply a bias towards more skilled traders in the sample. The hypothesis is that hedge fund managers with trading experience generate higher returns. Considering the level of risk, we believe that extensive trading experience where the trader is constantly exposed to risk may result in a perception that one is more able to handle the risk and therefore in a lower level of risk aversion. The hypothesis regarding risk level is then that former trading experience increases the risk level. Therefore, the expected result regarding the risk adjusted returns is

somewhat ambiguous, since there are offsetting effects from the higher expected return and the higher expected risk level. Our hypothesis is however that the Sharpe ratio is higher for former traders.

3.5 Analytical experience

Most of the fund managers with previous experiences as analysts manage long short equity funds today, and this fund type make up the largest share of our sample. The second largest group of former analysts now manage FX/Macro funds. Most of the former analysts have experience from equity research and therefore have training in forecasting companies' prospects and future earnings. This is something that could be relevant in the management of long-short equity funds, and we think this experience can have a positive affect on the results regarding return. The hypothesis here is that analytical experience will increase return. In contradiction, we do not see any reason why former analysts would take on more risk. Perhaps, one could argue that former equity analysts get more used to judging future earning abilities, leading to some sort of overconfidence and hence less risk aversion, but we do not think this is the case. The hypothesis regarding risk is therefore that analytical experience does not increase risk. The resulting hypothesis considering the risk adjusted return is a higher Sharpe ratio for funds managed by a former analyst.

3.6 Private investment

Most of the fund managers in the sample had invested private funds in the hedge fund. This is implicitly required by investors in order to increase confidence in the fund manager. It might be due to the relatively low transparency of hedge funds, as discussed in section 1 Introduction, where the investment of private funds act as a signaling tool in order to compensate for information asymmetries between the fund manager and investors. The variable mainly affected by this is, according to us, the risk level, and the hypothesis here is that the investment of private funds leads to a higher risk aversion and hence lower risk. Correspondingly, in a bearish market like the time period examined, we expect the returns to be higher for lower risk levels. Hence, the hypothesis regarding return is that private investment will increase returns, and the resulting hypothesis regarding risk adjusted return is that it will increase with private investment.

3.7 Tenure

This variable is to some extent correlated (0.3210) with the age variable, but there are several cases where younger managers have longer tenure than older ones. Hence, we do not think the correlation between these two variables will disturb our results very much. Philpot and Peterson found in their study from 2006 that tenure had no effect on return but that it increased the **risk** level of real estate mutual funds. Boyson found that tenure decreased **risk** taking among hedge fund managers. In our sample, we expect tenure to increase returns by increasing the skill of the manager. The hypothesis considering tenure and return is therefore that longer tenure will increase returns. Regarding the risk level, we expect the findings to indicate no relation between tenure and risk. Instead, we think it is rather the age variable that affects the level of risk, since an old manager with little tenure still might prefer a lower risk level. The hypothesis regarding risk is therefore that longer tenure will not affect the risk level of the fund. Risk adjusted return will therefore be positively effected by tenure, and therefore the hypothesis regarding risk adjusted return is that tenure has a positive effect on this.

3.8 Summary of hypotheses

Table 2: Summary of hypotheses

	Return	Risk	Risk-adjusted return
Strategy	no effect	positive	negative
Seat of learning *	positive	positive	negative
Subject of study **	positive	no effect	positive
Age	positive	negative	positive
Trading experience	positive	positive	positive
Analytical experience	positive	no effect	positive
Private investment	positive	negative	positive
Tenure	positive	no effect	positive

* effects from seat of learning corresponds to former SSE students' effect on the dependent variables, as discussed in section 3.2

** effects from subject of study corresponds to former business and economics students' effect on the dependent variables, as discussed in section 3.3

4 Methodology

4.1 Gathering of data

Funds to include in the sample

Swedish FMCs and supervision requirements

The first task was to find out which funds and fund managers to include in the thesis. The objective was to find as many funds as possible with the goal of generating absolute return, while still maintaining an unambiguous connection between the Fund Management Company, hereafter FMC, and Sweden. This excluded all foreign FMCs, but in some cases the fund itself was registered offshore, that is outside Sweden. Information on what companies that were available was initially obtained from the Swedish Financial Supervisory Authority, hereafter Swedish FSA (Swedish Financial Supervisory Authority, 2009). The Swedish FSA collect information on FMCs regularly and FMCs managing special funds report only the funds' risk measurements. The general list of FMCs that report to the Swedish FSA included many companies that do not manage special funds and therefore these were excluded from the sample, and due to legal structures and mergers and acquisitions in the financial industry not all funds included in the thesis were in the list. Some of the funds were found at Morningstar (Morningstar, 2009), at Avanza (Avanza, 2009), or at the FMCs' websites where the legal structures were explained.

Hedge funds can thus be registered in offshore or onshore locations. Approximately half of the hedge funds globally were registered offshore at end-2008. Of the onshore locations, the United States was the most popular with approximately two-thirds of the number of funds, while Europe was second with most of the remainder. While hedge funds are registered offshore in half of the cases, they are predominantly managed from onshore locations. Around two-thirds of the global hedge fund assets are managed from locations in the United States, while European locations counted for approximately 20 percent (International Financial Services London, 2009). While Europe has a small share of the global market for hedge funds, Sweden in turn has a small share of the European market. Sweden consequently is a small market with few investors and few hedge fund managers. This resulted in an important restriction to the sample size from the beginning. One method to increase the sample could

have been to cover the Nordic region rather than Sweden only, but instead the time period was reduced to cover 24 months rather than five years as initially planned.

Historical track record of the funds

Having an unambiguous connection to Sweden was not enough in order to be qualified for the sample. A sufficiently long history of the fund was necessary and the minimum requirement was set to two years. The funds therefore had to have at least 24 months of historical return in order to make it into the sample. This became another factor restricting the sample size. For this reason, the time period would preferentially have been longer than this but the last two years have been challenging for the financial industry among others and globally, about 1 200 hedge funds have ceased to exist between June 2008 and June 2009 (Dagens Industri, 2009). In 2007 many hedge funds "suffered large losses, triggering margin calls and fire sales" (Brunnermeier, 2009), and in 2008 two out of three hedge funds lost money (The New York Times, 2009). The fact that many absolute return funds have ceased to exist during the last years limits the sample size and also implies a survivorship bias, something that is further discussed in section 4.2 Regressions and tests. However, the fact that the track record of our sample consists of 24 months has the positive effect of decreasing the possible survivorship bias in our sample.

Since the performance data was chosen to cover the time period ranging from June 2007 to May 2009, this thesis will study if and in best case how different backgrounds affect performance in a turbulent and declining economic climate. The motive behind choosing this time period specifically was to interview the fund manager currently responsible for the fund and also to facilitate the collection of data as former fund managers would have had to be identified and found otherwise.

Interviews and performance data gathering

Historical track record of the fund managers

Once having decided on which funds to include, the interviews started. By making phone calls to all FMCs, the fund manager in charge of the particular fund was interviewed. Ideally, the entire teams had been interviewed in order to get a more comprehensive picture of what skills and backgrounds there are behind the decisions taken in the management of the fund, but due to the proportions of the thesis the collecting of data then would have been too

extensive as the managers are not seldom out of the office, in meetings or just very occupied and therefore hard to reach even for a short interview.

