Mutual fund attributes and their relationship to riskadjusted return: A study on the performance and characteristics on the Swedish fund market

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Abstract:

In this paper we study the relation between fund performance and a set of fund-specific attributes of Sweden funds in the period 2003-2007, extending the existing research on fund performance. The paper studies a sample of about 90 Sweden funds, performing a number of different statistical tests to verify the robustness of the results. We generate the risk-adjusted return of the funds, by regressing fund returns against appropriate benchmarks. We use these estimates as a measure of fund performance and then analyze the relation between fund performance and attributes such as fund size, flows, management fees, past performance and a proxy for trading activity. We find evidence of a significant, positive relationship between fund size and risk-adjusted return as well as a positive relation between the net flow to funds and risk-adjusted return, i.e. the existence of "smart money". We also find some evidence of persistence in the sample.

Key words: Fund performance, risk-adjusted performance, Sweden funds, fund attributes

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1. Introduction

1.1 Background

Considering that mutual fund investments account for an increasingly large portion of institutional and private investors' total investments, investors are certainly interested in understanding the performance of the funds they either invest in or evaluate as potential investments. Consequently, a number of studies on this topic have been carried out. Two main questions are commonly asked: can fund managers create positive risk-adjusted returns? Can risk adjusted returns be explained by fund specific attributes? Research generally focuses on US data but some studies on the Swedish market has been done as well, notably, Dahlquist, Engström and Söderlind (2000), where equity and money market funds are studied in the period 1993-1997. Dahlquist, Engström and Söderlind find that well performing equity funds typically are small have low fees and are actively managed, i.e. have high trading activity.

This paper builds on the method used in Dahlquist, Engström and Söderlind, evaluating the fund performance and decomposing performance into fund-specific characteristics in the period 1993-1997. We will evaluate the period 2003-2007 and thereby update the available research for the Swedish fund market. During the time elapsed between the two studies, the fund market structure has changed. The fund market in Sweden has grown significantly since 1997 and many new and smaller players have entered the market, making it more diverse and competitive. Moreover, the pension reform in 1999, forcing pension eligible workers to actively allocate their pension savings, generated a rapidly increasing inflow of capital into the fund market. Hence, we believe that we might find results different to those of Dahlquist, Engström and Söderlind.

We find the methodology used in Dahlquist, Engström and Söderlind (2000) relevant for this study, since it is explaining fund performance using several different measures that are both distinct and possible for any investor to easily identify. Re-applying this method will also make it possible to compare our results with the conclusions in Dahlquist, Engström and Söderlind (2000).

The remaining part of the paper is structured as follows: first we discuss the purpose of the paper. Moving on, we give an introduction to the Swedish stock and mutual fund market. Thirdly, we outline the previous research that is relevant to the scope of this thesis. We then

proceed with the method used in the study, after which we present our hypotheses. In section 5 we introduce the data sample. Finally, we discuss the results and end the paper with a conclusion and some words on the potential areas for further research.

1.2 Purpose of paper and contribution

The purpose of this paper is to provide an up-to-date analysis of fund performance of Swedish funds investing in Swedish equities. Since the previous study by Dahlquist, Engström and Söderlind (2000), the Swedish fund market has experienced considerable changes. The rapid growth in assets under management and the number of funds have been dramatic. Given the new more competitive and mature market situation it is possible that the previous findings on the Swedish market are no longer valid. A study on recent data set is therefore a valuable contribution both for investors and academia. In the study we will answer the following questions:

- 1. How have mutual funds investing in Swedish equities performed?
- 2. Which fund-specific characteristics have a statistically significant impact on fund performance and how do our results compare with previous evidence from the Swedish market?

We have also developed an approach to approximate the turnover of funds, which is simpler to compute than many alternative proxies. We call this variable Rebalancing. A definition of the variable will follow later on in the method section.

1.3 Market background¹

The development of the Swedish mutual fund market has been very dramatic in the last decades. In the beginning of the 1970s, the Swedish population had SEK 300 million invested in mutual funds, in 2006, this figure has grown to SEK 1528 billion. Obviously, the supply of funds has dramatically increased, and the role of mutual funds for institutional as well as private investors has drastically changed. Today, 30% of Swedish households' financial assets are mutual funds, in 1980 the mutual funds only amounted to 0,4% of the households total financial assets. Today, seven out of ten Swedes invest in mutual funds, or nine out of ten if PPM funds are included, and

¹ Source: Fondbolagens Förening, www.fondbolagen.se/StatistikStudierIndex/FondmarknadensUtveckling.aspx and http://www.fondbolagen.se/StatistikStudierIndex/Statistik/Fondformogenhet.aspx

four out of five mutual fund investors invest in funds with equity holdings. In the time period 2000-2006, the share of equity funds of the total assets managed by mutual funds has decreased from 67% to 57% in favor, primarily of money market funds (14% to 22%) but also to some extent to hedge funds, the latter category capturing a share of 5% in 2006. The trend has therefore been that investors have made efforts to diversify their overall fund portfolio to achieve a better mix of different fund categories.

For a long time, the Swedish mutual funds only invested in Swedish equities. The currency deregulation in 1989 facilitated Swedish mutual funds' investments in foreign equities. In 1990, a new fund alternative was introduced. The deposits to "Fondförsäkringar" were tax exempt, given that the investor did not withdraw the investments before the age of 55. The investor was allowed to shift his/her investments between a number of funds, without tax implications. In 1994 the individual pension program was started. This gave individual the choice to invest in funds, equities or interest bearing accounts, and make tax exempt reinvestments. In 2000, 4,4 million Swedes were allowed to place their "allmäna pension" in funds themselves. This is called PPM, the premium pension savings scheme. That year SEK 57 billion was invested in Swedish mutual funds through the premium pension scheme. From 2001 and onwards, approximately SEK 20 billion has been invested in Swedish mutual funds annually through this pension scheme.

Prior to the sample period, the Swedish stock market experienced a significant downturn. In the period March 2000 to October 2002 the stock market experienced a loss of nearly 70%. After a fairly unstable period the index started climbing in the beginning of 2003 peaking in mid 2007 at levels above the 2000 benchmarks, after which the index fell back again deleting the 2007 raise. The overall development on the Swedish stock market could be described as having bull characteristics in 2003 to mid 2007.

2. Previous research

When going through previous findings in the area of performance evaluation of mutual funds it is obvious that results are mixed and quite frequently contradictory. To obtain a better overview of the research situation we have compiled a summary of some of the most important findings in this field, see table 2.1. The table lists some of the major articles on risk-adjusted return and as

well some of the key results on the relationship between risk-adjusted return and the fund attributes studied in this paper. Below we have highlighted some of the key articles in this area.

Research on fund performance more or less started when Sharpe (1966) and Treynor and Mazuy (1966) found that mutual funds in general neither beat the market nor have the ability to anticipate the movements of the market. In 1968, Jensen developed a method which has become widely used by both academics and practitioners. He derived a methodology to capture performance not explained by the volatility of the investments. In essence, Jensen regressed the excess return of a financial asset against the excess return of the market. If the intercept in the regression was found to be positive (negative), the asset had outperformed (underperformed) the market. Using this measure, Jensen found that mutual funds on average were not able to predict security prices well enough to outperform a buy-and-hold index strategy, net of costs. Surprisingly, even studying the gross returns, Jensen found that the funds in general underperformed the market. More recent papers, such as Wermers (2000), also found that mutual funds underperformed broad market indexes on a net return level (fund fees deducted). But the evidence is mixed in this area. A number of studies, both on US and European data, have also found evidence of positive alphas. A common factor in most of the studies finding positive alphas, however, is that they use gross returns.

Apart from studies on risk-adjusted return much research has been done on the several of the fund-specific attributes, analyzed in this paper. Carhart (1997), found that expense ratios, portfolio turnover and load fee are significantly, negatively related to mutual fund net performance. Carhart also reports evidence of persistence of negative performance, i.e. underperformers remain underperforming. Brown and Goetzmann (1995) study persistence in relative performance, the ability of a fund to consistently outperform others, and the inability of relatively weak performers to reach the level of its superior competitors. They find that there is evidence of persistence, but also find that there is a strong correlation between the winning funds. This implies that there is a risk associated to investing only in winning funds that is not diversifiable. In a more recent study, Droms (2006) summarizes and discusses the evidence on persistence over time for US based funds. He finds evidence of persistence in one year periods, but evidence of persistence for longer periods is weaker. The persistence effect is stronger among underperforming funds. Droms argues that since persistence is likely to be affected of the

period in which it is tested, the results of persistence studies need to be interpreted with caution, and should not be the only criterion to choose a mutual fund based on.

Zheng (1999) studied the relation between performance and flow of money, investigating if money is "smart". When looking at small funds, the findings indicate that it is possible to base investing strategies on flow information and earn abnormal returns. Gruber (1996) also finds evidence of "smart money".

In a recent paper, Sing (2007) present findings of funds investing in stocks listed on the Singapore stock exchange. His results indicate that a positive relationship between fund size and fund performance. Grinblatt and Titman (1994), on the contrary, find that size is not positively related to fund performance. In the same article Grinblatt and Titman also present findings of a positive relation between portfolio turnover and fund performance. Ippolito (1989), on the contrary, finds that portfolio turnover is unrelated to fund performance. He also finds management fees to be unrelated to fund performance.

The results presented above mostly concern US data, but studies on European data have been done as well, notably Otten and Bams (2002). They study five major European markets, using a sample which is free of survivorship bias. They find that European funds, on average, deliver positive risk-adjusted returns to investors. The finding is especially strong among small cap funds. This result contradicts findings on the US market where many studies have found a negative alpha. Otten and Bams argue that this could be explained by the fact that the European funds are a smaller part of the European equity market than the American funds are of the American equity market. Accounting for a smaller portion of the total market, relative to their US counterparts, the European mutual funds are therefore in a better position to outperform the market. Again this is particularly true for small cap funds. Otten and Bams also find that expense ratios are negatively related to fund performance, whereas fund assets are positively related. For UK funds they find evidence of strong persistence in mean returns.

Dahlquist, Engström and Söderlind (2000) have contributed with a study on the Swedish market. They perform a cross-sectional analysis of the relation between performance and fund attributes such as past performance, flows, size, turnover and proxies for expenses and trading activity. Dahlquist, Engström and Söderlind find that fund fees are negatively related to

performance. Trading activity is shown to have a positive relation to performance, i.e. more actively traded funds outperforms passively managed funds. No significant evidence is found for past performance, flow or fund size. In more recent article Engström (2004), the positive relation between value creation and trading is again found. Managers of small cap funds were especially skilled at boosting returns thanks to trading and more particularly, short-term bets.

There are also two bachelor and master theses on fund performance, focused on Swedish data, worth mentioning here. Karlsson and Persson (2005) use a sample of 44 Sweden funds in the period 2000-2004 and find that size is positively related to performance and that neither turnover nor expenses explain performance. Neither do Adolfsson and Christensson (2007) find a significant relationship between fund fees and risk-adjusted performance, studying management fees of Swedish mutual funds between 2001 and 2006.

Table 2.1: Summary of previous research

Positive alpha							
Author(s)	Year	Market	Period	Key finding			
Grinblatt, Titman	1989	US	1975-1984	Positive alpha, gross returns			
Grinblatt, Titman	1994	US	1974-1984	Positive alpha, net of transaction costs			
Grinblatt, Titman, Wermers	1995	US	1974-1984	Momentum strategy funds outperform passive indexes and market benchmarks			
Daniel et al	1997	US	1975-1994	Positive alpha, gross returns			
Otten, Bams	2002	Europe	1991-1998	Positive alpha, gross returns			
Engström	2004	Sweden	1996-2000	Positive alpha, net return level			
		Nega	ative alpha				
Author(s)	Year	Market	Period	Key finding			
Jensen	1968	US	1945-1968	Negative alpha, net of costs			
Malkiel	1995	US	1971-1991	Negative alpha, net of costs			
Gruber	1996	US	1985-1994	Negative alpha, net of costs			
Carhart	1997	US	1962-1993	Negative alpha, net of costs			
Cai, Chan, Yamada	1997	Japan	1981-1992	Negative alpha			
Wermers	2000	US	1975-1994	Negative alpha, net return level			
Korkeamaki, Smythe	2004	Finland	1993-2000	Negative alpha, net of costs			
Bauer, Otten, Rad	2006	New Zealand	1990-2003	Negative alpha, net of costs			
Neutral/Insignificant alpha							
Author(s)	Year	Market	Period	Key finding			
Cesari, Panetta	2002	Italy	-	Neutral alpha			
Christensen	2005	Denmark	1996-2005	Insignificant alpha			

			Size	
Author(s)	Year	Market	Period	Key finding
Grinblatt, Titman	1994	US	1974-1984	Negative relationship
Dahlquist, Engström, Söderlind	2000	Sweden	1993-1997	No significant evidence
Otten, Bams	2002	Europe	1991-1998	Positive relationship
Chen, Huang, Hong, Kubik	2004	US	1962-1999	Negative relationship
Korkeamaki, Smythe	2004	Finland	1993-2000	Positive relationship
Bauer, Otten, Rad	2006	New Zealand	1990-2003	Positive relationship
Holmes, Faff	2007	Australia	1990-1999	Positive relationship
Sing	2007	Singapore	1999-2004	Positive relationship
		B. P.	Flow	
Author(s)	Year	Market	Period	Key finding
Gruber	1996	US	1985-1994	Positive relationship
Zheng	1999	US	1961-1993	No significant evidence on an aggregated level, positive relation for small funds
Dahlquist, Engström, Söderlind	2000	Sweden	1993-1997	Negative relationship
Holmes, Faff	2007	Australia	1990-1999	No signicant relationship
		Turnover/	Trading activi	
Author(s)	Year	Market	Period	Key finding
Ippolito	1989	US	1965-1984	No relationship
Grinblatt, Titman	1994	US	1974-1984	Positive relationship
Carhart	1997	US	1962-1993	Negative relationship
Dahlquist, Engström, Söderlind	2000	Sweden	1993-1997	Positive relationship
Engström	2004	Sweden	1996-2000	Positive relationship
Blanchett	2007	US	2001-2006	Negative relationship
			ınd fees	
Author(s)	Year	Market	Period	Key finding
Ippolito	1989	US	1965-1984	No relationship
Grinblatt, Titman	1994	US	1974-1984	Negative relationship
Carhart	1997	US	1962-1993	Negative relationship
Dahlquist, Engström, Söderlind	2000	Sweden	1993-1997	Negative relationship
-				Evidence of negative relation between expense
Otten, Bams	2002	Europe	1991-1998	rations and performance
Ennis	2005	US	1975-2004	Negative relationship
Bauer, Otten, Rad	2006	New Zealand	1990-2003	Positive relationship
Gil-Bazo, Ruiz-Verdú	2006	US	-	Negative relationship
Gil-Bazo, Ruiz-Verdú	2007	US	1961-2003	Negative relationship
Bechmann, Rangvid	2007	Denmark	1994-2003	Negative relationship
, , ,			rsistence	-0
Author(s)	Year	Market	Period	Key finding
Grinblatt, Titman	1994	US	1974-1984	Evidence of persistence
Brown, Goetzmann	1995	US	1977-1989	Persistence of underperformers
Malkiel	1995	US	1971-1991	Strong persistence in 1970-1980, Weak persistence 1980-1990
Carhart	1997	US	1962-1993	Persistence of underperformers
Dahlquist, Engström, Söderlind	2000	Sweden	1993-1997	No relationship
Droms, Walker	2001	US	1971-1990	Short term persistence
Droms, Walker	2001	International	1977-1996	Strong short term persistence
Otten, Bams	2002	UK	1991-1998	Evidence of persistence
Wermers	2003	US	1975-1994	Evidence of persistence
Jan, Hung	2004	US	1961-2000	Evidence of persistence
Bollen, Busse	2005	US	1985-1995	Short term persistence but not economically significant
Claritation of	2005	Denmark	1996-2005	No persistence
Christensen				
Christensen Vicente, Ferruz	2005	Spain	1994-2002	Short term positive, long term negative
Vicente, Ferruz Bauer, Otten, Rad	2005 2006	Spain New Zealand	1994-2002 1990-2003	Short term positive, long term negative Short term persistence

3. Method

In this section we describe the method employed in the paper. As mentioned previously, we reapply the methodology used in Dahlquist, Engström and Söderlind (2000). The method requires a large and detailed set of data and one of the key challenges of this paper has been to compile and obtain the data.