The facts mentioned above that many hedge funds have had troubles and some have even disappeared in the last years have led to the replacement of fund managers in some of the funds initially planned to include in the sample, implying that further funds had to be excluded. Sometimes the information on how long the manager had been in charge of the fund was possible to obtain at Morningstar, while in many cases it was not until the interview was already performed that too recently appointed fund managers were discovered, leading to an exclusion of the fund upon the interview.

Background characteristics of fund managers

Since the thesis aims at finding out whether the responsible fund managers' background affect performance of the fund the objective was to gather information on relevant experiences and some additional facts that could be relevant for current performance. In order to find out what questions were necessary to ask and which ones to exclude or adjust, a pilot study was performed including the first five interviews. The managers that were interviewed came up with suggestions that led to the final questions, which can be found in Appendix 1.

Initially, the experiences aimed at being included were seat of learning for post-upper secondary school education, main subject of study, whether the manager had previous experience as a trader, if the manager had been working with absolute return in excess of trading prior to start of management of the fund, whether the manager had been working as analyst before managing the fund and finally whether the manager had experience from the relative return industry in excess of analyst experience. In addition to these variables the intention was to include the time that the manager had been working with the fund, the managers' age and whether the manager had invested private money in the fund or not.

It is possible that seat of learning is not relevant in itself as in most cases many years have passed since the fund managers in the sample graduated. The question is whether this variable can be seen as a proxy for the level of ambition of the students? Some seats of learning are more popular than others, presumably because of high quality leading to good reputation and perhaps also because of their location. This attracts the students with the highest grades and therefore leads to high competition.

Of the fund managers finally included in the sample, 36 had studied business and economics and six had studied technology. Some of the fund managers being interviewed had studied law, but none of these were included in the final sample. Three fund managers had studied business and administration as well as technology, while two managers had other educational background or no post-upper secondary school education. The subject of study could be relevant for many reasons. In the US article, Maxam et al showed that hedge fund managers with technologic or economic educational background perform worse than others. In contrary to this and as argued in section 3 Hypotheses, we see several reasons why subject of study would have an impact on the dependent variables studied.

We also wanted to study whether trading background could have any impact on fund performance. The reasoning behind this, as stated in section 3 Hypotheses, is that since traders, similar to hedge fund managers, have the goal of generating absolute returns they are more experienced within this field. Whether they actually generate larger returns or take on more risk was something we wanted to test on our data. Therefore the managers were asked about their possible trading experience. Here broker experience was not considered as trading as it includes trading on orders from clients. Also, we believed that analytical skills could be relevant and therefore asked the managers about their possible experience as analysts. As stated above, possible prior experience from absolute return funds and the relative return industry were initially intended to be included, but as these variables are closely related to trading background and analytical background, respectively, they were excluded in order to reduce possible problems with multicollinearity. The experience variables left were therefore reduced to include seat of learning, main subject of study and possible trading or analytical experience.

Not only background characteristics of managers were gathered, also the strategy applied by the fund was obtained. The reason for including this variable despite the fact that it is a fund characteristic rather than a manager characteristic was that we wanted to have at least one variable capturing fund specific factors that could potentially affect risk and return. Examining strategies can possibly be criticized for being outside the purpose of this thesis, but the intention is to see whether the strategy applied affects the results of the fund or not. If this would be the case, we would be able to attribute a fund's performance to fund characteristics rather than manager characteristics, in similarity to the study by Baks. Sometimes the strategy of the fund was clearly stated in the fund's fact sheet, but in some cases clarifications had to be made during the interviews. Four different categories were defined: *long-short equity, fixed*

income/FX/macro, *multistrategy* and *managed futures*. Initially, other strategies such as arbitrage and fund-of-hedge funds were intended to be included, but none of the finally included hedge funds used the arbitrage strategy and we chose to exclude the fund-of-hedge funds. The final sample where the pilot study's fund managers were excluded turned out to contain 26 long-short equity funds, eight fixed income/FX/macro funds, one multistrategy fund and six managed futures accounts, totaling in 41 different funds and fund managers. With only one multistrategy fund, it will not be possible to draw any conclusions from the regression results regarding this category, and there may also be difficulties in the interpretation of the regression results on fixed income/FX/macro as well as managed futures. Therefore, all strategies except long-short equity are included in the base case.

As mentioned above some managers were excluded upon the interview due to the lack of tenure, and in order to find the too recently appointed fund managers one of the questions asked was the time that the manager had spent as responsible manager at the current fund. This variable was also used in order to check for tenure effects of the managers.

Age was another variable we wanted to include. Therefore the birth years of the fund managers were collected. Would older managers be more risk averse, as in Boyson's study, or would their longer life experience and possibly longer careers within finance result in higher returns? Or would they be content about their achievements and therefore preserve their reputation rather than fight hard to build it up as younger managers might still try to? Out of the 41 managers finally included in the sample the oldest is born in 1954 and the youngest in 1975, resulting in a 21 year spread between the oldest and the youngest. Nine were born in the 1950s, 24 managers were born in the 1960s and eight in the 1970s.

Lastly, whether the managers had invested private funds in their respective funds was also checked for, as the intention was to see whether this created larger incentives or possibly affected risk aversion.

As the data collection have been based on telephone interviews one should bear in mind that there might be subjectivity in the answers, and sometimes approximations have been made by the fund managers in order to simplify and being able to answer the questions.

Gathering and treatment of performance data

The return data was firstly collected from Bloomberg but since not all funds were possible to find there the funds' websites were the second source. The websites often contain monthly

reports where the fund's performance, in best cases historical returns too and not just last month's performance is revealed. When performance was reported as net asset value, as it was in Bloomberg, it was transformed into percentage change on a monthly basis instead. Since all background characteristics included except age were fixed during the period when the fund's performance was measured, the performances used as input in the regressions were measured as average monthly return during the entire period. In empirical literature, risk taking of funds is most often measured as either standard deviation of returns or herding among fund managers. We chose to apply the standard deviation measure. The monthly standard deviation was therefore calculated in order to be used as input in the risk adjusted measurements of the funds' performances. The objective was to measure the risk adjusted return as a Sharpe ratio, where the return data of the funds are adjusted for the risk-free rate of return and the standard deviation. Therefore a risk free interest rate was required as input. Here the problem was to choose which interest rate to use, as different funds use different benchmarks. Some absolute return funds included in this thesis' sample compare the return to the STIBOR 30 days or 90 days or the Swedish index OMRX TBILL, but several other benchmarks exist in the sample. It was therefore decided that all funds would be benchmarked against the same interest rate in order to obtain consistency in results, and STIBOR 30 days was chosen as the risk free interest rate. As STIBOR is reported in an annual rate, monthly rates were calculated and later transformed into an average rate for the entire period being examined, as was performed on the funds' return data.

4.2 Regressions and tests

Potential problems

Multicollinearity

If the R^2 value is high (above 0.8) but the significance of the coefficients is low, there are strong reasons to suspect multicollinearity. Since none of our regressions had an R^2 value as high as 0.8, this does not indicate any multicollinearity. Another way to analyze this problem is to look at the correlation between the different variables. High correlation between two or more variables (above 0.8) indicates multicollinearity. When constructing a correlation matrix in STATA (see Table 3) we found the highest absolute correlation between two variables to be 0.4578. This value is also too low to suspect multicollinearity.

Table 3: Correlation between the independent variables included in the regressions

	L/S Equity	Lunds University	SSE	Stockholm University	Business and Economics	Year of birth	Trading background	Private investment	Tenure	Analytical background
L/S Equity	1									
Lunds University	-0.0093	1								
SSE	0.1171	-0.2981	1							
Stockholm University	0.2314	-0.2981	-0.3667	1						
Business and Economics	0.3359	-0.3807	0.2257	0.2257	1					
Year of birth	-0.0791	0.1138	-0.0508	0.2321	-0.2485	1				
Trading background	-0.4136	-0.129	-0.0727	-0.0067	-0.00352	0.173	1			
Private investment in fund	0.2622	-0.0455	0.0136	0.1991	0.1287	0.2785	0.0913	1		
Tenure	-0.2412	-0.1255	0.4578	-0.0911	-0.0021	0.321	0.2369	0.3	1	
Analytical background	0.1376	-0.0723	0.3572	-0.0284	0.1534	-0.0437	-0.3562	0.1501	0.1721	1

Heteroscedasticity

When trying to find out whether there is a problem of heteroscedasticity in the model, it is useful to analyze the residuals from the regressions. The residuals show the deviation between the sample and the estimated model, and therefore higher values of the residuals imply a less accurate model. From the graphs shown in Appendix 2**,** one can see that higher values for the dependent variables have larger residuals. Hence, we do have the problem of heteroscedasticity in our data. To correct for the problem of heteroscedasticity in our regression models, we have used the "*White's Heteroscedasticity-Consistent Variance and Standard errors"* (Gujarati 2003, p. 417) which corrects the standard errors for heteroscedasticity. This is also known as robust standard errors and we have used this in STATA for all our regressions.

Autocorrelation

We have not made any underlying assumption regarding autocorrelation between standard errors among the observations because under random sampling, two different residuals are independent for any two observations. (Gujarati 2003, pp. 442-443) Hence, autocorrelation is not considered a problem in our dataset.

Survivorship bias

Survivorship bias is a problem in our data sample. Many of the hedge funds intended to be included in our sample have not been around for as long as the two years we have examined, and others have disappeared during this time. As mentioned above, 1 200 hedge funds worldwide were liquidated during the period June 2008-June 2009. This issue is unavoidable for us to face since we do not have access to a database where also liquidated funds appear. The only thing we could do about it was to shorten the time period examined, which would

reduce the survivorship bias, be over explicit about the problem and encourage readers to bear this in mind when reading the results of this thesis.

Omitted variable bias (underspecifying problem)

It might be that we should have included more fund specific variables, or even FMC specific variables such as assets under management, capital inflow, turnover rate, age of fund, management fees, size of management team etcetera. Among the explanatory variables included we, for example, suspect that the age of the managers in many cases are correlated to the age of the fund since in many cases the responsible fund managers is also the founder of the fund or FMC. It could also be that the tenure of the manager is correlated with a variable such as assets under management and the level of management fees. Hence, if any of the omitted variables do have an impact on the dependent variables and there is correlation between the explanatory variables included and those omitted, we have biased coefficients in our regressions. As mentioned above, the sign of the bias depends on the correlation between the omitted variable and the other variables, and also the sign of the omitted variable's coefficient. For example, if tenure is positively correlated with assets under management in our regression of return, and assets under management would have had a positive effect on return, all explanatory variables' coefficients would be positively biased and hence our regression result overstates the impact of the explanatory variables on fund return.

As we discussed in section 1 Introduction, the strategy applied is the only fund specific characteristic included in our model.

Regressions

Base case

Since the data contains dummy variables a base case has to be constructed in order to serve as a benchmark for the dummies. Otherwise there will be perfect collinearity between these variables. The information contained in the base case is the same as will be found in the regressions' constants, and therefore the regression variables' coefficients are relative the base case's results. When deciding on which variables to include in the base case the number of observations of each variable was considered. If several variables have few observations all of these are included in the base case, even if they are in the same category. All the independent variables can be found in Appendix 3.

Regression 1: Average monthly return

$$Average\ return = \beta_0 + \delta_0 LS\ Equity + \delta_1 Lund\ University + \delta_2 SSE + \delta_3 SU + \delta_4 Business\ \&\ Economics + \delta_5 Age + \delta_6 Trading + \delta_7 Analyst + \delta_8 Private\ investment + \delta_9 Tenure + \varepsilon$$

The first regression performed was the average monthly return of the funds on the strategy long-short equity, the three seats of learning Lund University, Stockholm School of Economics and Stockholm University, those who had business and economics as their major subject of study, the fund managers' age, their trading background as measured in years and finally equity analyst experience as measured in years.

Regression 2: Standard deviation

$$Standard\ deviation = \beta_0 + \delta_0 LS\ Equity + \delta_1 Lund\ University + \delta_2 SSE + \delta_3 SU + \delta_4 Business\ \&\ Economics + \delta_5 Age + \delta_6 Trading + \delta_7 Analyst + \delta_8 Private\ investment + \delta_9 Tenure + \varepsilon$$

Secondly, a regression of the funds' standard deviations on the same variables as in regression one was performed. This is done in order to check whether the variables stated above explain the risk level undertaken by the different fund managers, measured as standard deviation of monthly return data of each fund. For example, as stated in section 2 Previous research, previous studies have revealed that the hedge fund managers' age affects the risk level of the funds.

Regression 3: Sharpe ratio

$$Sharpe\ ratio = \beta_0 + \delta_0 LS\ Equity + \delta_1 Lund\ University + \delta_2 SSE + \delta_3 SU + \delta_4 Business\ \&\ Economics + \delta_5 Age + \delta_6 Trading + \delta_7 Analyst + \delta_8 Private\ investment + \delta_9 Tenure + \varepsilon$$

The third regression performed is the funds' Sharpe ratios on the same explanatory variables as in Regression 1 and 2.

The assumptions underlying these regressions can be found in Appendix 4.

5 Results and analysis

5.1 Results

Regression 1: Average monthly return

Table 4: Linear regression with robust standard errors

	Coefficient	Standard error	t-value	P>|t|	[95% Conf, Interval]	
Long-short Equity	0.3878	0.1124	3.4500	**0.0020**	0.1584	0.6173
Lunds univeristy	-0.2305	0.1438	-1.6000	0.1190	-0.5241	0.0632
Stockholm School of Economics	-0.0870	0.1837	-0.4700	0.6390	-0.4622	0.2883
Stockholm University	-0.2462	0.1473	-1.6700	0.1050	-0.5470	0.0545
Business and Economics	-0.3967	0.1725	-2.3000	**0.0290**	-0.7490	-0.0443
Age	-0.0082	0.0092	-0.8900	0.3790	-0.0269	0.0105
Trading background	0.0000	0.0005	-0.0600	0.9510	-0.0011	0.0010
Private investment in fund	-0.2043	0.1412	-1.4500	0.1580	-0.4927	0.0840
Tenure	0.0019	0.0024	0.8100	0.4250	-0.0029	0.0068
Analytical background	0.0010	0.0011	0.9200	0.3640	-0.0012	0.0033
Intercept	16.6058	18.0232	0.9200	0.3640	-20.2024	53.4140

In the first regression, where the average monthly return is regressed on the independent variables, we obtain significant results for long-short equity funds on a 0.2 percent level. That is, 0.2 percent is the lowest level for which we can reject the hypothesis that the long-short equity strategy outperforms the others by approximately 0.39 percent. Hence, all other things equal, a fund applying the long-short equity strategy will generate nearly 0.39 percent higher return than the base case as composed by the other strategies. When comparing the seats of learning, none of Lund University, SSE or Stockholm University generates any values of statistical significance. Out of the other variables tested, only subject of study shows significant results. Former students of business and economics seem to have performed nearly 0.40 percent worse per month than the others during the time period examined, and this is statistically significant on a 2.9 percent level. Age, private investment in the fund, former experiences and tenure do not seem to affect the average monthly return of the funds. The explanatory power of the model is 0.3964, as shown by the R^2 value.