3.1 Definition of fund attributes

The analysis departs from the risk-adjusted return estimates or alpha values of each fund in the sample. There exists various ways compute the risk-adjusted return, the perhaps most established one is to calculate Jensen's alpha, which will be the method used in this paper. Jensen (1968) uses the asset's excess return and regress it against the market excess return to obtain Jensen's alpha. A positive (negative) alpha value hence signifies that the asset has outperformed (underperformed) compared to the chosen benchmark. We run the following regression on an annual basis using monthly data for each fund to generate the monthly alpha for a given year:

$$(1) R_i - R_f = \alpha_i + \beta_i (R_M - R_f) + \epsilon_i$$

Where R_i is the return for fund i, R_f is the risk free rate of return (STIBOR 30-day interbank rate), and R_m is the market return. We use two indexes as proxies for the market portfolio. For the general Sweden funds we use Six Portfolio Return Index (SIXPRX). For small cap Sweden funds we use Carnegie Small Cap Return Index, thus controlling for any small cap fund effects in the data. The reason why we use Swedish indexes is obvious: since we study funds investing on the Swedish equity market, this should also be our benchmarks. In some cases certain funds do not have 12 observations for a given year, due to being started or closed. In such cases we have applied the rule that if a fund has more than 9 consecutive observations in one given year we run a regression to obtain this alpha and report it as an annual alpha for the given fund. The regression is based on monthly fund quotes, with dividends reinvested in the period 2003-2007. We analyze both net returns and gross returns with the management fees added back. We do this in order to analyze the risk adjusted return from the investor's viewpoint, net of fees, as well as the fund manager's fundamental performance.

We use the alpha values to measure the performance and relate this to a set of fund-specific attributes. Regarding the fund attributes we obtain quarterly data and then compute the average

quarterly value for a given year. We adjust each variable for fixed year effects by subtracting the full population mean of the attribute during a given year, as follows: $\hat{x}_{i,t} - \overline{x_t}$. The attributes used in the analysis are:

- **Size** of fund assets
- Net Flow of assets to/from the fund
- **Rebalancing** of assets in the fund
- Management **Fee** of the fund
- **Persistence** of fund performance

The size variable is approximated by the quarterly NAV (net asset values) of the funds. To obtain the final variable we compute the logarithm of the size, which originally is expressed in SEK.

In order to obtain the net flow of assets of the funds, we assume that all new capital is invested in the beginning of the quarter. The net quarterly flow is then described by the formula:

(2)
$$Flow_t = NAV_t - NAV_{t-1} \left(\frac{Quote_t}{Quote_{t-1}} \right)$$

Where NAV_t is the net asset value of the fund, and Quote_t is the quote of the fund at time t or t-1.

The rebalancing variable is generated from quarterly holding data. We are interested in obtaining a measure of how large net percentage of the funds holding has shifted during a time period. Assume that the investment universe for a fund has n stocks; we then compute the rebalancing as follows:

(3)
$$Rebalancing = \sum_{S=1}^{S=n} \left(max \frac{AV_t^S}{NAV_t} - \frac{AV_{t-1}^S}{NAV_{t-1}}, 0 \right)$$

Where AV^S_t is the current market value of stock S at time t. This variable summarizes the positive percentage increases of the stock positions in the fund. For example, if a fund at time t-1 has 1% of its total NAV invested in stock S, but 5% invested in stock S at time t, stock S will contribute by 4% (5%-1%) to the fund's rebalancing at time t. Hence, this variable takes both active trading, and natural rebalancing, due to individual stock performance, into account. This means that the variable captures the re-weighting effect of

the portfolio from active trading, or turnover, and the natural re-weighting from the non identical quote developments of the stocks of the portfolio. It is an interesting variable, since it represents the share of rebalancing the fund manager directly or indirectly allows for. We do not isolate the active trading of the fund, but rather approximate it. We believe that the optimal way to construct a variable isolating rebalancing from trading would be to set AV^s _t to the amount of stock s at time t times a constant quote for the stock. In this case, we would have completely erased the natural re-weighting of the portfolio and been able to isolate the re-weighting from trading. However, the Rebalancing factor provides a satisfying approximation of the fund turnover. Engström (2004) finds that the variable which we refer to as rebalancing, gives very similar results as a variable that only captures turnover from trading and disregards rebalancing due to asset development. Hence, the rebalancing variable used in this paper, can be regarded as a good proxy for fund trading.

The fund fee is obtained by collecting the management fee levels of each fund. Since the fee levels typically are stable over time, we use the same fee level throughout the sample period for each fund. Note that some funds may have load and exit fees. Such fees have not been considered in this paper.

In order to analyze the persistence of alpha, we generate a lagged alpha variable, by lagging the $\hat{\alpha}_{i,t} - \overline{\alpha_t}$ values by one year. The computed alphas for the years 2003 – 2006, are the lagged alphas for 2004 – 2007. Since we do not have data for 2002, we have not been able to generate lagged alphas for 2003.

3.2 Regression methodology

Moving on, we test the fund attributes against the fund performance. In order to increase the robustness of our results we will use several different methods. To study the effect of the variables individually, we run the following regression:

(4)
$$\hat{\alpha}_{i,t} - \bar{\alpha}_t = \delta_O + \delta_1 (\hat{x}_{i,t} - \bar{x}_t) + \epsilon_{i,t}$$

This regression will be referred to as a simple regression onwards. Where i is the fund and t is the given year. $\hat{\alpha}_{i,t}$ refers to the estimated alpha for the fund i at time t, and $\hat{x}_{i,t}$ refers to the attribute.

We also use a second model where all the attributes are included in order to study the combined effect of the variables. The model is stated as follows:

$$\hat{\alpha}_{i,t} - \bar{\alpha}_t = \delta_O + \delta_1(\hat{x}_{i,t} - \bar{x}_t) + \delta_2(\hat{y}_{i,t} - \bar{y}_t) + \dots + \delta_n(\hat{z}_{i,t} - \bar{z}_t) + \epsilon_{i,t}$$

This regression model will be referred to as a multiple regression hereinafter. The multiple regression model will account for correlation between the explanatory variables and therefore we cannot expect to obtain equal results for the two models, even though we expect them to be similar.

To study the parameter stability over time we perform regressions over different time periods. Apart from testing the variables on a year by year basis we also use different multiple-year periods. By using several time periods we are able to study the development of coefficient values and its corresponding significance levels over time.

We run both ordinary least square regressions (OLS) and weighted least square regressions (WLS). The reason for doing so is to obtain a more robust result. The alpha variable consists of generated values and is hence subject to measurement errors. The alphas are estimated with different degrees of certainty, which will introduce heteroskedasticity in the variable. The implication is that the OLS method is not sufficient, since it weighs all observations equally. WLS is in this perspective the preferred regression method. On the other hand, WLS, which weighs each observation by the inverse of its standard deviation, gives alphas with large absolute values less weight, since they, at any given significance level, will have a larger standard deviation than a smaller alpha with the same level of significance. However, we will focus on the results of the weighted least square regressions, to mitigate the issue with measurement errors in the alpha variable.

Using several different regression methods and as well using various time periods will allow us to study the robustness and stability of the results. We believe that this is very important since it may be that some results only are valid for a specific period of time and should not be the basis for a general conclusion. By including a number of different methods, we hope to identify any such cases. Generally, we consider results to be significant up to a 10% significance level. To sum up we will use the following regression methods and models:

- Regression method:
 - o Ordinary Least Square (OLS) and Weighted Least Square (WLS)
 - o Simple and multiple regressions
- Time periods:
 - o Four different time horizons (2003-07, 2004-07, 2005-07, 2006-07)
 - All individual years

3.3 Trading strategies

In order to test the results generated by the regression approach we create trading strategies based on the fund attributes. This will help us to test the robustness of the results and also to understand the economical implication of our results. We use the regression result of each attribute to define a trading strategy. To give an example, assume that we find persistence in fund performance. This result indicates that funds with high (low) returns, in a given year, would generate high (low) returns the subsequent year as well. If you were to base a trading strategy on this result, you would buy funds with high past return and short sell funds with low past returns, forming a zero-cost portfolio. Hence, we rank the funds on a specific attribute and then construct zero-cost portfolios, taking long positions in the top 1/3 and short positions in the bottom 1/3 of the funds. The generated portfolios are weighted equally and held for one year. After one year we perform a new ranking and rebalance the portfolios according to the current ranking year. We then compute the monthly returns of our simulated portfolios and regress the portfolio returns on the market premium variable, using SIXPRX as the market benchmark, see equation (6). Hence, we will be able to tell if it would have been possible to generate positive returns on zero-cost portfolios using our regression results as the basis for trading strategies.

(6)
$$\left(R_{Top,t}\right) - \left(R_{Bottom,t}\right) = \mu_O + \mu_1 \left(R_{m,t} - R_{f,t}\right) + \epsilon_{i,t}$$

 R_{Top} is the top 1/3 portfolio and R_{Bottom} is the bottom 1/3 portfolio. μ_0 signifies the abnormal return of the constructed portfolio.

4. Hypotheses

In this section, we present the hypotheses tested in this study. All the hypotheses are formulated as null hypotheses, but we add a few sentences regarding our thoughts on the actual outcome as well.

Hypothesis 1: The alphas of the funds will not be significantly different from zero

Given the contradicting results regarding the risk-adjusted return, it is fair to hypothesize that the joint alphas of our sample will not be significantly different from zero.

Hypothesis 2: The Size coefficient will not be significantly different from zero

We study the relationship between the performance of the funds and the characteristics of the funds. It is possible that we will find a positive relationship contradicting to that of Dahlquist, Engström and Söderlind (2000), since some of the most recent papers have found a positive relationship between size and risk-adjusted return.

Hypothesis 3: The Flow coefficient will not be significantly different from zero

Two of the most comprehensive studies on flow find a positive relationship to the risk-adjusted return, thus indicating the existence of "smart money". This seems as an intuitive result (the opposite would rather be counter-intuitive) and we expect to find a similar outcome or at least not a negative relationship.

Hypothesis 4: The Rebalancing coefficient will not be significantly different from zero

We use the variable Rebalancing to approximate trading activity. Trading can only be justified if it generates additional risk-adjusted return, which has been found in Engström (2004) and Dahlquist, Engström and Söderlind (2000). In line with these results we expect a positive relationship between trading and performance.

Hypothesis 5: The Fee coefficient will not be significantly different from zero

Many studies have previously found that the relationship is negative between fees and performance, indicating that fund managers cannot generate a risk adjusted return high enough to

justify their high fees. We believe that we will find that there is a significant, negative relationship between the fee and the risk-adjusted return, corresponding to previous research.

Hypothesis 6: There will not be a significant relationship between current and lagged relative risk-adjusted returns

Are last year's winners likely to have persistence in their performance? Are last years worst performing funds likely to maintain their poor performance? Much of the previous research indicates the existence of persistence and we believe that there will be a similar relationship in our sample.

5. Data

In this section we give an introduction to the data set used in the paper. Apart from introducing the fund sample we will also describe the variables individually and visually present their development in the period 2003-2007.

The fund quotes are collected from the SIX Trust database. For many of the fund attributes, we rely on holding data as well as net asset value data available from Finansinspektionen on a quarterly basis.

5.1 Fund sample

In this study, we use funds investing mainly in Swedish equities. We have chosen to do so because the data is easily available, but also in order to be able to make a relevant comparison to Dahlquist, Engström and Söderlind (2000). Moreover, using funds that have a limited investment universe facilitates the choice of a suitable benchmark index.

To select a relevant set of funds we have used two key criteria to identify funds to our sample:

- 1. The funds have to invest at least 75% in equity
- 2. Funds included in the sample have to be categorized as Sweden funds and invest 75% of their assets on the Swedish stock market
- 3. No index funds are allowed

The first criterion is due to the fact that this paper does not focus on any fund category other than equity funds, e.g. money market funds. Furthermore, we require Sweden funds since they have a similar investment opportunity set. The reason for excluding index funds is that they are passively managed and do not follow a certain fund manager strategy. Our final sample is described in the table below.

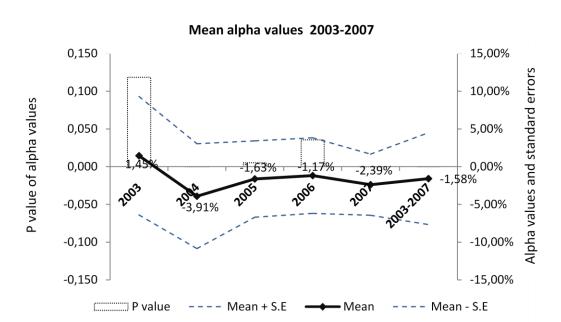
Table 5.1 – Table of annual sample size

Year	Number of funds in sample
2003	73
2004	76
2005	80
2006	84
2007	87

In the case of name change of a fund or an acquisition we have merged data so that we obtain one single data sequence for such a fund in the sample period. Our sample of Sweden funds is comprehensive, but somewhat limited by the fact that we have used several different sources. The sample is limited to funds for which we can find data in SIX Trust and match it with data from Finansinspektionen. This has implied that some of Sweden funds, meeting the sample criteria, have not been included in the sample. This is particularly true for funds that has been liquidated (i.e. not changed name or merged with other funds) in the period 2003-2007. Given this fact, a possibility is that our data includes a survivorship bias. However, we have found no reason to believe that the ratio of liquidated, acquired or merged funds to total funds, would differ between our sample, and the true total sample. We find no reason to believe that there would be any bias towards "dead" funds of the funds that does match our criteria but has not been included due to lack of data. Hence, we do not believe that we have a survivorship bias. Even though it is always preferable to control for survivorship bias, this effect is of no particular worry in a study of fund attributes. Given that we are not focusing on the abnormal returns per se, trying to obtain a correct or true value of alpha, a potential survivorship bias will only have a limited – if any – impact on the results. The dynamics of the attributes and their statistical relationship with the abnormal return of the funds can be assumed to have the same dynamics unconditional of the fund performance. All in all, we do not believe that a survivorship bias would affect our results.

5.2 Fund variables and attributes

The average alpha values were negative throughout the sample period in the range of 1,45% - (-2,39)% as can be seen in graph 5.1. On the left axis in the graph we have the P value of the alpha values of the yearly samples. As can be seen in the graph the mean alpha values are significant in all years on a 5% level except for 2003, which happens to be the only year with a positive alpha.



Graph 5.1: Annual mean alpha values, standard errors and significance values

The average total net asset value of Sweden funds experienced a stable increase in the period 2003-2007, as can clearly be observed in graph 5.2. The average fund size in 2003 was SEK 1,1 billion whereas in 2007 it was SEK 2,5 billion, an increase of nearly 130%. The booming stock market is possibly one explanation for the increase, but it is unclear if investor preferences have shifted towards larger funds. However, we also note an increasing standard deviation of the fund size, which implies that the difference in fund size increases. Naturally, no funds have a negative size, as the graph indicates. This is a purely mathematical consequence of the subtraction of the standard error from the mean size value.