Regression 2: Standard deviation

Table 5: Linear regression with robust standard errors

	Coefficient	Standard error	t-value	P>|t|	[95% Conf, Interval]	
Long-short Equity	3.5157	1.2863	2.7300	**0.0100**	0.8886	6.1428
Lunds univeristy	-2.7504	1.5877	-1.7300	0.0930	-5.9930	0.4922
Stockholm School of Economics	-0.6850	2.0277	-0.3400	0.7380	-4.8263	3.4562
Stockholm University	-2.5459	1.6664	-1.5300	0.1370	-5.9492	0.8573
Business and Economics	-4.8420	1.9127	-2.5300	**0.0170**	-8.7482	-0.9358
Age	-0.1538	0.1113	-1.3800	0.1770	-0.3810	0.0735
Trading background	-0.0056	0.0065	-0.8700	0.3900	-0.0188	0.0076
Private investment in fund	-3.0917	1.8831	-1.6400	0.1110	-6.9375	0.7541
Tenure	0.0222	0.0284	0.7800	0.4420	-0.0359	0.0803
Analytical background	0.0120	0.0120	0.9900	0.3280	-0.0126	0.0365
Intercept	311.7656	219.0013	1.4200	0.1650	-135.4947	759.0260

When the dependent variable is risk, as measured by standard deviation of the funds, long-short equity obtains a coefficient that is approximately 3.52 higher than the other strategies, implying a larger risk for long-short equity funds. The result is statistically significant on a one percent level. Hence, the long-short equity strategy seems to have been more volatile than the other strategies during the elapsed time period. Furthermore, fund managers with previous studies in business and economics seem to take on less risk than others, as indicated by the negative coefficient of -4.84, and this coefficient is statistically significant on a 1.7 percent level. In addition, former students at Lund University seem to take on less risk, but this is only statistically significant on a 9.3 percent level and hence the result is not very reliable. The R^2 value equals 0.4219 in this regression.

Regression 3: Sharpe ratio

Table 6: Linear regression with robust standard errors

	Coefficient	Standard error	t-value	P>|t|	[95% Conf, Interval]	
Long-short Equity	0.1322	0.0556	2.3800	**0.0240**	0.0188	0.2457
Lunds univeristy	-0.0314	0.0659	-0.4800	0.6380	-0.1659	0.1032
Stockholm School of Economics	-0.0062	0.0650	-0.0900	0.9250	-0.1390	0.1267
Stockholm University	-0.0039	0.0638	-0.0600	0.9510	-0.1342	0.1264
Business and Economics	-0.1485	0.0551	-2.6900	**0.0110**	-0.2610	-0.0360
Age	0.0015	0.0049	0.3100	0.7620	-0.0085	0.0115
Trading background	-0.0001	0.0003	-0.2100	0.8360	-0.0007	0.0006
Private investment in fund	-0.1386	0.0638	-2.1700	**0.0380**	-0.2688	-0.0084
Tenure	0.0016	0.0012	1.3500	0.1870	-0.0008	0.0041
Analytical background	0.0006	0.0004	1.4900	0.1460	-0.0002	0.0013
Intercept	-2.9274	9.6087	-0.3000	0.7630	-22.5511	16.6963

When adjusting the returns for risk, as measured by the Sharpe ratio, we get significant results for three of the independent variables: long-short equity, former studies in business and economics and private investment in the fund all show significant results on a five percent level. Hence, long-short equity funds generate higher risk adjusted returns than other types of funds, as indicated by the positive coefficient of approximately 0.13, and this is statistically significant on a 2.4 percent level. Former students of business and economics generate less return as implied by the negative coefficient of approximately -0.15, which is statistically significant on a 1.1 percent level. The negative coefficient of approximately -0.14 for the private investment in funds variable implies a negative relationship between risk adjusted returns and private investment in the fund. This result is statistically significant on a 3.8 percent level. The regression's R^2 value is 0.3524.

5.2 Analysis

Regression 1: Return

Two variables obtained significant results in the return regression; long-short equity and business and economics. Long-short equity had a positive coefficient value of 0.38784, implying that this strategy generates approximately 0.39 percent higher return than the other strategies in the sample.

We consider the strategy variable a fund specific characteristic rather than a fund manager characteristic. This topic was examined by Baks (2003) who showed that for mutual funds, the fund's own characteristics such as strategy were more important than the fund manager's characteristics. Folkerman's (2009) study of possible management performance persistence revealed that when a poorly performing fund replaces its manager, the probability of significantly increasing the performance is high, but when a highly performing fund replaces its manager there is no statistically significant evidence that performance would decrease. This implies that in some cases, fund characteristics are more important than manager characteristics.

If one considers the strategy to be a manager characteristic instead, the reasoning would be that the hedge fund managers were sufficiently skilled to take advantage of the volatile market and also take short positions when many companies' equity values declined. Bearing in mind Boyson's (2002) statement that failed hedge fund managers generally do not start a new hedge fund, we believe that a probable survivorship bias in our sample implies that only the most skilled managers still are running their funds. This is, however, not the way we have chosen to interpret this variable.

Our hypothesis here was that there would not be any significant relation between strategy and return, but we also had a discussion regarding the effects of the declining equity market. The latter hence seemed to have been relevant, and applying long-short equity was profitable during this time period. Our results are also in contradiction to the findings of Maxam et al (2006), where the long-short equity did not affect fund performance. Maxam et al (2006) however examined a longer time period than we do, something that could be a possible explanation for the different findings. Maybe had our results been different had another time period been chosen, such as the years of strong economic growth that a large part of the world experienced prior to the economic downturn? However, the results that we found are in line with those of Baks (2003), and we also find some support in the results of Folkerman's (2009) study.

The negative coefficient of -0.3967 for business and economics is statistically significant on a five percent level, which implies that former students of business and economics have performed worse than former technological and other students during the studied time period. This result is contradicting our hypothesis where we expected business and economics studies to have a positive effect on the fund's return. Maxam et al (2006) showed that fund managers

with a degree from top-ranked US schools outperformed their competitors, but those with a degree in economics significantly underperformed. They also found that former business or technology students performed better than others. Unfortunately, due to differences in definitions between Maxam et al's (2006) notation "economics" and "business and economics" in our study, it is hard to draw any parallels. Perhaps would we have obtained the same results had we separated "business" and "economics", but as mentioned before we did not collect information on the majors within subject of study. The other studies reported in section 2 Previous research, did not consider the fund managers' subjects of study, but rather the ranking of the schools.