In graph 5.3 the development of the flow variable is presented. In the period 2003-2005 the average fund had a positive flow of money, obviously fuelled by the bull market. In 2006 and

2007, however, the confidence of investors shifted and an outflow of money from Sweden funds could be observed.

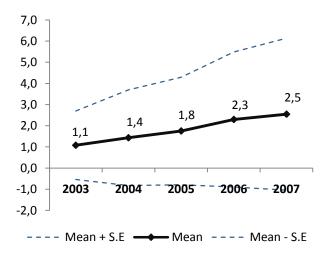
In the sample period the rebalancing of the funds was fairly stable, the average fund in this period had a rebalancing factor of around 15% of the total net asset value, presented in graph 5.4. As we have mentioned previously, the rebalancing factor is a good proxy for the trading in the funds, or turnover, and thus it seems as the fund managers of Sweden funds have had a fairly common strategy on trading activity in the period 2003-2007.

The average management fee level, which is presented in graph 5.5 was roughly 1,3% per year among the Sweden funds in 2003-2007. If we, for the sake of the argument, assume that 1,3% was the true average fee level of all mutual funds in Sweden, i.e. not only the Sweden funds in our sample, this would imply that investors paid nearly SEK 20 billion 2006 to cover the management fees.

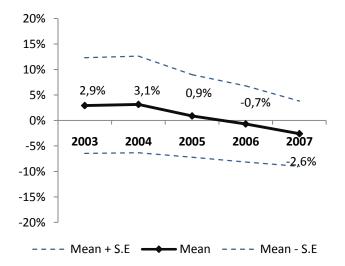
Note that we have not plotted the lagged alpha variable as the development of alpha is presented in graph 5.1.

Graph 5.2 Graph 5.3

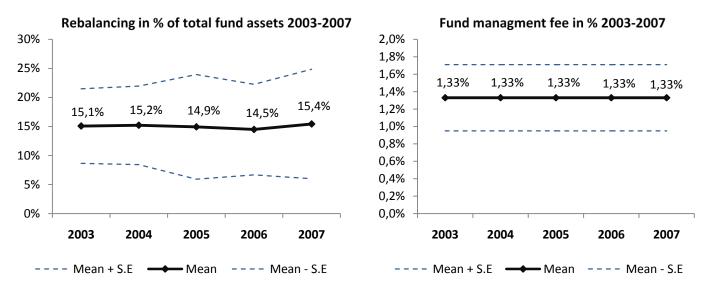
Size of funds in SEK billion 2003-2007



Flow as % of total fund assets 2003-2007







5.3 Distribution of fund attribute values

To visualize the distribution of the fund attribute values we have made scatter plots where we have plotted the alpha value and its corresponding fund attribute value for each observation. This gives a visual indication of the regression results (presented in section 6), and we will be able to visually distinguish any outlier observations, providing explanations to any irregular regression results. The scatter plots are presented in the appendix, see scatter plot 1-5. Studying the scatter plot of Ln(Size) against Alpha, It appears as if there are two observations with high alpha values that might distort the regression results and increase the standard deviation in the regression. However, these Alpha values have high standard errors, which lessen their weights in the WLS regressions. The scatter plot of Flow against Alpha shows four observations standing out. One observation with a high, insignificant alpha and low flow value, does not affect the WLS much, but three variables with high positive flow, and low positive, even negative alphas, are likely to reduce the positive relation between flow and performance that visually can be seen. Neither the scatter plot showing rebalancing against Alpha, or the one showing Fee against Alpha have outliers that visually can be seen distort a otherwise clear relationship. When we plot Alpha against Lagged Alpha, we observe one observation which is likely to reduce the strength of the relationship.

We have manually studied the outlier observations and several other observations for anomalies explaining either an alpha with a large absolute value, or an explanatory variable with an abnormal absolute value. We have indeed found reason to delete a few of the observations, due to data errors, but chosen to keep all remaining observations, since they are part of the history, unconditional of normal or abnormal values.

6. Results

In this section we present the results. The outline of this section follows the outline of the hypotheses section, ending with the results of the trading strategies. Generally, we will consider results based on longer time periods more relevant than shorter time periods. Furthermore, we ascribe more relevance to the WLS method than the OLS method, since we find that the WLS method provides stronger and more significant results compared to the OLS method. For this reason we will only report the WLS results in this section (for results from the OLS regressions please refer to the appendix 2 and 3).

6.1 Correlations between fund attributes

We produce a table of correlation coefficients, to better understand the fund attributes we study and as well to create a tool for comparing any differences between the simple and multiple regressions.

Table 6.1 – Table of correlation coefficients

		Alpha	Size	Flow	Rebalancing	Fee	Alpha-lag
Alpha	Pearson correl.	1,000	0,029	0,237**	0,026	0,025	0,134*
	2-tailed signif.		0,579	0,000	0,623	0,617	0,018
Size	Pearson correl.	0,029	1,000	-0,111*	-0,122*	-0,006	0,069
	2-tailed signif.	0,579		0,036	0,019	0,911	0,246
Flow	Pearson correl.	0,237**	-0,111*	1,000	0,194**	-0,126*	0,001
	2-tailed signif.	0,000	0,036		0,000	0,018	0,982
Rebalancing	Pearson correl.	0,026	-0,122*	0,194**	1,000	0,036	0,031
	2-tailed signif.	0,623	0,019	0,000		0,489	0,608
Fee	Pearson correl.	0,025	-0,006	-0,126*	0,036	1,000	0,081
	2-tailed signif.	0,617	0,911	0,018	0,489		0,161
Alpha-lag	Pearson correl.	0,134*	0,069	0,001	0,031	0,081	1,000
	2-tailed signif.	0,018	0,246	0,982	0,608	0,161	

^{** 1 %} significance level

^{* 5%} significance level

^{† 10%} significance level

We find that Alpha is correlated to the variables Flow and Alpha lag at a significant level, indicating that we may have "smart money" and persistence effects in the sample. A more detailed analysis will follow when presenting the regression results. Size is negatively correlated to the Flow and Rebalancing variable. This signifies that, on average, that the relative flow of funds into larger funds is smaller than for smaller funds. The negative relation between Size and Rebalancing signifies that the equity composition of larger funds is more stable over time than the equity composition for smaller funds. With reference to the definition of the Rebalancing variable, this is likely to be due to two reasons. The most apparent reason is that the smaller the fund the easier it is to buy and sell significant portions of the portfolio, which increases the magnitude of the Rebalancing variable. Moreover, the negative relation between the Size variable and the Rebalancing variable signifies that the smaller funds tend to be exposed to more volatility, either through a smaller number of investments in their portfolio, or through investments in more volatile stocks. The variable Flow is also significantly, negatively related to both Rebalancing and Fee. This means that if the market experiences an inflow of capital (positive net flow), funds with high rebalancing and fee will have less inflow than funds with lower fee and rebalancing. On the other hand, if the market experiences an outflow of capital (negative net flow) these funds will have a larger outflow of capital than their peers.

To conclude: since we do find correlation between many of the variables, even at significant levels, we expect some differences between the simple and multiple regressions. When performing the simple regressions, the effects due to correlation between the fund attributes will be ignored, potentially producing differences in the results.

6.2 Regression results

In this section we present and discuss the results. Please note that since the Alpha-lag variable is not available for the first year, we run the 2003-2007 regression without this variable. A summary of the results is presented in table 6.2.

We have further tested the robustness of the results by creating trading strategies based on the regression results. This will allow us to investigate the economical implication of the results. We have created trading strategies for all of the fund attributes even though some variables did not obtain significant coefficients. An overview of the trading strategy results can be found in table 6.3.

Table 6.2 – Table of regression results – simple and multiple regressions

Regression/T	ime	Size	Flow	Rebalancing	Fee	Alpha-lag
Multiple	Coefficient	0,037*	0,020**	-0,003	0,108	N/A
2003-2007	p-value	0,048	0,000	0,571	0,281	N/A
	N	345	345	345	345	N/A
Simple	Coefficient	0,018	0,018**	0,003	0,139	N/A
2003-2007	p-value	0,360	0,000	0,514	0,114	N/A
	N	360	348	353	388	N/A
Multiple	Coefficient	0,053**	0,033**	-0,008†	0,210*	0,162**
2004-2007	p-value N	0,008 274	0,000 274	0,089 274	0,048 274	0,001 274
Simple	Coefficient	0,043*	0,025**	-0,002	0,134	0,181**
2004-2007	p-value N	0,041 294	0,000 287	0,690 289	0,139 317	0,000 311
Multiple	Coefficient	0,031†	0,027**	-0,004	0,174†	0,131**
2005-2007	p-value N	0,096 208	0,000 208	0,358 208	0,072 208	0,005 208
Simple	Coefficient	0,038*	0,026**	-0,001	0,076	0,157**
2005-2007	p-value N	0,048 220	0,000 215	0,799 217	0,367 241	0,001 239
Multiple	Coefficient	0,034	0,023**	-6,2E-03	0,134	0,031
2006-2007	p-value N	0,123 136	0,023	0,231	0,246 136	0,678 136
Simple	Coefficient	0,044*	0,024**	-0,005	-0,056	0,072
2006-2007	p-value N	0,044 145	0,000	0,239 144	0,557 164	0,328 161
Multiple	Coefficient	0,021	0,012†	-0,013*	-0,125	-0,209*
2007	p-value N	0,423 69	0,078 69	0,027 69	0,356 69	0,025 69
Simple	Coefficient	0,023	0,015*	-0,007	-0,341**	-0,148†
2007	p-value	0,328	0,028	0,102	0,002	0,092
	N	74	71	74	83	82

The Table shows the coefficients and their level of significances (p-value) for the simple and multiple regressions, for the different time periods. The number of observations underlying each regression is reported as the N value.

^{** 1 %} significance level

^{* 5%} significance level

^{† 10%} significance level

Table 6.3 – Table of trading strategy compositions, hypotheses and results

Variable	Long	Short	Hypothesis	Intercept	P-value	N
Size	Large size	Small size	Positive Intercept	0,0026*	0,057	58
Flow	High flow	Low flow	Positive Intercept	0,0030**	0,000	58
Rebalancing	Low rebalancing	High rebalancing	Positive Intercept	-0,0016	0,144	58
Fee	High fee	Low fee	Positive Intercept	0,0002	0,764	58
Alpha lag	High alpha lag	Low alpha lag	Positive Intercept	0,0018	0,161	47

^{** 1 %} significance level

Hypothesis 1: The alphas of the funds will not be significantly different from zero

Previous research has demonstrated that the risk-adjusted returns differ between sample and sample, as a result of the usage of different fund types, time periods, geographies et cetera. Most of the studies focusing on net returns have, however, found a negative alpha. Engström (2004) argues in favor of active portfolio management, finding a positive alpha among Swedish equity funds in the period 1996-2000, on a net return level. We find evidence of a negative alpha, contrasting to the findings in Engström (2004) but in line with most of the evidence from the US.

We first tested if the alphas of the funds in our sample jointly sum to zero, which can also be regarded as a test of the CAPM² theory. If CAPM holds, the alphas should sum to zero. We find that we can reject the hypothesis that the alphas sum to zero (see appendix 1 for a results table).

In the full sample, we find that roughly 20% of the generated alphas are significant on a 10% level. It could be debated if this is enough to make the alphas a reliable variable, but to be able to draw any conclusions we have assumed it is. We then find that the average annual alpha in our sample is -1,6% over the complete time period, on a net return level. To test if this result is significantly different from zero we perform a t-test. The result indicates that alpha is statistically different from zero on a 1% level of significance (see appendix 4 for a results table). Given the result, we can reject hypothesis 1, that the alpha of the sample funds will not be significantly different from zero. We conclude that in the period 2003-2007, fund managers of Sweden funds

^{* 10%} significance level

² Refers to the Capital Asset Pricing Model, which decomposes portfolio risk into systematic and idiosyncratic risk

actually underperformed the market, on a net return level, by 1,6% annually. This implies that, on average, an investor would be better off by investing in a passive market index, and combine this with a long or short position in bonds to obtain the desired level of risk, in the period 2003-2007.

In order to test the fundamental performance of the fund managers we also test if the gross return alphas are significantly different from zero. We add back the management fee to obtain the gross returns, and generate the alpha variables again. Running a one sample t-test on the gross return alphas, we find that they are not significantly different from zero, given the highly insignificant result. Even though the result was insignificant we were surprised by the fact that the mean monthly alpha was still negative, -0,02%.

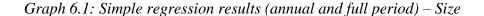
Our results indicate that the ability among fund managers of Sweden funds to generate excess returns have diminished post-2000, to become more in line with their US counterparts. Our result is thus in line with previous evidence on the US market and is particularly interesting since this is the first result, to our knowledge, for Sweden funds indicating a negative and significant alpha. It is possible that the Swedish market has become more competitive and more mature, making it harder for fund managers to generate positive alphas. This could explain why we find a different result than Engström (2004).

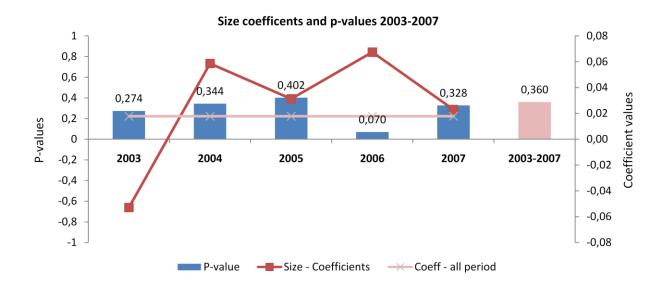
Hypothesis 2: The Size coefficient will not by significantly different from zero

We have found that the average size of funds is increasing in the period 2003-2007. It is obviously interesting to examine the relationship between size and performance, with this observation in mind. If the trend towards larger funds is rational, the relationship should be positive. In the opposite case, investors would to some extent be irrational. A positive relationship could imply that there are economies of scale in fund management, whereas a negative relationship could indicate that aggressive and rapid trading becomes harder the larger the fund is.

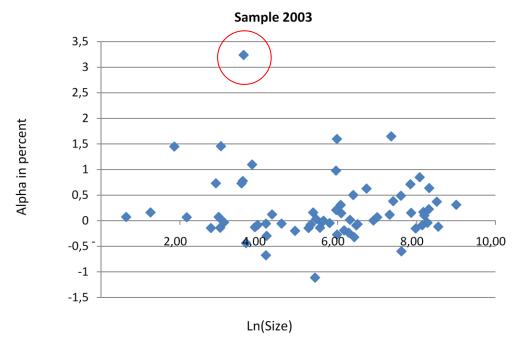
Table 6.2 gives a good overview of the regression results for the fund attributes studied in this paper. Looking at the results on the Size variable, we find some mixed results. The positive sign of the coefficients is robust but the significance varies. The long period, multiple regressions indicate a positive and significant relationship between Size and risk-adjusted return whereas the

full sample simple regression generates an insignificant result. Since this result deviates from the other regression outcomes we want to study the simple regression more in depth. Looking closer at the yearly coefficient values, in graph 6.1, we note mixed outcome during the sample period. The coefficients for the Size variable are slightly positive all years apart from 2003 and only significant in 2006, explaining the insignificant result in the simple 2003-2007 regression. The negative 2003 value has influenced the full period coefficient which, nevertheless, turned out positive. In the year by year analysis the coefficient cannot be regarded as stable. The odd result in 2003 can be explained by investigating graph 6.2. Here we find that one observation in particular influences this result with a high alpha and a relatively small size, Spiltan Aktiefond Sverige. This fund is a regular, actively managed Sweden fund. The fund has no particular trading strategy and invests in both large and small cap stocks. Therefore, we find no reason to exclude it from the 2003 sample. If this observation should have been excluded from the regression, the coefficient of the Size variable is more in line with those of the subsequent years, which is visualized by the general positive trend in the scatter plot. Examining the full sample scatter plot (see appendix 5), we can visually observe the slight positive relation between size and performance. The observations that are extreme, actually work against rather than in favor of this relationship in a regression. This leads us to believe that the positive relationship is not driven by any particular funds or extreme observations, but actually is the true relationship.





Graph 6.2: Monthly Ln(Size) plotted against monthly alpha in 2003



Conclusively, we find that the coefficient of the Size variable is significant in most of the long period regressions. Since these regressions use a larger sample than the annual or short period regression, their results should be more relevant. Given the predominantly significant results, especially in the multi-period regressions, we do not find support for the hypothesis that the Size parameter is not significantly different from zero. Our result is indicative of a positive and significant relationship between the size of a fund and its risk-adjusted return. Transforming this relationship into a trading strategy, we take a long position in large funds and a short position in small funds. The trading strategy generates a significant, positive intercept on a 10% level of 0,26% monthly, which translates into an annual return of 3,12%. This result shows that betting on large funds and financing this by shorting small funds generate a positive return, on a significant level in the period 2003-2007. Hence, the trading strategy provides further evidence of the positive relationship between size and performance.

Previous evidence on size indicates both negative and positive relationships to alpha. However, the most recent papers studying size find a positive relationship. This could indicate that the scale benefits of the funds are leveraged during the time of our sample. If we take the finding of "smart money", found in Gruber (1996) and Zheng (1999), as well as the evidence of persistence, found in several studies, into consideration, we find another plausible explanation

for the sign of the size coefficient. If you are successful, you are likely to grow, since capital flows to successful funds, and if you remain successful as a result of persistence, you are likely to grow large due to the positive net flow of capital.

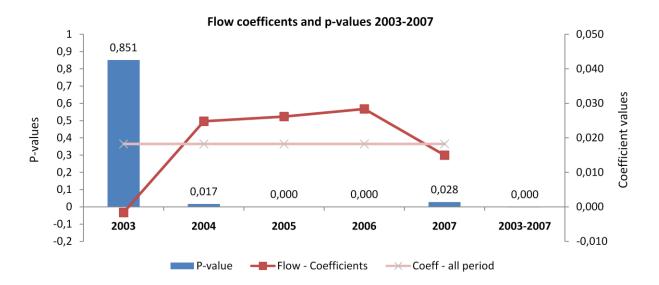
Hypothesis 3: The Flow coefficient will not be significantly different from zero

The theory of "smart money" suggests that capital is drawn to funds where the risk-adjusted return is relatively larger. This implies that funds with a relatively low risk-adjusted return, i.e. weak performers, would have a negative net flow of capital out of their fund, whereas strong performing funds, with a relatively high risk-adjusted return would have a positive net flow of capital.

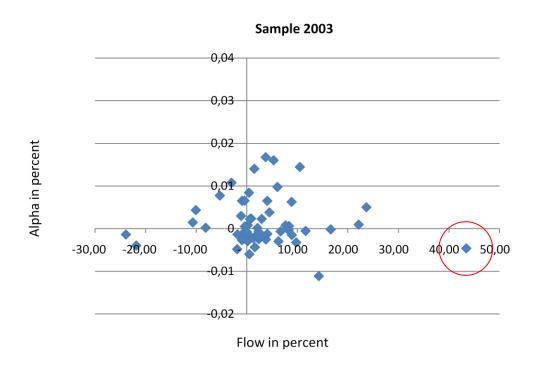
We find that the Flow variable has a positive relation with the risk-adjusted return on a significant level. This is valid for the simple as well as the multiple regressions in all time periods. The positive relationship must therefore be regarded as robust over time.

The magnitude of the coefficient varies over time. When we study the year by year coefficients in graph 6.3, this is clearly visualized. We also find that the Flow coefficient is not significant in 2003. All other years have significant and positive coefficients. When studying the scatter plot for 2003 (graph 6.4), we see that the observation for *Danske Fonder Offensiv* is distorting the positive relation with its very high flow and its negative alpha. This fund experienced large inflows, even though it produced a negative risk adjusted return in this period. If this observation is excluded from the regression, the 2003 regression obtain a larger and more significant value. The inflow could be explained by the fact that *Danske Fonder* entered the Swedish market in this period. The fund had previously been managed by *First Nordic*, a smaller player with considerably less marketing strength.

Graph 6.3: Simple regression results (annual and full period) – Flow



Graph 6.4: Monthly Flow plotted against monthly alpha in 2003



In summary, we find that the flow variable has explanatory power over the risk-adjusted returns. The relationship must be regarded as robust, given the fairly stable results in the major part of the regressions. We thus conclude that we do not find evidence supporting hypothesis 3: the Flow attribute does have explanatory power and is significantly and positively related to the

risk-adjusted return. The positive significant relationship should imply that a trading strategy with a long position in funds with a positive flow and a short position in funds with negative flow should generate a positive risk- adjusted return. Accordingly, this trading strategy generates a monthly positive intercept of 0,3%, which translates into an annual intercept of 3,6%, which is statistically significant on a 1% level. Again we find further proof of the positive relationship between flow and risk-adjusted return when trading on the result. Our result is in line with Gruber (1996) and Zheng (1999), who found a positive and significant relationship between Flow and the risk-adjusted return, indicating the existence of "smart money".

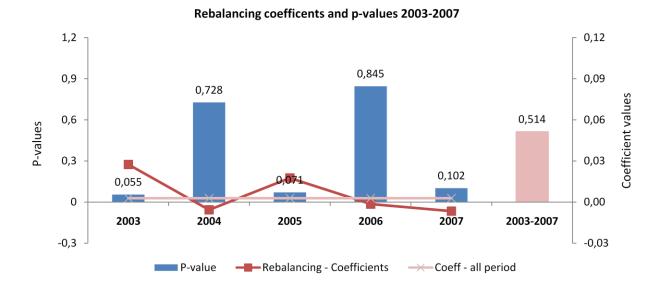
Hypothesis 4: The Rebalancing coefficient will not be significantly different from zero

Trading activity is one of the major differentiating factors among funds. Obviously, fund managers trade in order to generate better performance. The research on the relationship between trading activity and performance is, however, mixed. There exists evidence indicating both a positive and a negative relationship but also evidence indicative of insignificant influence.

We obtain a few contradictory results when studying the Rebalancing coefficient. When it comes to the significance of the parameter, our results generally indicate an insignificant parameter value, especially in the simple multi-period regressions. However, examining the results from the multiple regressions we find a significant negative relationship between the Rebalancing variable and the Alpha variable for the 2004–2007 period. For the other multi-year periods, the Rebalancing coefficient remains insignificant in the multiple regressions. The deviating results in the 2004-2007 regression could be due to correlation effects between the explanatory variables.

When it comes to the sign of the coefficient we find a negative relationship in all multiyear periods apart from the simple regression 2003-2007. To further study the stability of the coefficient we look at the yearly coefficient values in graph 6.5. Here we generally find that the sign of the coefficient is shifting from positive to negative throughout the period but that the insignificant relationship remains in all years apart from 2003. Since the 2003 coefficient is significant and positive it is clear that this value is pushing the full period coefficient to become positive, explaining the deviating result in the simple regression 2003-2007.

Graph 6.5: Simple regression results (annual and full period) – Rebalancing



All in all, we conclude that we, in most cases, have an insignificant negative relationship between the Rebalancing variable and the risk-adjusted return. In spite of the somewhat contradicting results we conclude that we do not have strong evidence of a significant relationship. Hence, we find evidence supporting our hypothesis that the Rebalancing coefficient is not significantly different from zero.

The trading strategy on Rebalancing takes a long position in funds with low rebalancing and a short position in funds with high rebalancing. This portfolio generates an insignificant negative risk adjusted return. Hence, there is no economic significance in the relationship between the variable and the risk-adjusted return. Compared to the regression results we have a contradicting result, but since neither of the results are significant we do not attach much importance to this difference.

Some of the previous findings on the Swedish market indicate a positive relationship between trading activity and risk-adjusted performance. Engström (2004) finds this relationship especially relevant among small cap funds. The differing result in this paper is probably due to one major difference in the definition of the fund attribute. In this study, we have not isolated the trading component but rather analyzed natural rebalancing due to stock price changes and trading as a combined effect. Both of the studies on the Swedish market by Dahlquist, Engström and Söderlind (2000) and Engström (2004) analyze trading as a more isolated component. One

should also note that the findings on the relationship between trading and risk-adjusted return is quite mixed. There are studies that find a negative relationship, particularly Carhart (1997), and there are also studies that do not find any significant relationship, notably Ippolito (1989) and Karlsson and Persson (2005). The weak significance in our results is thus not very surprising and we conclude that our results suggest that trading and natural rebalancing does not explain the risk-adjusted return of the funds.

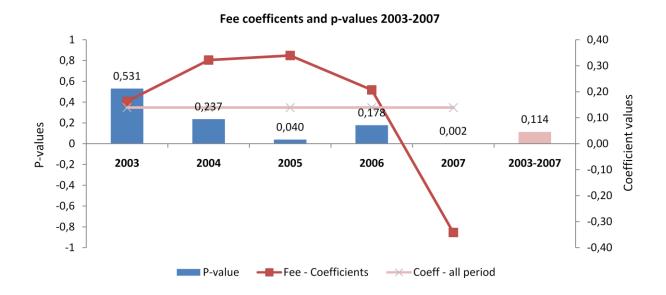
Hypothesis 5: The management Fee coefficient will not be significantly different from zero

Economic intuition would suggest that few funds would be able to justify a fee that is considerably higher than the average management fee. Each percentage point of additional fee would have to generate at least one additional percentage point of risk-adjusted return in order to be justified. Therefore, we expected to find a negative relation between the fee and the performance of the funds. Dahlquist, Engström and Söderlind (2000) and several others indeed find a negative relationship between the fee and the performance, suggesting that high fee funds do not have a strong enough performance to offset the high fees charged to the investors.

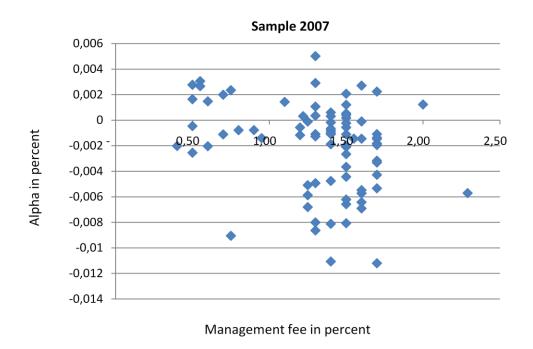
When studying the management Fee variable we find some interesting results. The coefficient of the variable is insignificant but positive both in the simple and multiple regressions, in most of the time periods. It is only in the later part of our sample period that we have a negative coefficient value, which is more in line with previous research. We do have some significant values, notably in the multiple regression 2004-2007 where the coefficient was positive.

Looking at the development over time of the coefficient, in graph 6.6, we have one clearly deviating observation. The 2007 regression has a significant, negative coefficient, contrary to the previous years. When we study the monthly observations in the 2007 scatter plot in graph 6.7, we see that the negative relationship that does not seem to be distorted by any extreme outliers. It might be the case that this is the true relationship, and that the other years are distorted by outliers, generating an insignificant, positive relationship between fee and risk-adjusted returns. However, studying the scatter plot for all the years, this does not seem to be the case (available in the appendix 5).

Graph 6.6: Simple regression results (annual and full period) – Management Fee



Graph 6.7: Annual management Fee plotted against monthly alpha in 2007



The findings on the Fee variable are mixed since we have a few significant values that contrast the generally insignificant coefficient values. Potentially, the relationship between the management fee and fund performance changed in 2007, since we have, in this year, negative parameter values in both the multiple and simple regressions. However, only the parameter value

in the simple regression is significant. Given the mixed results we are hesitant to draw any strict conclusions. Our results in most cases indicate an insignificant relationship between the management fee and the risk-adjusted return, but we have some evidence of a significant relationship. The positive sign on the Fee coefficient is interesting since previous research indicates a negative relationship. However, the positive value is not stable over the period and could be specific only for a shorter period in our sample. Since we also test the relationship, significant or not, between the fund attributes and alpha by creating trading strategies, we create in this case a portfolio based on the positive relationship between fee and alpha. This strategy generates a positive return but again this result is insignificant. Given the high insignificance both when analyzing the trading strategy and the regression outcome we must conclude that the results related to the management fee is inconclusive and likely there is not a relationship that can be justified by statistical measures. Hence, the results support the hypothesis that the Fee coefficient will not be significantly different from zero. This is also in line with the most recent findings on the Swedish market, presented in a study by Adolfsson and Christensson (2007).

Hypothesis 6: There will not be a significant relationship between current and lagged relative risk-adjusted returns

Persistence in performance implies that strong performers will maintain their strong performance, and weak performers will remain weak performers, relative to their peers. A major part or the studies on persistence find evidence of persistence, especially on the short term. When we study the lagged alpha variable, i.e. the persistence effect, we find up until 2007 a significant, positive relationship. The coefficient values are relatively stable, remaining significant and positive up until 2007 in both the simple and multiple regressions. The sudden change is clearly visualized in graph 6.8. In the graph we see the significant results in all years except for 2007. In the simple regression the 2007 coefficient still remained positive but in the multiple regression for 2007, the parameter value even turned negative. Thus, it is obvious that we have different dynamics between the risk-adjusted return and the lagged alpha variable in 2007. It seems as betting on past winners would have been a good strategy in our entire period, except for in 2007 where the coefficient value is no longer significant and even negative in the multiple regression. When studying the scatter plot of the alpha and lagged alpha observations for 2007 (graph 6.8), we see that the positive linear relationship no longer is very strong. This does not seem to derive

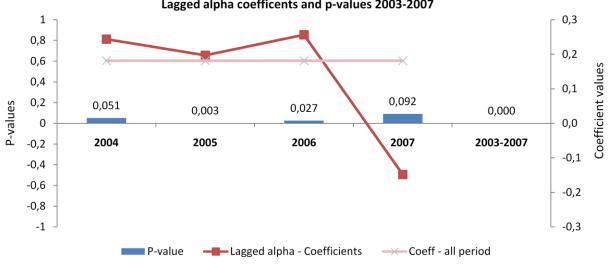
from a few specific observations which could be referred to as outliers; it rather seems as if the persistence dynamics of previous years was not as strong in 2007.

In order to further explore the dynamics of the persistence, we test whether the dynamics of persistence in performance differ between the relatively strongest performing funds and the relatively weakest performers. The results are reported in table 6.4. We find that the coefficient of the strongest performers is larger than that of the weakest performers, indicating that persistence is stronger in the sample with strong performers.

Conclusively, we find that the regression outcome is indicative of significant persistence effect in performance. We also find stronger evidence of persistence among strong performers, than among weak performers. Hence we do not find support for the hypothesis that the Lagged alpha coefficient is not different from zero, which is in line with much of the previous research. However, when trading on this result we are surprised to see that the trading strategy with long positions in funds with high lagged alphas, and a negative position in low lagged alphas, does not generate a significant result³. The intercept is positive, as one would expect, but insignificant. Taking the outcome of the trading strategy into account, we find the results inconclusive and we must refrain from drawing any conclusions regarding hypothesis 6.