Seat of learning did not seem to affect the return of the funds. Hence, our hypothesis that former SSE students perform better is not supported. One of the underlying reasons for this could be the team management of funds where several different schools might be represented, or that, in fact, the seat of learning is irrelevant for future performance. It might be that seat of learning is not a good proxy for the level of ambition of people. Perhaps, it could have been better to perform an IQ test on the interviewed fund managers and use this as a proxy for ability instead. Another reason could be, as discussed under the subject of study hypothesis, that skills and practical knowledge have been gathered since they graduated, and therefore this factor is not relevant any more. The contradiction here is that this was our hypothesis for the subject of study variable, which turned out to be statistically significant, but it could have been that it was applicable to seat of learning too. The seat of learning has been central in many of the previous studies performed within this area, though mainly on US data. One should also consider that the US has a totally different ranking system available. Li et al (2009) found that fund managers from higher SAT undergraduate institutes had higher returns, and the same result was obtained by Chevalier and Ellison (1996).

The age variable, which was examined in most of the studies mentioned in section 2 Previous research, did not affect our results in this regression. Since Boyson (2002) uses tenure and age as a proxy for experience, we find it somewhat relevant to analyze this for both the tenure and age variables. Both Li et al (2009) and Boyson's (2002) results both implied that more experienced hedge fund managers tended to have lower returns. Our hypothesis was that higher age would instead increase returns, since older managers were expected to be more risk averse and therefore not have lost a lot of money during the downturn. Instead, none of these turned out to be true here, and age was shown to be irrelevant for the return of the hedge funds.

Trading experience turned out to have no influence on the returns of the funds. This is in line with the results of Maxam et al (2006) where trading seemed to be the prior work experience with most impact on performance, but this was not statistically significant. Our hypothesis was that trading experience would generate higher returns due to more skilled managers, since we believed trading to play a central role in the management of a hedge fund. Perhaps could this be explained by trading not playing such an important role, but rather being mixed with (fundamental) analysis in making investment decisions?

Neither was analytical experience relevant for generating higher returns in the fund, as we believed in our hypothesis. One of our lines of reasoning here was that since there were so many long-short equity funds in our sample, the performance of these would have been positively affected by having analytical experience in their teams, and then more specifically former equity analysts. Over all, analytical backgrounds should, according to us, have positive effects on any type of fund since managers' predictability skills then are trained. Some funds though do not apply fundamental analysis to a very large extent and therefore this variable might not be that important to all of the funds in the sample. None of the papers look at this particular variable.

We believed that investing private funds in the hedge funds would lead to higher returns. This did not turn out to be the case, and instead it does not seem to affect return in our sample. The sample though contains only four observations out of 41 of responsible managers who have not invested private funds, and the low number of observations might contribute to the insignificance of the coefficient. It might also be the case that factors such as reputation in the market help serve as signaling tools for the manager and controlling tools for investors. With this reasoning, private investments alone might not be that important. None of the studies mentioned in section 2 Previous research, treat this topic and therefore it is hard to compare our results or the above reasoning to someone else's.

Our hypothesis was that longer tenure would lead to increased skills and therefore generate larger returns. In the regression, tenure showed to not be statistically significant. Our findings are hence not in line with Boyson's (2002), who mainly explained why more experienced hedge fund managers had lower returns. Boyson (2002) emphasizes the importance of the differing fee structures between hedge funds and mutual funds in explaining the influence of age on returns. The other papers that include tenure as an explanatory variable concerns

mutual funds, and the reasoning of these papers' findings are thus not applicable to our case due to the different fee structures.

Regression 2: Risk

In this regression, three variables obtained significant values of their coefficients: long-short equity, Lund University and business and economics. The coefficient of long-short equity is 3.5157 and statistically significant on a one percent level. This implies that funds applying this strategy have experienced higher risk, as measured by standard deviation, than the other strategies during the examined time period. This is in line with our hypothesis, which stated that applying the long-short equity strategy would lead to more risk due to the volatile equity market. We have though examined a turbulent period, and maybe had the results been different had we studied a period of strong economic growth instead? None of the studies reported in section 2 Previous research, studied the relationship between strategy and risk.

The second variable with a significant coefficient value is Lund University, which shows a negative value of -2.7504. The negative value of this coefficient value implies that fund managers who are former students of Lund University took less risk during the crisis, but this is only statistically significant on a ten percent level and therefore it is hard to draw any conclusions from this. We believed that seat of learning would serve as a proxy for the level of ambition and thereby affect the attitude towards risk. Our hypothesis was that higher ambition would increase risk taking, and therefore former SSE students would take on more risk. The seat of learning variable may though capture more information than ambition, and hence there might be better proxies for this variable. The fact that it is Lund University that shows the most significant result and that this number is negative is a bit puzzling, since the minimum entry qualifications at this university is not the lowest, which we would have been in line with our previous reasoning. As mentioned in section 2 Previous research, Li et al (2009) found that hedge fund managers from higher SAT undergraduate institutes tend to take less risk. Our findings are thus not in line with those of Li et al (2009) on this point, and there might be several reasons for this. One is the small sample of ours, and another is the lack of ranking data on Swedish universities.

Also in this regression, business and economics was statistically significant. The coefficient value of -4.8420, which was statistically significant on a five percent level leads us to a conclusion that former business and economics students take less risk than others. Our hypothesis was that there would not be any effect from subject of study on the risk since the

funds are managed by teams where several different backgrounds might be represented. None of the papers in section 2 Previous research, treats this particular area. That former students of business and economics take less risk could be because business educations highlight the implications of risk taking and the importance of diversification and other methods of risk handling.

The age variable was found to have a negative value but not to be statistically significant in the regression on risk. Hence, the result does not support our hypothesis, and is not in line with previous findings. Our hypothesis was that older managers would take on less risk since they do not have equally large career concerns as younger managers who are still in the beginning of their careers. This does therefore not seem to be the case in our sample, as indicated by this regression. Li et al (2009) and Boyson (2002) both stated that more experienced managers took on less risk, but these studies had larger spreads between the oldest and youngest manager in their samples. Perhaps is the divergence and lack of significance of our result from those of previous research partly explained by the smaller age spread?

Neither former trading experience seemed to affect the risk, as we had expected it to. Our hypothesis was that former traders would take on more risk since they have been more exposed to it and thereby might possess a perception of being able to handle it better. This reasoning was therefore not supported by the regression results. As far as we can see, previous research has not handled this topic and we can therefore not compare our results to someone else's.

Similar to the trading background variable, analytical background did not have a significant impact on risk. This is in line with our hypothesis, which stated that analytical experience would not increase risk. The reason is, according to us, that analysts in contrary to traders do not handle risk to the same extent, and therefore do not change their perception of risk.

We expected private investment in the fund would lead to higher risk aversion. However, the results did not reveal any such effect since the coefficient value was insignificant. This could be due to the fact that 37 out of the 41 hedge fund managers included in our sample had invested private funds in the hedge fund they were responsible for. According to Kouwenberg and Ziemba (2007), investing at least 30 percent of one's private wealth, decreases risk taking considerably. This is in line with our hypothesis, but since we did not check for the share of private wealth invested by the hedge fund managers in our sample, it is hard for us to make exactly the same distinction.

In the regression of risk on the independent variables, tenure did not show any significant effects on the risk level. Previous research shows various results on this topic. Boyson's (2002) study of hedge fund managers revealed that more experienced managers took less risk, whereas Philpot and Peterson (2006) obtained opposing results when real estate mutual fund managers were studied. Menkhoff, Schmidt and Brozynski's (2006) study revealed two opposite conclusions depending on the measure of risk. Herding decreased with age, thereby implying more risk as experience increased. The result regarding the questionnaire answers shows the opposite; an increase in tenure had a negative effect on risk. Hence, with the latter measure, more experience decreased the risk level of the fund, and this is explained by better estimates of the true volatilities of asset prices. We concur with this reasoning that experience would lead to a better understanding of the market, and we find it surprising that this is not evident in our results.

We are aware that tenure and age are correlated (0.3210), and another problem is that in the literature these concepts are mixed with each other and in many cases used interchangeably, making it hard for us to keep them separated in our analysis. This problem is mitigated by the fact that neither the age nor the tenure variable obtained significant values in our regression.

Regression 3: Risk-adjusted return

In the first two regressions where effects on return and risk were examined, long-short equity was shown to have positive coefficients which in both cases were statistically significant on a one percent level. In the third regression, where risk-adjusted return is the independent variable, long-short equity also obtains a positive coefficient of 0.1322, and it is statistically significant on a five percent level. We can then conclude that the positive effect that this strategy has on the return is larger than its effect on the risk level, since the risk-adjusted return is positively affected. According to our hypothesis, this was not expected to be the result since the hypothesis regarding return was that long-short equity would not have any impact. Previous research does not state the effect of hedge fund strategy on risk-adjusted return.

The subject of study variable, business and economics, was shown to be statistically significant in this regression too. The coefficient's value was -0.1485 and significant on a five percent level. Hence, former business and economics students perform worse than the technological and other students when adjusting the returns for their risk level. In the two previous regressions, business and economics students generated lower return and took less

risk than the rest of the sample, and in this final regression we see that the effect from lower returns dominates. Our hypothesis was that there would be a positive effect from previous studies in business and economics on risk-adjusted returns. Maxam et al (2006) performs the only study which includes risk-adjusted returns and the effect on this from former subject of studies. They though use the Stutzer index, which penalizes skewness and high kurtosis. They state that common beliefs are such that investors are not interested in holding a portfolio that underperforms the benchmark, since they then rather would hold the benchmark itself, and findings imply that those with business and technical backgrounds consistently outperform former students of economics. The same problem applies here as in the return result; the difference in definition between our study and that by Maxam et al (2006) considering economics makes it hard to compare.

The last variable shown to have a statistically significant coefficient value was private investment in the fund, which obtained a coefficient value of -0.1386 that was statistically significant on a five percent level. This is contradicting our hypothesis that investing private funds will increase the risk-adjusted return. In the previous two regressions, we did not get significant values of this variable, so it is hard for us to say from which component the negative impact from private investment of funds on risk-adjusted returns comes. It could be that returns are lower, or that risk is higher than for those who have not invested private funds, but it could also be a combination of both these effects.

Seat of learning did not show to be statistically significant when regressing on risk-adjusted return. We thought that former SSE students would generate slightly higher returns than others but also take more risk, resulting in the net effect that the Sharpe ratio would be lower for former SSE students. This did hence not prove to be correct. Many studies treat this subject, but our finding that a degree from the school with the highest minimum entry qualification does not have any impact on risk-adjusted returns is not in line with any of the studies mentioned in section 2 Previous research. For hedge funds, both Li et al (2009) and Maxam et al (2006) come to the conclusion that higher SAT scores or ranking lead to better performance. On mutual funds, Poole et al (2006) and Chevalier and Ellison (1996) both come to the same result as considering the hedge funds. The only study that comes to the conclusion that education would be irrelevant for return is that by Gallagher (2003), but in this case it was the educational level that was studied, and since we do not adjust for this in our study, it is not possible to compare our results to that of Gallagher (2003).

There are several possible reasons for the insignificance of our results regarding seat of learning. One is that the difference between different seats of learning in Sweden might not be that big. Another is that we do not have a formal ranking system. The only ranking available to our knowledge is that by Financial Times, which only covers business schools. Thirdly, since most managers in our sample have gained a lot of work experience since they graduated, any possible differences might have been evened out.

When regressing risk-adjusted returns on the age variable we did not get any significant result. Our hypothesis was that older managers would generate higher risk-adjusted returns, and hence this is not supported by our result. Our finding is though in line with Boyson's (2002), who found that the manager's age did not have an impact on risk-adjusted returns. Contrary to this, Li et al (2009) found that more experienced hedge fund managers generated lower risk-adjusted returns. They though use years of working as the measure of experience and therefore their result seems slightly less relevant to compare to. On mutual funds, both Chevalier and Ellison (1996) as well as Golec (1996) found that younger managers performed better when measured as risk-adjusted returns. Hence, there are mixed results on this particular topic, and it seems like the choice of regression and which variables to include affects the outcome to a large extent.

The trading variable was not significant in this last regression either. We expected the Sharpe ratio to be higher for former traders for reasons discussed above. This hypothesis was hence not supported by our sample and this last regression. Among previous research, Maxam et al (2006) concluded that experience as such, generated ambiguous results. However, trading experience was the only work experience variable that showed to have a positive and significant impact on risk-adjusted return. Hence, our findings were not in line with previous research.

Having analytical background was found to have no significant impact on risk-adjusted return. Our hypothesis was that this group of hedge fund managers would be more skilled in generating returns but not take higher risk. Thus, the resulting risk-adjusted return was expected to be higher. We have not found any previous research that supports or rejects our hypothesis or our result.

The last variable, tenure, did not get a significant coefficient value when testing on risk-adjusted return. We thought that tenure would have a positive effect on risk-adjusted return, so our hypothesis was not supported in this case. Relating the result to previous research, we

see that Boyson (2002) obtained a similar result in her study. She found that there was no relation between tenure and risk-adjusted return, but also that as age and tenure increased, the managers took less risk and generated lower returns. Consequently, these two effects seem to cancel out. Contradicting this result is that of Golec (1996), who finds that longer tenure leads to higher risk-adjusted returns among mutual fund managers.

6 Concluding remarks

6.1 Main results

The purpose of this thesis was to investigate whether hedge fund manager characteristics affected the performance of the fund, as measured by average monthly return, risk and risk-adjusted monthly return. We have also analyzed the effects of the strategy applied by the fund on return, risk and risk-adjusted return. The results imply that strategy is the most influent variable, thus fund characteristics can be believed to have more impact on fund performance than manager characteristics. An important limitation, however, is that we have only interviewed one manager per fund, whereas in most cases the funds are team managed. Hence we do not capture the entire experience of the management team. Another limitation is the fact that the only fund specific characteristic is represented by strategy applied, whereas the model could have included many other fund specific or even FMC specific variables.

The manager characteristic that showed to have statistically significant impact on the performance was former studies in business and economics. This variable turned out to have a negative impact on all three performance measures. That is, managers with a background within business and economics studies took on less risk and generate lower returns during the time interval studied.

A variable that turned out to influence the risk taking of the fund's management was previous studies at Lund University. These managers took on less risk than their peers. This variable however was only statistically significant on a ten percent level, which makes it hard to draw any conclusions from this. Hence, as this variable is not affecting the risk in a highly significant way, it appears that seat of learning is irrelevant for fund performance in all aspects included here.