Graph 6.8: Simple regression results (annual and full period) – Lagged alpha



³ Since we found a negative coefficient in 2007 we also tested the trading strategy in the period 2004-2006 (excluding 2007) but were unable to boost the significance of the outcome.

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Graph 6.9: Lagged alpha (monthly values) plotted against monthly alpha in 2007

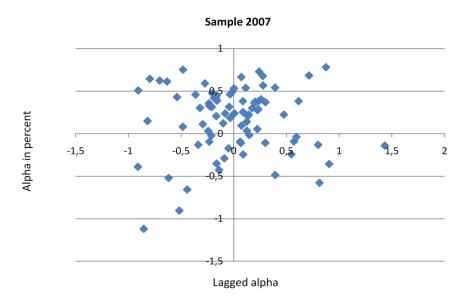


Table 6.4 – Table of conditional regressions testing persistence

Regression	Alpha lag	Full sample	Strong performers	Weak performers
Simple	Coefficient	0,18**	0,18*	0,04
2004-2007	p-value	0,00	0,06	0,69
	N	311	132	178

^{** 1 %} significance level

6.3 Discussion

We have tried to obtain as robust results as possible by using both simple and multiple regressions as well as studying different time horizons and creating trading strategies based on the regression result. In many cases we have found that the results of these different approaches differ. We would therefore like to end the results section by discussing some of the reasons to this fact.

Starting with the difference between a simple and a multiple regression, we have already mentioned that the correlation factors between the variables can cause different regression results. When controlling for several factors in a regression (as in the multiple regression) it is therefore not surprising that the results are not identical to the simple regressions. We believe that fluctuating coefficients are not problematic as long as the sign of the coefficient remains the same, which in general has been true in our case. When it comes to differing significance levels

^{* 5%} significance level

between the simple and multiple regression results, as was the case with the Size variable, we have tried to understand the difference by further analysis. Regarding the Size variable we found that one observation in particular distorted the trend and reduced the significance, making the simple regression result insignificant.

Concerning the results of the different time periods, we have also obtained differing results. Surprisingly often there have been differences between various time periods, even the sign of the coefficients has shifted. In general, these fluctuations have occurred in the annual or short period samples, often towards the end of the sample period. Even if the results sometimes are contradicting, we believe that this is one of the strengths of this paper, since we have identified the fact that the choice of sample period plays an important role. Given the relatively instability of the results between different time periods, we cannot rule out the possibility that our results are valid for a certain time period but not necessarily valid for other time periods, historical or future. It is possible that this phenomenon is specific to the Swedish market, given its immaturity relative to larger markets as the US. If the Swedish fund market is still in a development phase, this could implicate that the evolving characteristics of the market differ in the beginning of our sample period compared to the latter part of it. This could be one explanation of the sometimes contradicting outcome in our results. Since we have put more emphasis on the results from the full period regressions, it could also be the case that the conclusions are valid for long term horizons but may not be true on the short term, given the fluctuations that we have seen in the data. This would imply that investor decisions based on findings from this kind of analyses should only concern long term strategies.

7. Conclusion

In this paper we have analyzed the performance of mutual equity funds investing in Sweden and tested the relationship between risk-adjusted return and a number of fund-specific attributes. Evidence from the Swedish mutual fund market is scarce and to the best of our knowledge no comprehensive analysis has been done on fund attributes on recent data. Using an updated sample is one of the major contributions of this study. We have furthermore contributed with a new proxy for trading activity of the funds, called Rebalancing in this paper.

Using data from about 90 Sweden funds in the period 2003-2007 we have studied five fund specific attributes: management fee, size, rebalancing, flow and persistence, and their relationships with fund performance over time and are thus able to answer our research questions:

1. How have mutual funds investing in Sweden performed?

In line with much of the evidence from the US market we find evidence of underperformance, indicated by a negative and significant risk-adjusted return among the Sweden funds in the period 2003-2007. If weighing the funds equally, the mean annual risk-adjusted return in the sample was -1,6%, on a net return level. This implicates that funds, on average, are underperforming by the amount of the fund fees. Analyzing gross returns, we do not find any significant risk-adjusted returns.

2. Which fund-specific characteristics have a statistically significant impact on fund performance and how do our results compare with previous research?

We find robust evidence of "smart money", i.e. a positive relationship between flow of money and fund performance, which is in line with Zheng (1999) and Gruber (1996). We also find a positive relationship between the fund size and risk-adjusted return. The most recent papers analyzing size also finds a positive relationship, contrary to earlier findings. It is possible that the fund market is more and more affected by economies of scale, which could explain our result. We also find some evidence of persistence, but the significance of this result is dubious. Contrary to Dahlquist, Engström and Söderlind (2000) and Engström (2004), we cannot distinguish any significant results when it comes to management fees or trading activity. A different approach in approximating trading is one plausible explanation to the different results on trading activity. Concerning fund fees, our results are in line with the most recent evidence from the Swedish market, also indicating a non-existent relationship between fee and performance.

In line with our second aim we thus conclude that, according to our results a rational investor, investing in Sweden funds, should invest in funds with positive flow and funds that are large relative to the average fund size. Some of our findings also indicate that funds with a good past performance are preferable. As a final comment we would like to add that we have found that the choice of sample period has a large influence on the results. This could be specific to Sweden,

given its relative immaturity to larger markets, and it may imply that our results are valid only for the period studied in this paper. It is even likely that the dynamics of the relationship between fund performance and fund attributes will continue to evolve as the market develops further. Given this risk we urge readers to consider our results with some caution.

8. Future research

Our results suggest that there is instability in some of the relationships over time. Since our sample period is rather short, it would be interesting to further the analysis to include further funds and increase the sample period. The parameter instability for the Rebalancing variable could be mitigated by dividing natural rebalancing and trading into two variables. It would be interesting to see what relationship the separate variables would have to the risk adjusted returns.

Obviously, it would be of great interest to see if the result obtained in this paper would be different if Swedish funds investing internationally would also be included. Would the dynamics change? Would the mean alpha be different between Sweden funds and funds without this home bias? Would the dynamics of the relationship between the performance and the characteristics substantially change?

Moving from the quantifiable characteristics we are studying, one could expand the analysis to study include more qualitative characteristics. Examples of these characteristics are fund age, fund manager tenure or educational background. Finally, we would find it very interesting to see more statistical evidence on the performance of funds investing domestically versus internationally.

Literature list

Adolfsson, P., Christensson, J., 2007, "Equity Funds and the Relationship Between Return and Administrative Fees", Bachelor thesis in Economics, Jönköping International Business School

Bauer, R., Otten, R., Rad, A. T., 2006, "New Zealand mutual funds: measuring performance and persistence in performance", Accounting and Finance, Vol 46, 347–363

Bechmann, K., Rangvid, J., 2007, "Rating Mutual Funds: Construction and Information Content of an Investor-cost based Rating of Danish Mutual Funds", Journal of Empirical Finance, Vol 14, No 5, 662-693

Blanchett, D., 2007, "The Perils Of Portfolio Turnover", Journal of Indexes, May/June, 34 – 39

Bollen, N., Busse, J., 2005, "Short Term Persistence in Mutual Fund Performance", Review of Financial Studies, Vol 18, Issue 2, 569-597

Brown, S. J., Goetzmann, W. N., 1995, "Performance Persistence", The Journal of Finance, Vol L, No 2, 679-698

Busse, J. A., Irvine, P. J., 2006, "Bayesian Alphas and Mutual Fund Persistence", The Journal of Finance, Vol LXI, No 5, 2251 – 2288

Cai, J., Chan, K.C, Yamada, T, 1997, "The Performance of Japanese Mutual Funds", Review of Financial Studies, Vol 10, Issue 2, 237-273

Carhart, M. M., 1997, "On Persistence in Mutual Fund Performance", Journal of Finance, Vol 52 Issue 1, 57 – 82

Cesari, R., Panetta, F., 2002, "The Performance of Italian Equity Funds", Journal of Banking and Finance, Vol 26, Issue 1, 99-126

Chen, J., Hong, H., Huang, M., Kubik, J., 2004, "Does Fund Size Erode Mutual Fund Performance? The Role of Liquidity and Organization", The American Economic Review, Vol 94, Nr 5, 1276-1302

Christensen, M., 2005, "Danish Mutual Fund Performance – Selectivity, Market Timing and Persistence", Working Paper F-2005-01, Finance Research Group, Aarhus School of Business

Dahlquist, M., Engström, S., Söderlind, P., 2000, "Performance and Characteristics of Swedish Mutual Funds", Journal of Financial and Quantitative Analysis, Vol 35, No 3, 409 – 423

Daniel, K., Grinblatt, M., Titman, S., Wermers, R., 1997, "Measuring Mutual Fund Performance with Characteristic-based Benchmarks", Journal of Finance, Vol 52, Issue 3, 1035-1038

Droms, W. G., 2006, "Hot Hands, Cold Hands: Does Past Performance Predict Future Returns?" Journal of Financial Planning, May, 60 – 69

Droms, W. G., Walker, D., 2001, "Persistence of Mutual Funds Operating Characteristics: Returns, Turnover Rates and Expense Ratios", Applied Financial Economics, Vol 11, Issue 4, 457-466

Droms, W. G., Walker, D., 2001, "Performance Persistence of International Mutual Funds", Global Finance Journal, Vol 12, Issue 2, 237-248

Engström, S., 2004, "Does Active Portfolio Management Create Value? An Evaluation of Fund Manager's Decisions", SSE/EFI Working Paper Series in Economics and Finance, No. 553, 1-32.

Ennis, R.M., 2005, "Are Active Management Fees Too High?", Financial Analysts Journal, Sept/Oct, 44-51

Fondbolagens Förening,

http://www.fondbolagen.se/StatistikStudierIndex/FondmarknadensUtveckling.aspx, http://www.fondbolagen.se/StatistikStudierIndex/Statistik/Fondformogenhet.aspx

Gil-Bazo, J., Ruiz-Verdú, P., 2007, "Yet Another Puzzle? The Relation between Price and Performance in the Mutual Fund Industry", Working paper Department of Business Administration, Universidad Carlos III de Madrid

Gil-Bazo, J., Ruiz-Verdú, P., 2006, "When Cheaper is Better: Fee Determination in the Market for Equity Mutual Funds", Working paper Department of Business Administration, Universidad Carlos III de Madrid

Grinblatt, M., Titman, S., 1994, "A Study of Monthly Mutual Fund Returns and Performance Evaluation Techniques", Journal of Financial and Quantitative Analysis, Vol 29, No 3, 419 – 444

Grinblatt, M., Titman, S., 1989, "Mutual Fund Performance: An Analysis of Quarterly Portfolio Holdings", Journal of Business, Vol 62, Issue 3, 394-415

Grinblatt, M., Titman, S., Wermers, R., 1995, "Momentum Investment Strategies, Portfolio Performance, and Herding: A Study of Mutual Fund Behavior", American Economic Review, Vol 85 Issue 5, 1088-1105

Gruber, M. J., 1996, "Another Puzzle: The Growth in Actively Managed Mutual Funds", The Journal of Finance, Vol LI, No 3, 783 – 810

Holmes, K. A., Faff, R. W., 2007, "Style drift, fund flow and fund performance: new cross-sectional evidence", Financial Services Review, Vol 16, 55-71

Ippolito, R. A., 1989, "Efficiency With Costly Information: A Study of Mutual Fund Performance", Quarterly Journal of Economics, Vol 104, 1 – 24

Jan, Y. C., Hung, M. W., 2004, "Short-Run and Long-Rund Persistence of Mutual Funds", The Journal of Investing, Spring, 67 – 71

Jensen, M. C., 1968, "The Performance of Mutual Funds in the Period 1945 – 1964", Journal of Finance, Vol 23, 386 – 416

Karlsson, T., Persson, M., 2005, "Mutual Fund Performance – Explaining the performance of Swedish domestic equity mutual funds by using different fund characteristics", Master thesis in Business administration, Göteborg University

Korkeamaki, T. P., Smythe, T. I., 2004, "Effects of Market Segmentation and Bank Concentration on Mutual Fund Expenses and Returns: Evidence from Finland", European Financial Management, Vol. 10, No. 3, 413–438

Malkiel, G., B., 1995, "Returns from Investing in Equity Mutual Funds 1971 to 1991", The Journal of Finance, Vol L, No 2, 549 – 572

Otten, R., Bams, D., 2002, "European Mutual Fund Performance", European Financial Management, Vol 8, No 1, 75 – 101

Sharpe, W. F., 1966, "Mutual Fund Performance", Journal of Business, Vol 39, Issue 1, 119 – 138

Sing, T. C., 2007, "Effects of Expenditures and Size on Mutual Fund Performance", Singapore Management Review, Volume 29 No 1.

Treynor, J. L., Mazuy, K., 1966, "Can Mutual Funds Outguess the Market?", Harvard Business Reviev, Vol 44, 131-136

Vicente, L., Ferruz, L., 2005, "Performance persistence in Spanish equity funds", Applied Financial Economics, No 15, 1305–1313

Wermers, R., 2000, "Mutual Fund Performance: An Empirical Decomposition into Stock-Picking Talent, Style, Transactions Costs, and Expenses", The Journal of Finance, Vol LV, No 4, 1655 – 1695

Wermers, R., 2003, "Is Money Really "Smart"? New Evidence on the Relation Between Mutual Fund Flows, Manager Behavior, and Performance Persistence", Working Paper, Robert H. Smith School of Business

Zheng, L., 1999, "Is Money Smart? A Study of Mutual Fund Investors' Fund Selection Ability", Journal of Finance, Vol 54, 901 – 933

Appendix

Appendix 1. Test if joint alpha sum to zero

```
(1)
     [bancoetisksverige] cons = 0
(2) [carlsonsverigenationell] cons = 0
(3) [carlsonssverigefond] cons = 0
(4) [carlsonssweden] cons = 0
( 5) [carlsonswedenmicrocap]_cons = 0
( 6) [carnegiesmbolag]_cons = 0
(7) [carnegiesverige] cons = 0
(8) [cicerosverige] cons = 0
(9) [danskefondersrisweden] cons = 0
(10) [danskefondersverige] cons = 0
(11) [abnamrosverige] cons = 0
     [amfpensionsaktiefondsmbolag] cons = 0
(12)
(13) [aktieansvarsverige] cons = 0
(14) [bancoetisksverigespecial] cons = 0
(15)
     [bancohjlp] cons = 0
(16)
     [bancohumanpension] cons = 0
(17)
     [bancoideellmilj] cons = 0
(18)
     [bancokultur] cons = 0
(19)
     [bancosamaritpension] cons = 0
(20) [bancosmbolag] cons = 0
(21) [bancosvenskmilj] cons = 0
(22) [bancoteknikochinnovationsfond] cons = 0
(23) [bosparfonden] cons = 0
(24) [carlsonstiftelsefond] cons = 0
(25) [danskefonderaktivfrmgenhetsfrval] cons = 0
(26)
     [danskefonderoffensiv] cons = 0
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(29) [eldsjlsverigefond] cons = 0
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(31) [entersverige] cons = 0
(32) [entersverigefokus] cons = 0
(33)
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(34) [folksamlofondsverige] cons = 0
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(36) [handelsbankenmegasverigeindex] cons = 0
(37) [handelsbankenaktiefondindex] cons = 0
(38) [shbradiohjlpsfonden] cons = 0
     [shbreavinstfond] cons = 0
(39)
(40) [shbsmbolagsfond]_cons = 0
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(42) [hqsverige] cons = 0
(43) [ikanosvenskaktiefond] cons = 0
(44) [kaupthingsmbolag] cons = 0
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(47)
     [lannebosverige]_cons = 0
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(50) [lnsfrskringarsmbolagsfond] cons = 0
(51) [lnsfrskringarsverigefond] cons = 0
```

```
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     [nordeaselektasverige] cons = 0
(53)
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     [nordeasverigefonden] cons = 0
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(56) [sebsverigechansrisk] cons = 0
(57) [sebsverigestorabolagg] cons = 0
(58) [sebsverigesmbolag] cons = 0
(59) [sebsverigefondsmbolagchansrisk] cons = 0
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              57) =
                       28.38
     Prob > F =
                   0.0000
```