Surprising is the finding that managers' private investment in their funds has a negative impact on risk-adjusted return. This contradicts the prevailing belief in the market, where private investment is viewed as a signaling tool and as creating legitimacy.

None of the other variables tested for had any significant impact on the hedge fund performance measures. Hence, it does not seem like manager characteristics in general are very important for the performance of hedge funds, at least not in our sample and in our model. Perhaps hedge fund performance is explained by other factors not included in our

model such as, as previously mentioned, fund specific characteristics. Other factors to bear in mind that might have implications on our result are the small sample in our study and the specific time period chosen, where the market was unusually turbulent.

6.2 Further research

Our model contains several weaknesses and limitations, as discussed throughout the thesis. For example, it would be interesting to see what results would be obtained if also fund characteristics and FMC characteristics were included. In addition, we would like to see a similar study performed on a longer time period and without a survivorship bias. This could be obtained if there would be a graveyard database, that is, available data for liquidated funds. Preferably, the sample could also be increased as the market environment gets calmer than it was during the time period examined here. Team interviews would also contribute to a more comprehensive picture of the hedge fund management's impact on fund performance.

It would be interesting to use other proxies for hedge fund manager characteristics to see whether the results would have differed from those obtained here. One such example mentioned in section 5 Results and analysis, is to use an IQ test to test for ability. Another suggestion for further research is to construct a trading model based on hypotheses in order to see whether there is any economic significance in the variables.

6.3 Implications

The purpose of this thesis was to examine if and how hedge fund manager characteristics affected the performance of the fund. This is, to the best of our knowledge, the first thesis in Sweden that examines this topic and therefore it might have some implications. Our wishes are that both investors and the industry will increase their knowledge of hedge fund manager characteristics and their importance, or lack thereof, on performance. However, we are reverential to the fact that others might find diverging results and come to other conclusions in similar studies.

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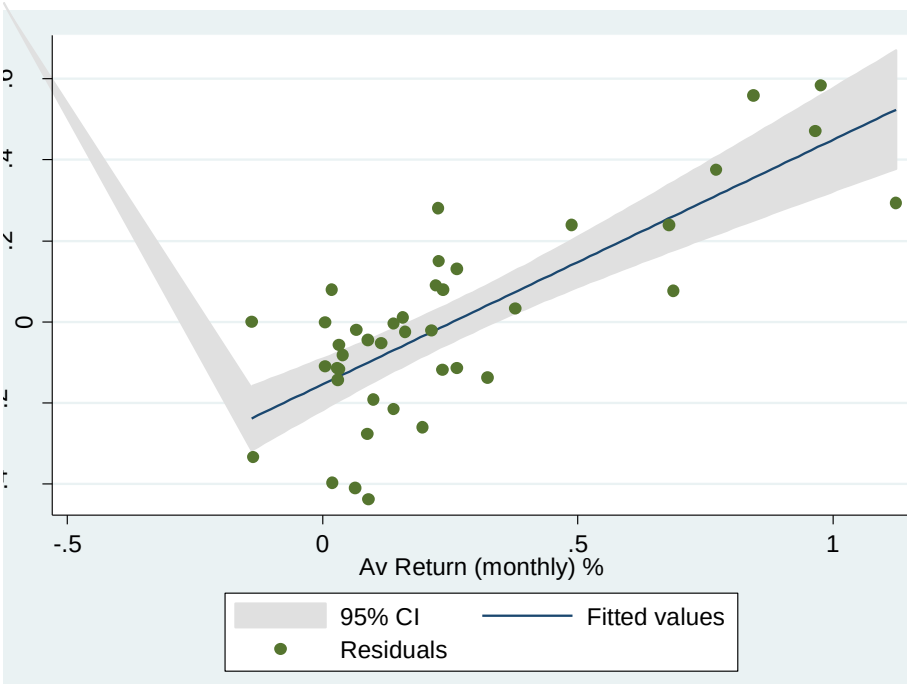
Appendix 1

Interview questions:

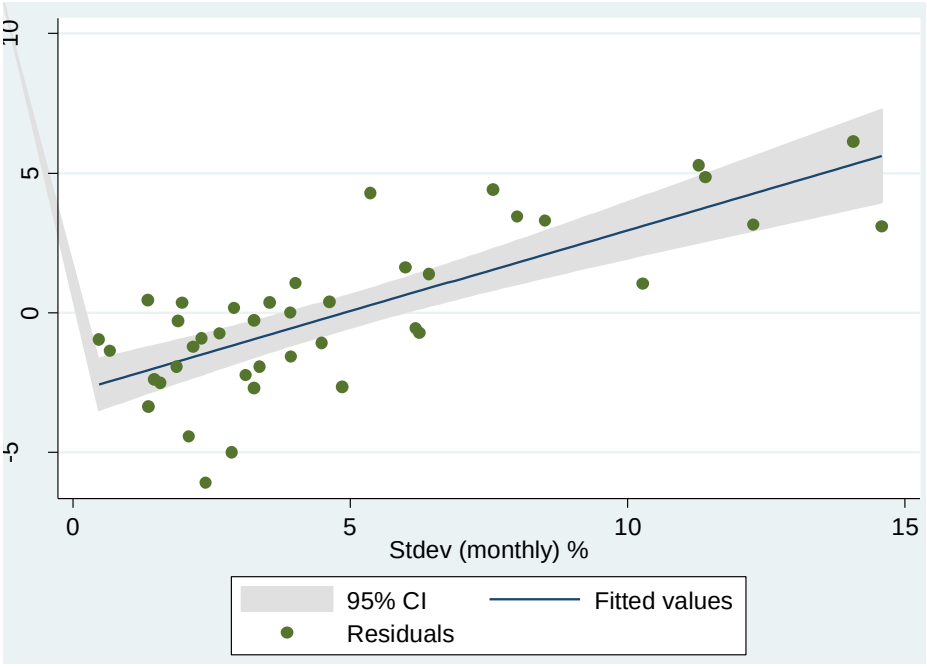
1. What is the strategy of the fund?
2. Which seat of learning did you attend for your post-upper secondary education?
3. What was your main subject of study?
4. Birth year?
5. Do you have previous experience from proprietary trading? If yes, how many years?
6. Do you have previous experience as analyst? If yes, how many years?
7. Do you have previous experience from the absolute return industry? If yes, how many years?
8. Do you have previous experience from the relative return industry? If yes, how many years?
9. Have you invested private funds in your fund?