Appendix 2. OLS regression 2004-2007

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,334 ^a	,112	,095	******

a. Predictors: (Constant), Alpha-alphabar_lag,
 Rebalancing-bar, Flow-bar, LN(size)-bar, Fee-bar

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5,709	5	1,142	6,752	,000 ^a
	Residual	45,485	269	,169		
	Total	51,193	274			

a. Predictors: (Constant), Alpha-alphabar_lag, Rebalancing-bar, Flow-bar, LN(size)-bar, Fee-bar

b. Dependent Variable: alpha-alphabar

Coefficient®

		Unstand Coeffi	lardized cients	Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	-,019	,025		-,773	,440
	LN(size)-bar	,024	,013	,104	1,808	,072
	Flow-bar	,019	,004	,291	4,967	,000
	Rebalancing-bar	-,007	,004	-,113	-1,960	,051
	Fee-bar	,089	,074	,071	1,204	,230
	Alpha-alphabar_lag	,085	,047	,103	1,790	,075

a. Dependent Variable: alpha-alphabar

Appendix 3. OLS regression 2003-2007

Model Summary

Model	R	R Square	,	Std. Error of the Estimate
1	,261 ^a	,068	,057	******

a. Predictors: (Constant), Fee-bar, LN(size)-bar, Rebalancing-bar, Flow-bar

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,923	4	1,231	6,210	,000 ^a
	Residual	67,577	341	,198		
	Total	72,500	345			

a. Predictors: (Constant), Fee-bar, LN(size)-bar, Rebalancing-bar, Flow-bar

Coefficient®

				Standardized Coefficients		
Model			Std. Error	Beta	t	Sig.
1	1 (Constant)		,024		-,420	,675
	LN(size)-bar	,019	,013	,080,	1,509	,132
	Flow-bar	,015	,003	,261	4,855	,000
	Rebalancing-bar	-,002	,003	-,035	-,662	,508
	Fee-bar	,079	,071	,059	1,110	,268

a. Dependent Variable: alpha-alphabar

b. Dependent Variable: alpha-alphabar

Appendix 4.

One sample t-test on alpha (equally weighted, net return level)

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Alpha percentage	399	-,13174	,50723	,02539

One-Sample Test

		Test Value = 0							
				Mean	95% Cor Interval Differ	of the			
	t	df	Sig. (2-tailed)	Difference	Lower	Upper			
Alpha percentage	-5,188	398	,000	-,13174	-,18166	-,08182			

One sample t-test on alpha (equally weighted, gross return level)

One-Sample Statistics

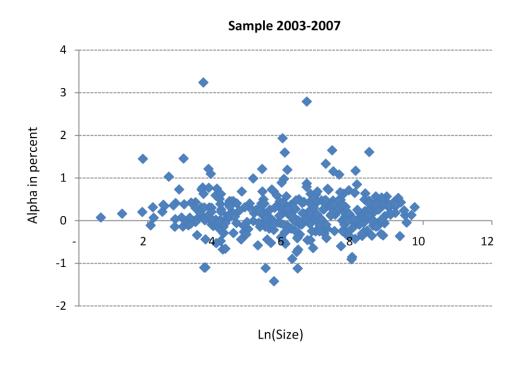
				Std. Error	
	N	Mean	Std. Deviation	Mean	
Alpha	399	-,00021	,00508	,00025	

One-Sample Test

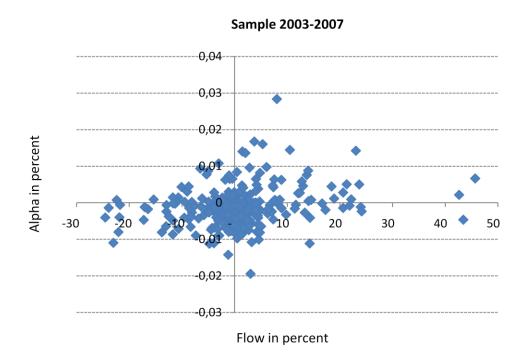
			Test Val	ue = 0		
			Mean		95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Difference	Lower	Upper
Alpha	-,806	398	,421	-,00021	-,00071	,00030

Appendix 5. Scatter plots of fund attributes and alpha

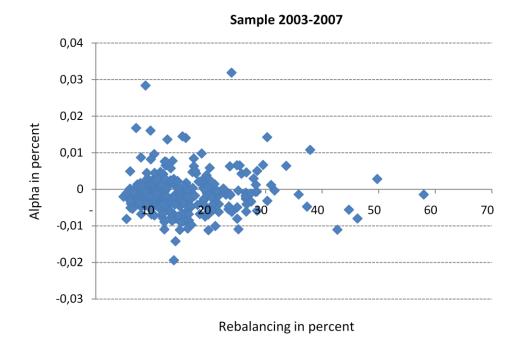
Scatter plot 1



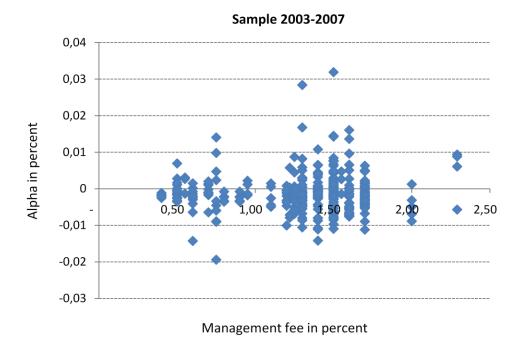
Scatter plot 2



Scatter plot 3

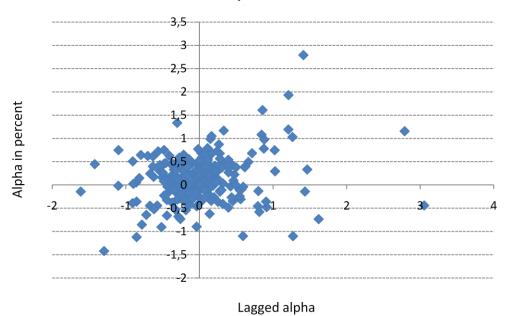


Scatter plot 4



Scatter plot 5

Sample 2004-2007



Appendix 6. Fund sample

2003 2003 2003 2003 2003	Banco Etisk Sverige Carlson Sverigefond Carlson Småbolagsfond CARLSONS SVERIGEFOND	-0,30 -0,10	0,47 0,38	-0,63 -0,27	66,49 998,24	6,28 2,36	11,41 8,39	1,70 1,25
2003 2003 2003 2003 2003	Carlson Småbolagsfond	-0,10	0,38	0,27		2,30		1,23
2003 2003 2003 2003					1 728,84		14,32	1,70
2003 2003	CARLSONS SVERIGEFOND	-0,03	0,41	-0,06	-,-		,-	, -
2003	CARLSONS SWEDEN	0,35	0,54	0,65				
	Carlson Sweden Micro Cap	0,78	1,07	0,73	36,36	- 5,32	13,56	1,50
2003	Carnegie Småbolag	0,50	0,86	0,58	598,55	23,67	28,51	1,70
	Carnegie Sverige Cicero Sverige	-0,40 -0,04	0,28 0,27	-1,42 -0,13	397,09 8,77	- 21,86 8,28	6,20 22,91	1,70 1,20
	Danske Fonder SRI Sverige	0,01	0,27	0,02	0,77	0,20	22,91	0,50
	Danske Fonder Sverige	-0,32	0,31	-0,88	533,10	9,79	12,29	1,30
	Danske Fonder Sverige Fokus							1,30
	ABN AMRO Sverige	-0,14	0,38	-0,36	268,73	- 23,91	9,37	1,60
	AMF Pensions Aktiefond - Småbolag	-1,43	1,10	-1,30				0,60
	Amplus	0.00	0.42	0.20				2,29
	Aktie-Ansvar Sverige Banco Etisk Sverige Special	0,09 0,05	0,42 0,40	0,20 0,13	216,50			1,40 1,10
	Banco Hjälp	-0,27	0,39	-0,69	136,70	- 0,94	15,05	1,70
	Banco Human Pension	-0,22	0,44	-0,49	20,48	- 0,40	14,50	0,80
2003	Banco Ideell Miljö	-0,22	0,43	-0,50	192,68	- 0,74	14,68	1,70
	Banco Kultur	-0,20	0,46	-0,43	49,40			1,70
	Banco Samarit Pension	-0,22	0,44	-0,50	16,19	- 0,61	14,94	0,90
	Banco Småbolag	0,15	1,28	0,11	440,55	- 10,67	19,01	1,70
	Banco Svensk Miljö Banco Teknik & Innovation	-0,15 -0,15	0,43 0,43	-0,34 -0,34	65,50 97,10	0,35 8,92	7,50 22,99	1,70 1,70
	BOSPARFONDEN	-0,13	0,43	-0,63	475,04	0,16	15,07	1,50
	CARLSON STIFTELSEFOND	0,06	0,20	0,32	76,35	8,36	16,21	1,25
	CATELLA INSTITUTIONELL ALLOKERING	•	•		,		•	0,55
2003	CATELLA INSTITUTIONELL RELATIV							0,55
	Danske Fonder Aktiv Förmögenhetsförvaltning	-0,09	0,16	-0,56	3 933,36	- 0,58	15,46	1,25
	Danske Fonder Offensiv	-0,46	0,54	-0,85	39,51	43,44	12,60	1,30
	Didner & Gerge Aktiefond	0,57	0,57	1,00	4 104,61		13,23	1,22
	Ekvator Eldsjäl Biståndsfond	-0,49	0,52	-0,95	134,75			1,30 2,00
	Eldsjäl Gåvofond	0,65	0,52	0,99	35,23	- 0,93	25,41	1,60
	Eldsjäl Sverigefond	0,66	0,66	0,99	18,36	- 0,43	24,93	1,60
	Enter Mobile Internet	1,40	1,27	1,11	20,88	1,49	15,89	0,75
2003	Enter Select Fokus							0,50
2003	Enter Sverige	-0,20	0,34	-0,58	647,39	2,57	19,63	1,70
	Enter Sverige Fokus	-0,06	0,27	-0,23	550,78	6,69	28,44	0,50
	Erik Penser Sverigefond	0.25	0.26	0.07	2.010.02	2.70	7.00	1,40
	FOLKSAM LO FOND SVERIGE Gustavia Sverige	-0,25	0,26	-0,97	2 918,02 4,62	3,79	7,06	0,40 1,50
	Handelsbankens Radiohjälpsfond	-0,19	0,45	-0,41	53,00	1,83	14,92	1,50
	Handelsbankens Reavinstfond	-0,22	0,44	-0,51	5 166,06	1,27	14,68	1,50
	Handelsbankens Småbolagsfond	-0,60	0,29	-2,05	2 030,42	0,50	16,11	1,50
2003	HQ Strategifond	0,84	0,44	1,91	3 225,86	0,45	17,31	1,50
	HQ Sverigefond	0,43	0,49	0,89	2 004,94	- 10,08	17,72	1,50
	IKANO Svensk Aktiefond	-0,25	0,25	-1,00	257,36	2,38	7,27	0,60
	Kaupthing Småbolag	1,08	0,65	1,66	46,03	- 3,01	37,86	1,40
	Lannebo Småbolag Lannebo Sverige	1,60 0,02	0,82 0,35	1,95 0,06	1 568,34 1 506,61	5,32 - 8,13	9,66 12,36	1,60 1,60
	Länsförsäkringar Fastighetsfond	1,68	0,33	1,93	395,82	3,75	7,12	1,30
	Länsförsäkringar Mega Sverige	-0,13	0,34	-0,39	328,30	- 1,85	8,82	0,50
	Länsförsäkringar Småbolagsfond	0,98	1,14	0,86	386,37	6,07	18,70	0,75
2003	Länsförsäkringar Sverigefond	-0,18	0,34	-0,51	3 446,43	2,80	8,85	1,30
	Nordea Etiskt Urval	-0,35	0,33	-1,05				1,25
	Nordea Selekta Sverige	0,10	0,51	0,19	388,84	22,14	16,04	1,60
	Nordea Stratega 13				139,34			0,95
	Nordea Sverigefond	0,08	0,42	0,20	3 542,50	0,20	12,15	1,50
	SEB Sverigefond SEB Sverige Chans/riskfond	0,24 -0,05	0,26 0,37	0,93 -0,14	8 153,94 1 097,16	0,86 11,64	8,86 20,43	1,30 1,30
	SEB Sverige Chansynskiona SEB Sverigefond - Stora Bolag	0,30	0,37	1,07	4 976,24	- 1,13	20,43 9,12	1,50
	SEB Sverigefond Småbolag	0,30	0,28	0,65	4 970,24	0,63	14,43	1,50
	SEB Sverigefond Småbolag Chans/Risk	0,63	0,49	1,28	838,00	8,88	23,68	1,50
	SEB Stiftelsefond Sverige	0,23	0,26	0,88	435,13	2,96	8,87	1,50
	Skandia Cancerfonden	-0,20	0,42	-0,48	203,54	2,79	7,65	1,70
	Skandia Småbolag Sverige	-1,11	0,46	-2,40	227,12	14,26	14,84	1,40
	Skandia Sverige	0,05	0,42	0,12	2 598,48	- 0,36	9,24	1,40
	Skandia Världsnaturfonden	-0,08	0,43	-0,19	233,29	0,07	7,42	1,70
	SKF Allemansfond Spiltan Aktiefond Dalarna	-0,48	0,93	-0,52	65,33	- 1,91	11,22	1,30
	Spiltan Aktiefond Dalarna Spiltan Aktiefond Sverige	3,19	0,58	5,47	37,13		23,98	1,50 1,50
	Spiltan Aktierona Sverige Spiltan Aktiva Ägare	1,45	0,58	2,34	6,40	10,51	15,31	1,50
	SPP Aktiefond Sverige	-0,17	0,62	-0,40	668,10	2,49	15,69	0,70
	Swedbank Robur Ethica Miljö Sverige	-0,43	0,70	-0,62	613,73	1,61	11,79	1,40
	Swedbank Robur Ethica Sverige MEGA	-0,02	0,30	-0,06	19,72		9,83	0,70
	Swedbank Robur Exportfond	0,65	0,54	1,21	2 551,31	4,06	12,33	1,40
	Swedbank Robur Hockeyfond	0,08	0,32	0,25	3,50	7,68	11,46	1,40
	Swedbank Robur Småbolagsfond Sverige	0,38	0,54	0,71	1 648,19	4,48	19,55	1,40
2003	Swedbank Robur Svensk Aktieportfölj		_			_		1,60
2003 2003	Swedbank Robur Sverigefond	0,02	0,31	0,05	3 633,41	2,11	11,05	1,40
2003 2003 2003	=							
2003 2003 2003 2003	Swedbank Robur Vasaloppsfond	-0,02	0,28	-0,06	1,89	16,62	12,38	1,40
2003 2003 2003 2003 2003	Swedbank Robur Vasaloppsfond Team Catella Tennisfond		0,28	-0,06	1,89	16,62	12,38	1,55
2003 2003 2003 2003 2003 2003	Swedbank Robur Vasaloppsfond		0,28	-0,06	1,89 281,40	16,62 4,07	12,38 23,63	

Time	Fund name	Alpha (%) Alp	ha S.E	T-stat S	Size (MSEK)	Flow (%)	Rebalancing (%)	Fee (%)
2004	e e e e e e e e e e e e e e e e e e e	0.50	0.24	2 22	2 247,13	1,32	12,36	1,70
	Carlson Sverigefond Carlson Småbolagsfond	-0,69	0,21	-3,32	1 248,71 1 800,93	- 4,28	9,85 14,11	1,25 1,70
	CARLSONS SVERIGEFOND	-0,50	0,14	-3,54	1 000,93		14,11	1,70
	CARLSONS SWEDEN	-0,77	0,14	-5,04				
	Carlson Sweden Micro Cap	-1,10	0,88	-1,24	39,35	- 4,62	12,11	1,50
	Carnegie Småbolag	-0,41	0,41	-0,99	1 329,66	4,47	21,73	1,70
	Carnegie Sverige	-0,20	0,18	-1,15	370,64	- 1,84	5,43	1,70
	Cicero Sverige	-0,32	0,22	-1,42	16,40	4,23	19,00	1,20
2004	Danske Fonder SRI Sverige	-0,26	0,26	-0,99	35,27	- 5,47	11,21	0,50
2004	Danske Fonder Sverige	-0,23	0,26	-0,87	1 004,39	7,05	17,02	1,30
2004	Danske Fonder Sverige Fokus							1,30
2004	ABN AMRO Sverige	-0,38	0,20	-1,92	262,61	- 2,53	11,17	1,60
2004	AMF Pensions Aktiefond - Småbolag	-0,14	0,54	-0,26	224,89	20,61	35,84	0,60
2004	Amplus	0,94	0,94	1,00	204,91	- 6,52		2,29
2004	Aktie-Ansvar Sverige	-0,17	0,22	-0,74	685,36			1,40
2004	Banco Etisk Sverige Special	-0,49	0,23	-2,18	235,89	- 0,98	11,13	1,10
2004	Banco Hjälp	-0,43	0,22	-1,93	158,65	- 3,18	10,99	1,70
2004	Banco Human Pension	-0,35	0,23	-1,56	31,65	4,26	11,26	0,80
2004	Banco Ideell Miljö	-0,40	0,22	-1,81	236,13	- 1,20	11,81	1,70
2004	Banco Kultur	-0,40	0,22	-1,84	53,37	- 1,36	11,71	1,70
2004	Banco Samarit Pension	-0,35	0,23	-1,54	25,01	4,41	11,04	0,90
2004	Banco Småbolag	-0,90	0,74	-1,21	491,20	- 2,90	16,13	1,70
2004	Banco Svensk Miljö	-0,26	0,34	-0,75	88,57	1,93	7,44	1,70
2004		-0,26	0,34	-0,75	162,01	1,37	13,23	1,70
	BOSPARFONDEN	-0,77	0,21	-3,74	582,26	- 0,71	13,34	1,50
	CARLSON STIFTELSEFOND	-0,17	0,47	-0,37	119,89	2,99	17,51	1,25
	CATELLA INSTITUTIONELL ALLOKERING							0,55
	CATELLA INSTITUTIONELL RELATIV							0,55
	Danske Fonder Aktiv Förmögenhetsförvaltning	-0,12	0,19	-0,63	4 409,71	- 1,18	21,89	1,25
	Danske Fonder Offensiv	-0,12	0,41	-0,28	229,60	23,96	8,42	1,30
	Didner & Gerge Aktiefond	-0,79	0,57	-1,40	6 901,25	4,23	15,42	1,22
	Ekvator	0,05	0,46	0,10	373,48	14,04	19,71	1,30
	Eldsjäl Biståndsfond	-0,69	0,26	-2,66				2,00
	Eldsjäl Gåvofond	-0,48	0,34	-1,41	47,28	2,02	16,81	1,60
	Eldsjäl Sverigefond	-0,52	0,30	-1,74	23,99	0,88	16,46	1,60
	Enter Mobile Internet	-1,94	0,83	-2,35	38,10	3,03	13,79	0,75
	Enter Select Fokus	-0,12	0,60	-0,20	469,67	- 2,17	16,02	0,50
	Enter Sverige	-0,36	0,25	-1,44	727,56	- 8,34	14,24	1,70
	Enter Sverige Fokus	-0,16	0,26	-0,60	1 236,06	11,43	14,77	0,50
	Erik Penser Sverigefond							1,40
	FOLKSAM LO FOND SVERIGE	-0,20	0,15	-1,29	4 729,33	4,90	6,58	0,40
	Gustavia Sverige	0,67	0,71	0,93	43,12	45,69	29,55	1,50
	Handelsbankens Radiohjälpsfond	-0,68	0,20	-3,33	67,29	- 0,63	13,77	1,50
	Handelsbankens Reavinstfond	-0,71	0,21	-3,45	6 498,69	- 1,07	13,58	1,50
	Handelsbankens Småbolagsfond	-0,85	0,24	-3,60	2 804,92	1,40	16,44	1,50
	HQ Strategifond	0,29	0,48	0,61	4 019,77	- 0,04	27,88	1,50
	HQ Sverigefond	0,17	0,70	0,24	1 856,56	- 3,66	13,96	1,50
	IKANO Svensk Aktiefond	0,02	0,16	0,10	389,28	3,08	6,04	0,60
	Kaupthing Småbolag	-1,08	0,59	-1,82	61,39	3,25	16,24	1,40
	Lannebo Småbolag	-0,13	0,71	-0,18	2 190,02	- 1,97	10,02	1,60
	Lannebo Sverige	-0,71	0,38	-1,86	1 677,08	- 10,64	11,56	1,60
	Länsförsäkringar Fastighetsfond	2,84	1,31	2,17	750,19	8,03	8,78	1,30
	Länsförsäkringar Mega Sverige	-0,33	0,21	-1,60	466,23	2,35	12,11	0,50
	Länsförsäkringar Småbolagsfond	-0,45	0,46	-0,99	765,33	7,34	19,29	0,75
	Länsförsäkringar Sverigefond	-0,40	0,21	-1,93	4 862,97	1,57	11,59	1,30
	Nordea Etiskt Urval Nordea Selekta Sverige	-0,58 -0.53	0,11	-5,27 -5.05	922.00	2.02	20.52	1,25
	9	-0,52 0.33	0,10	-5,05	822,69	3,03	20,53	1,60
	Nordea Stratega 13	0,22	0,21	1,02	786,18	42,63 - 1.58	18,57	0,95
	Nordea Sverigefond	-0,69	0,21	-3,24	4 328,77 13 662,47	-,	13,48	1,50
	SEB Sverigefond SEB Sverige Chans/riskfond	-0,49 -0.26	0,18	-2,76 -1.86		,	12,03	1,30
	SEB Sverige Chans/riskfond SEB Sverigefond - Stora Bolag	-0,26 -0.45	0,14	-1,86	1 713,56	2,01 - 0.96	26,51	1,30
	SEB Sverigefond - Stora Bolag SEB Sverigefond Småbolag	-0,45 0.28	0,18 0,40	-2,49 0.72	6 281,22 4 739,29	- 0,96 - 3,89	12,13 13.77	1,50 1.50
	SEB Sverigefond Smabolag SEB Sverigefond Småbolag Chans/Risk	0,28		0,72		-,	13,77	1,50
	SEB Stiftelsefond Swapolag Chans/Risk SEB Stiftelsefond Sverige	0,43 -0,53	0,36 0,18	1,18 -2,93	1 552,31	7,37 - 1,08	25,74 12.73	1,50
	Skandia Cancerfonden				608,56		12,73	1,50
		-0,50 -1.42	0,22	-2,26 -2,73	252,12	-,	9,71	1,70
	Skandia Småbolag Sverige	-1,42 -0.43	0,52	-2,73	289,22	-/	14,07	1,40
	Skandia Sverige Skandia Världsnaturfonden	-0,43 -0.51	0,14	-3,05 -1.86	3 448,88 287 46	1,66	11,44 11 17	1,40 1,70
	SKF Allemansfond	-0,51 -0.20	0,27	-1,86 -0.55	287,46	- 0,28 - 1.73	11,17	1,70
	Spiltan Aktiefond Dalarna	-0,20	0,37	-0,55	72,44	- 1,73	8,00	1,30 1,50
	Spiltan Aktiefond Sverige	0.07	0.00	_1 // 4	111 40	0.51	10.00	
	Spiltan Aktierona Sverige Spiltan Aktiva Ägare	-0,97 0,76	0,68 0,58	-1,44 1 30	111,40 13,61	0,51 13,70	16,89 12,18	1,50 1,50
	SPP Aktiefond Sverige			1,30	969,81		13,42	0,70
		-0,65 -0.24	0,20	-3,22		2,70		
	Swedbank Robur Ethica Sverige MEGA	-0,24 0.10	0,43	-0,56 0.70	828,85	0,91	8,87 11.85	1,40
	Swedbank Robur Ethica Sverige MEGA	0,10	0,15	0,70	213,12	- 0.17	11,85	0,70
	Swedbank Robur Exportfond	-0,80 -0.25	0,34	-2,35 -2 12	3 929,33	0,1,	14,07	1,40
	Swedbank Robur Forbalogrand Sverige	-0,25	0,12	-2,13	6,29	7,01	11,07	1,40
	Swedbank Robur Swansk Aktionartföli	-0,26	0,11	-2,32	2 516,55	0,28	19,08	1,40
	Swedbank Robur Svensk Aktieportfölj	0.37	0.44	2 20	38,72	4 73	28,77	1,60
	Swedbank Robur Vasalons fond	-0,27	0,11	-2,39	5 220,72	1,73	10,49	1,40
	Swedbank Robur Vasaloppsfond	-0,23	0,12	-1,87	11,27	24,13	11,03	1,40
	Team Catella Tennisfond		0.45	1.00	27.24	13.00	36.56	1,55
							26,59	1,50
2004	Västernorrlandsfonden	0,46	0,46	1,00	37,31	13,00		
2004 2004	Västernorrlandsfonden Öhman Sverigefond Öhman Mixturfond - Aktiv Förmögenhets- förvaltning	0,46 -1,01 -0,56	0,46 0,32 0,24	-3,10 -2,31	403,09 30,94	4,60 2,16	21,11 44,72	1,20 1,40

Time	Fund name	Alpha (%)	Alpha S.E	T-stat	Size (MSEK)	F	low (%)	Rebalancing (%)	Fee (%)
2005	Banco Etisk Sverige				3 346,81	-	2,14	8,06	1,70
2005	Carlson Sverigefond	0,87	0,53	1,63	1 302,85	-	5,02	7,97	1,25
2005	Carlson Småbolagsfond				2 144,74			10,39	1,70
2005	CARLSONS SVERIGEFOND	0,01	0,19	0,03					
2005	CARLSONS SWEDEN	-0,35	0,29	-1,20					
2005	Carlson Sweden Micro Cap	0,75	0,91	0,82	55,07	-	1,04	12,43	1,50
2005	Carnegie Småbolag	0,63	0,52	1,22	2 183,90	-	1,77	17,33	1,70
2005	Carnegie Sverige	-0,45	0,28	-1,61	339,24	-	8,71	14,94	1,70
2005	Cicero Sverige	0,08	0,27	0,29	53,01		14,54	19,37	1,20
2005	Danske Fonder SRI Sverige	-0,17	0,26	-0,66	29,59	-	16,45	7,38	0,50
2005	Danske Fonder Sverige	-0,47	0,26	-1,79	1 529,13		2,80	14,86	1,30
2005	Danske Fonder Sverige Fokus				145,21		27,15	50,62	1,30
2005	ABN AMRO Sverige	-0,40	0,16	-2,46	203,51	-	24,56	8,16	1,60
	AMF Pensions Aktiefond - Småbolag	-0,41		-0,72	568,97		14,32	26,64	0,60
	Amplus	0,88		0,99	426,56		13,97	,- :	2,29
	Aktie-Ansvar Sverige	-0,20		-0,79	956,83		3,78	8,49	1,40
	Banco Etisk Sverige Special	-0,26		-1,32	257,11	_	3,46	9,03	
						-			1,10
2005	Banco Hjälp	-0,29		-1,37	172,56	-	3,58	8,01	1,70
2005	Banco Human Pension	-0,23		-1,07	44,10		2,55	8,10	0,80
2005	Banco Ideell Miljö	0,17	0,25	0,68	287,41	-	1,51	13,53	1,70
2005		-0,29	0,21	-1,38	62,32	-	1,37	8,16	1,70
2005	Banco Samarit Pension	-0,23		-1,08	35,04		2,57	8,17	0,90
	Banco Småbolag	0,02		0,03	552,03	-	9,46	14,42	1,70
2005	Banco Svensk Miljö	0,18	0,24	0,73	113,41	-	1,03	12,73	1,70
2005	Banco Teknik & Innovation	0,18	0,24	0,73	206,45		2,30	15,97	1,70
2005	BOSPARFONDEN	-0,12	0,17	-0,73	691,82	-	1,09	6,83	1,50
2005	CARLSON STIFTELSEFOND	-0,66	0,54	-1,23	120,95		1,44	13,51	1,25
2005	CATELLA INSTITUTIONELL ALLOKERING				22,37			56,55	0,55
2005	CATELLA INSTITUTIONELL RELATIV				298,95			30,99	0,55
2005	Danske Fonder Aktiv Förmögenhetsförvaltning	-0,24	0,20	-1,17	4 682,17	-	2,83	14,42	1,25
	Danske Fonder Offensiv	-0,27		-0,48	541,38		13,33	20,96	1,30
	Didner & Gerge Aktiefond	-0,25		-0,50	9 803,29		1,05	13,75	1,22
	Ekvator	0,59		1,13	750,01		12,76	20,12	1,30
	Eldsjäl Biståndsfond				730,01		12,70	20,12	
		-0,31	0,55	-0,57	62.25		4 74	45.47	2,00
	Eldsjäl Gåvofond	-0,76	0,35	-2,19	63,25		1,71	15,17	1,60
2005	Eldsjäl Sverigefond	-0,67	0,29	-2,29	29,67		0,31	15,32	1,60
	Enter Mobile Internet	-0,60	0,93	-0,64	47,16		4,50	12,97	0,75
	Enter Select Fokus	-0,05	0,50	-0,10	549,00	-	0,19	15,33	0,50
2005	Enter Sverige	-0,41	0,32	-1,28	664,69	-	9,55	11,88	1,70
2005	Enter Sverige Fokus	-0,24	0,27	-0,90	1 695,12		0,29	10,58	0,50
2005	Erik Penser Sverigefond								1,40
2005	FOLKSAM LO FOND SVERIGE	-0,12	0,19	-0,62	6 982,64		3,42	7,03	0,40
2005	Gustavia Sverige	1,42	1,15	1,24	371,41		23,03	30,27	1,50
2005	Handelsbankens Radiohjälpsfond	-0,10		-0,64	79,42	-	1,60	7,01	1,50
2005	Handelsbankens Reavinstfond	-0,11		-0,67	7 337,84	_	2,83	9,16	1,50
	Handelsbankens Småbolagsfond	-0,36		-2,02	3 749,52	_	3,21	16,07	1,50
	HQ Strategifond	-0,61		-2,63	5 197,03		0,75	26,57	1,50
	HQ Sverigefond	-0,42			2 298,22	_	1,50	20,66	1,50
						-			
	IKANO Svensk Aktiefond	-0,30		-1,83	536,13		1,18	7,96	0,60
2005	Kaupthing Småbolag	-0,03		-0,05	88,49		2,34	31,58	1,40
2005	Lannebo Småbolag	0,96	0,94	1,02	3 098,22		2,83	10,31	1,60
	Lannebo Sverige	-0,74		-3,00	1 351,75	-	4,47	14,57	1,60
	Länsförsäkringar Fastighetsfond	0,30		0,18	1 622,23	-	9,00	10,39	1,30
2005	Länsförsäkringar Mega Sverige	-0,26	0,25	-1,06	494,39	-	8,10	8,33	0,50
2005	Länsförsäkringar Småbolagsfond	0,47	0,65	0,72	1 606,81		7,26	17,07	0,75
2005	Länsförsäkringar Sverigefond	-0,31	0,25	-1,22	6 112,50	-	0,12	8,27	1,30
2005	Nordea Etiskt Urval	-0,58	0,16	-3,60					1,25
2005	Nordea Selekta Sverige	-0,75	0,17	-4,52	1 130,84		2,69	19,30	1,60
2005	Nordea Stratega 13	0,12	0,21	0,54	2 505,43		18,90	30,97	0,95
2005	Nordea Sverigefond	-0,16		-1,27	5 113,55	-	4,65	23,75	1,50
2005	SEB Sverigefond	-0,41		-2,33		-	1,16	8,39	1,30
	SEB Sverige Chans/riskfond	-0,55			2 086,26	-	1,89	23,43	1,30
	SEB Sverigefond - Stora Bolag	-0,44		-2,40		_	1,17	8,36	1,50
	SEB Sverigefond Småbolag	-0,12		-0,42		_	4,64	15,61	1,50
	SEB Sverigefond Småbolag Chans/Risk	-0,03		-0,15	2 869,80		2,13	19,34	1,50
	SEB Stiftelsefond Sverige	-0,03		-2,34	868,64		1,36	8,75	1,50
	Skandia Cancerfonden					_			
		-0,28		-1,07	294,62	-	1,78	8,03	1,70
	Skandia Småbolag Sverige	0,45		1,00			18,41	10,38	1,40
	Skandia Sverige	-0,06		-0,40	4 594,80		3,45	11,12	1,40
	Skandia Världsnaturfonden	-0,27		-1,00	342,49	-	1,00	8,03	1,70
	SKF Allemansfond	-0,09	0,56	-0,17	83,36	-	2,10	8,29	1,30
	Spiltan Aktiefond Dalarna								1,50
	Spiltan Aktiefond Sverige	-0,79	0,99	-0,80	129,04	-	1,12	11,88	1,50
2005	Spiltan Aktiva Ägare	0,09	0,90	0,09	29,58		8,59	9,07	1,50
2005	SPP Aktiefond Sverige	-0,10	0,16	-0,62	1 275,36		0,59	9,14	0,70
2005	Swedbank Robur Ethica Miljö Sverige	-0,87	0,46	-1,88	1 083,84		1,29	15,46	1,40
	Swedbank Robur Ethica Sverige MEGA	-0,13		-0,45				8,97	0,70
	Swedbank Robur Exportfond	-0,09		-0,24	4 464,25	-	1,87	7,82	1,40
2005	Swedbank Robur Hockeyfond	-0,26		-1,76		-	1,01	8,91	1,40
	Swedbank Robur Småbolagsfond Sverige	-0,05		-0,35	3 908,87		1,50	10,49	1,40
	Swedbank Robur Svensk Aktieportfölj	0,03	0,13	5,55	111,88		_,50	22,80	1,60
2005	Swedbank Robur Sverigefond	-0,22	0,16	-1,41	6 741,04	_	1,11	8,93	1,40
	=					-			
2005	Swedbank Robur Vasaloppsfond	-0,24		-1,38	12,01	-	12,94	9,51	1,40
2005	Team Catella Tennisfond	0,26		0,24	26,04		12,08	24.40	1,55
2005	Västernorrlandsfonden	-0,21		-0,78	98,29		1,93	21,40	1,50
	Öhman Sverigefond	-0,20		-0,90	518,01	-	4,27	21,12	1,20
2005	Öhman Mixturfond - Aktiv Förmögenhets- förvaltning	-0,14	0,18	-0,77	33,41	-	1,17	20,91	1,40