Appendix 2

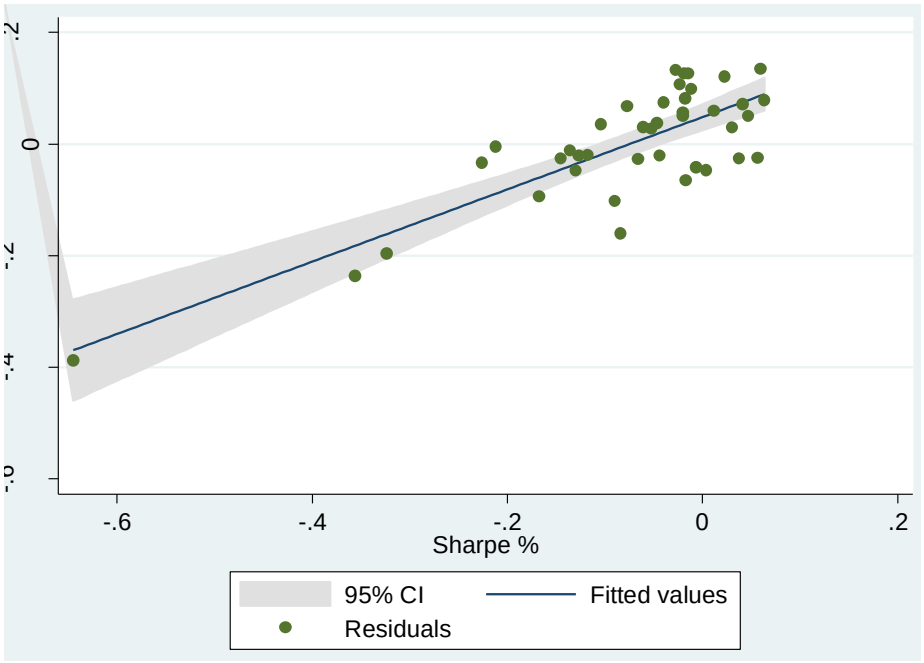
Residuals from the regression on average monthly return



Residuals from the regression on risk



Residuals from the regression on risk-adjusted monthly return



Appendix 3

Summary of independent variables

	Variable name	No. of observations with positive values
Strategy	Long-short Equity	26
	Fixed Income/FX/Macro *	8
	Multistrategy *	1
	Managed futures *	6
Seat of learning	Lunds University	8
	Stockholm School of Economics	11
	Stockholm University	11
	Abroad *	4
	Uppsala University *	5
	Royal Institute of Technology *	2
	Örebro University *	2
	Gothenburg University *	1
	Kalmar University *	1
	Mid Sweden University *	1
	No University *	1
Subject of study	Business and Economics	36
	Technology *	6
	Other *	2
	Age	41
	Trading background	15
	Private investment in fund	37
	Tenure	41
	Analytical background	18

* Variables included in the base case

Appendix 4

Assumptions underlying the regressions

In order to obtain reliable estimators of the variables' effects on the funds' average return, standard deviation and risk adjusted return, assumptions restricting how the unobservable error term *u* is related to the explanatory variables are required (Wooldridge 2009, p. 24). Initially the following four assumptions have to be made:

1. The model is linear in parameters
   $y = \beta_0 + \beta_1 x_1 + \cdots + \beta_k x_k + u$
2. The data is a random sample of *n* observations and the errors are statistically independent of each other
   $\{x_i : i = 1, \dots, n\}$
3. There is no perfect collinearity among the parameters
4. The expected average value of the errors equals zero
   $E(u \mid x_1, \dots, x_k) = 0.$

Under these assumptions, the OLS estimators of the true relationship between the explanatory variables and the explained variable are unbiased (Wooldridge 2009, p. 88). Adding a fifth assumption:

$$Var(u \mid x_1, x_2, \dots, x_k) = \sigma^2$$

about homoscedasticity, implying that the error term *u* has the same variance independently of the values of the explanatory variables, results in the OLS estimators having the least variance of all unbiased estimators (Wooldridge 2009, pp. 92-94). Also, under these five assumptions, the sampling variance is

$$Var(\hat{\beta}_J) = \frac{\sigma^2}{SST_j(1-R_j^2)}.$$

With a sixth assumption stating that the population error *u* is independent of the explanatory variables and normally distributed it is possible to perform hypothesis testing by using t tests and F tests (Wooldridge 2009, pp. 118-154).

Appendix 5

FUND MANAGEMENT COMPANY	FUND	AV RETURN (monthly) %	STDEV (monthly) %	SHARPE %
Adrigo Asset Management	Adrigo Hedge	0.1574	1.8945	-0.0772
Alsback Förvaltning	Nordic Absolute Return Fund	0.9647	14.0748	0.0470
Brummer & Partners	Archipel	0.1397	3.1095	-0.0527
Brummer & Partners	Futuris	0.1961	6.1839	-0.0174
Brummer & Partners	Lynx	0.2629	6.2488	-0.0065
Brummer & Partners	Manticore	0.3227	4.8519	0.0039
Brummer & Partners	Nektar	0.2221	4.0123	-0.0203
Brummer & Partners	Zenit	0.0870	3.2653	-0.0663
Catella	Hedgefond	-0.1396	1.9641	-0.2256
Catella	Europa Hedge	-0.1359	1.3572	-0.3238
Catella	Casefond	0.6870	10.2767	0.0373
CB Asset Management	CB Hedge Europe	0.0044	7.5757	-0.0395
Cicero Fonder	Cicero Hedge	0.0637	2.8671	-0.0836
Consafe Capital Advisors	Alcur	0.0662	0.6661	-0.3562
DLG Fonder	DLG Aktiefond	0.8437	8.5130	0.0634
Erik Penser Fonder	Erik Penser Hedgefond	0.0290	2.1639	-0.1269
E-Turn	AktieTrend	0.2360	2.9014	-0.0233
Excalibur Värdepappersfond	Excalibur	0.0288	2.6448	-0.1039
H. Lundén Kapitalförvaltning	Eikos	0.0891	2.3904	-0.0897
Handelsbanken	Fixed Income Absolute Return	0.0312	2.3164	-0.1176
Markedskraft	Elexir SEK	0.0182	1.3478	-0.2117
Matrix Fonder	Matrix Global Tactical Beta	0.2282	3.9203	-0.0192
Max Mitteregger Kapitalförvaltning	Gladiator	1.1230	14.5893	0.0562
Nordea	Nordic Equity Hedge Fund	0.1139	1.4580	-0.1300
Nordea	Nordic Equities Select	0.0318	1.8707	-0.1452
Nordic Commodity Funds	Nordic Power Fund	0.0884	4.6265	-0.0465
Northern Spirit Capital/Öhman	Northern Spirit	0.0043	0.4641	-0.6447
Orre & Nyberg Capital	Radar	0.9760	11.2928	0.0595
Petersson & Wagner Fonder	Midas	0.2631	3.5474	-0.0114
Prior&Nilsson Fond och Kapitalförvaltning	Yield	0.0995	3.3678	-0.0606
Prior&Nilsson Fond och Kapitalförvaltning	Idea	0.7709	11.4047	0.0410
Rational Asset Management	Ram One	0.3774	6.4174	0.0115
SEB	Hedgefond Fixed Income	0.0393	1.5790	-0.1673
Sentat Asset Management	Thyra Hedge	0.1616	3.2650	-0.0435
Shepherd Energy	Shepherd Energy Fund	0.0197	2.0898	-0.1358
Systematiska Fonder	AMDT Hedge	0.2125	4.4829	-0.0203
Systematiska Fonder	Scirocco	0.6786	12.2742	0.0306
Tanglin Asset Management	Tanglin	0.2265	5.3603	-0.0144
Thenberg Fonder	Thenberg Macro Hedge	0.1395	5.9938	-0.0274
Öhman Kapitalförvaltning	WhisperHedge	0.4878	8.0080	0.0230
WR Capital	WR Norden	0.2346	3.9281	-0.0175