Time	Fund name	Alpha (%)	Alpha S.E	T ctat	Size (MSEK)		low (9/)	Rebalancing (%)	Eag (9/)
2006	Banco Etisk Sverige	Aipila (70)	Aipiia 3.E	1-Stat	3 721,34	-	low (%) 2,99	10,13	Fee (%) 1,70
	Carlson Sverigefond	0,45	0,44	1,01	1 376,43	-	8,72	9,01	1,25
2006	Carlson Småbolagsfond	0,47	0,39	1,22	1 153,34		1,40	11,42	1,70
	CARLSONS SVERIGEFOND	-0,20		-0,71					
	CARLSONS SWEDEN	-0,06		-0,22	CE 27		2.55	46.03	4.50
	Carlson Sweden Micro Cap	-0,27		-0,33	65,27	-	2,55	16,03	1,50
	Carnegie Småbolag Carnegie Sverige	0,04 -0,04		0,08 -0,26	2 930,05 400,09	-	1,18 0,73	19,01 25,17	1,70 1,70
	Cicero Sverige	-0,47		-1,27	66,60	-	17,25	23,51	1,20
	Danske Fonder SRI Sverige	0,00		0,01	38,17		3,57	6,83	0,50
2006	Danske Fonder Sverige	-0,09	0,37	-0,25	2 115,29	-	0,35	26,49	1,30
2006	Danske Fonder Sverige Fokus	0,28	0,53	0,53	414,43		20,62	49,72	1,30
	ABN AMRO Sverige	-0,38		-1,53	132,23	-	8,30	10,12	1,60
	AMF Pensions Aktiefond - Småbolag	-0,64		-1,01	901,04		5,03	19,94	0,60
	Amplus	0,61		0,80	1 407 54		4.02	6.03	2,29
	Aktie-Ansvar Sverige Banco Etisk Sverige Special	0,01 -0,45		0,03 -1,32	1 497,54 282,80	_	4,02 3,14	6,93 6,92	1,40 1,10
	Banco Hjälp	-0,40		-1,36	185,95	_	3,48	10,12	1,70
	Banco Human Pension	-0,33		-1,13	60,75		3,96	10,09	0,80
2006	Banco Ideell Miljö	0,10	0,29	0,33	341,94	-	2,56	8,46	1,70
2006	Banco Kultur	-0,40	0,30	-1,37	70,60	-	2,73	10,04	1,70
	Banco Samarit Pension	-0,33		-1,11	48,35		3,97	10,20	0,90
	Banco Småbolag	-0,68		-1,20	583,75	-	3,79	18,37	1,70
	Banco Svensk Miljö	0,09		0,31	142,68		0,47	8,65	1,70
2006	Banco Teknik & Innovation BOSPARFONDEN	0,09 -0,18		0,31 -0,74	200,89 837,37	-	15,37 1,57	11,14 11,45	1,70 1,50
	CARLSON STIFTELSEFOND	-0,18		-1,01	237,94		2,87	24,03	1,25
	CATELLA INSTITUTIONELL ALLOKERING	-,	-,	-,	,		_,	,==	0,55
	CATELLA INSTITUTIONELL RELATIV	-0,14	0,44	-0,30					0,55
2006	Danske Fonder Aktiv Förmögenhetsförvaltning	-0,16	0,29	-0,55	4 847,57	-	2,29	21,80	1,25
2006	Danske Fonder Offensiv	-0,68	0,70	-0,97	832,90		1,53	8,02	1,30
	Didner & Gerge Aktiefond	-0,72		-1,47	11 230,89	-	3,22	10,36	1,22
	Ekvator	-0,47		-0,86					1,30
	Eldsjäl Biståndsfond	-0,89		-1,71	70.05		0.21	26.55	2,00
	Eldsjäl Gåvofond Eldsjäl Sverigefond	-0,22 -0,17		-0,60 -0,53	79,85 42,81		0,31 6,34	26,55 26,48	1,60 1,60
	Enter Mobile Internet	-0,17		-1,17	53,96	_	7,36	12,11	0,75
	Enter Select Fokus	0,69		1,20	33,30		,,50	,	0,50
	Enter Sverige	0,08		0,22	380,62	-	22,39	15,58	1,70
2006	Enter Sverige Fokus	0,10	0,43	0,24					0,50
2006	Erik Penser Sverigefond				21,04				1,40
	FOLKSAM LO FOND SVERIGE	-0,17		-0,94	9 870,88		2,70	6,60	0,40
	Gustavia Sverige	-1,09		-1,35	560,95	-	23,02	25,19	1,50
	Handelsbankens Radiohjälpsfond	-0,25		-1,03	92,52	-	2,13	6,97	1,50
	Handelsbankens Reavinstfond Handelsbankens Småbolagsfond	-0,17 0,24		-0,74 1,22	8 418,24 4 915,22	-	2,92 1,59	10,54 13,17	1,50 1,50
	HQ Strategifond	0,24		0,26	6 391,79	_	1,16	20,96	1,50
	HQ Sverigefond	0,28		0,90	3 025,54		0,94	19,94	1,50
	=	-0,08		-0,58	1 911,71		21,82	6,57	0,60
2006	Kaupthing Småbolag	0,64	0,82	0,78	158,07		7,54	33,64	1,40
	Lannebo Småbolag	1,36		1,82	4 604,65		2,05	12,64	1,60
	Lannebo Sverige	-0,06		-0,12	1 208,30	-	12,93	16,46	1,60
	Länsförsäkringar Fastighetsfond	0,82		0,64	1 924,54		4,82	9,71	1,30
	Länsförsäkringar Mega Sverige Länsförsäkringar Småbolagsfond	-0,35 -0,34		-1,29 -0,79	588,62 2 425,54	_	0,98 0,58	13,79 15,73	0,50 0,75
	Länsförsäkringar Sverigefond	-0,34		-1,58	7 188,46		2,04	13,95	1,30
	Nordea Etiskt Urval	-0,32		-0,91	, 100, 10		2,0 .	13,55	1,25
	Nordea Selekta Sverige	-0,52		-1,39					1,60
2006	Nordea Stratega 13	-0,18		-1,40					0,95
2006	Nordea Sverigefond	0,09	0,19	0,46	5 726,78	-	0,45	12,44	1,50
	SEB Sverigefond	-0,22		-1,00	15 704,35	-	1,40	7,60	1,30
	SEB Sverige Chans/riskfond	-0,34		-1,11	2 168,04	-	5,83	27,45	1,30
	SEB Sverigefond - Stora Bolag SEB Sverigefond Småbolag	-0,21 -0,04		-0,95	8 558,71 7 055,59	-	1,86	7,62	1,50
	SEB Sverigefond Småbolag Chans/Risk	0,04		-0,20 0,43	4 026,65	-	1,87 0,23	16,28 19,87	1,50 1,50
	SEB Stiftelsefond Sverige	-0,07		-0,25	919,72	-	1,92	21,73	1,50
	Skandia Cancerfonden	-0,40		-0,96	348,78	-	1,52	8,83	1,70
2006	Skandia Småbolag Sverige	0,32		0,90	2 318,63		4,02	11,32	1,40
2006	Skandia Sverige	-0,08	0,18	-0,43	5 924,80	-	4,65	10,14	1,40
2006	Skandia Världsnaturfonden	-0,46	0,43	-1,07	427,17		0,11	7,90	1,70
	SKF Allemansfond	-1,06	0,47	-2,26					1,30
	Spiltan Aktiefond Dalarna				242.52			40.04	1,50
	Spiltan Aktiefond Sverige	0,04		0,04	218,62		4,74	10,31	1,50
	Spiltan Aktiva Ägare SPP Aktiefond Sverige	0,49 -0,10		0,99 -0,42	43,55 1 633,45		4,19 0,25	6,07 10,59	1,50 0,70
	Swedbank Robur Ethica Miljö Sverige	-0,10		1,62	1 410,62		1,64	11,92	1,40
	Swedbank Robur Ethica Sverige MEGA	0,41		0,75	1 311,19	-	2,23	7,34	0,70
	Swedbank Robur Exportfond	0,17		0,61	5 577,12	-	1,25	7,88	1,40
	Swedbank Robur Hockeyfond	0,03		0,20	11,62		1,89	8,09	1,40
	Swedbank Robur Småbolagsfond Sverige	-0,07		-0,42	5 674,89		2,29	12,16	1,40
2006		0,51		1,07	361,09		21,29	17,54	1,60
	Swedbank Robur Sverigefond	0,02		0,15	8 238,15	-	1,45	8,19	1,40
	Swedbank Robur Vasaloppsfond	0,06		0,44	16,57		2,51	7,50	1,40
	Team Catella Tennisfond Västernorrlandsfonden	0,47 0,02		0,57 0,12	747,48 140,80		1,64	22,54	1,55 1,50
		-0,37		-1,95	524,70	-	12,50	15,49	1,20
	Öhman Mixturfond - Aktiv Förmögenhets- förvaltning	-0,22		-1,47	38,77		1,40	20,39	1,40
	5 0	•					-		•

Time	Fund name	Alpha (%)	Alpha S.E	T-ctat	Size (MSEK)		low (%)	Rebalancing (%)	Fee (%)
2007	Banco Etisk Sverige	Aipila (70)	Alphia 3.E	1-Stat	4 296,63	-	0,39	11,46	1,70
2007	=	-0,51	0,32	-1,58	1 318,81	-	1,86	6,12	1,25
2007	Carlson Småbolagsfond	-0,11	. 0,35	-0,31	1 096,32	-	1,76	10,64	1,70
2007		-0,28		-1,28					
	CARLSONS SWEDEN	-0,34		-1,46	70.24		0.24	44.03	4.50
2007	Carlson Sweden Micro Cap Carnegie Småbolag	-0,66		-1,25	70,31	-	8,34	11,93	1,50
	Carnegie Striabolag Carnegie Sverige	-0,43 -0,32		-1,27 -1,63	3 060,04 463,03	-	6,83 1,91	17,96 30,30	1,70 1,70
	Cicero Sverige	-0,12		-0,37	47,07		17,07	27,38	1,20
	Danske Fonder SRI Sverige	-0,25		-1,36	62,16		4,56	10,28	0,50
2007	Danske Fonder Sverige	-0,49	0,22	-2,22	2 243,43	-	3,09	24,97	1,30
	Danske Fonder Sverige Fokus	-0,80	0,40	-2,02	384,78	-	22,05	46,23	1,30
	ABN AMRO Sverige	-0,14		-0,59	123,61	-	8,62	11,08	1,60
	AMF Pensions Aktiefond - Småbolag	0,15		0,26	1 011,99	-	11,72	12,35	0,60
	Amplus	-0,57		-1,18	4 000 55			7.50	2,29
	Aktie-Ansvar Sverige Banco Etisk Sverige Special	-0,19 0,14		-0,73 0,47	1 892,55 314,37	_	1,47 2,32	7,63 10,11	1,40 1,10
2007		-0,15		-0,54	195,67	-	4,18	11,20	1,70
2007	* *	-0,08		-0,29	76,92	-	0,56	10,99	0,80
	Banco Ideell Miljö	-0,18		-0,72	388,47	-	1,48	13,77	1,70
2007	Banco Kultur	-0,14	0,27	-0,50	79,87	-	1,47	10,82	1,70
2007	Banco Samarit Pension	-0,08	0,27	-0,29	60,87	-	0,76	11,06	0,90
	Banco Småbolag	-1,12		-1,79	575,46	-	4,81	19,89	1,70
	Banco Svensk Miljö	-0,19		-0,76	191,13		3,20	12,55	1,70
	Banco Teknik & Innovation	-0,19		-0,76	429,32		17,26	14,96	1,70
2007	BOSPARFONDEN CARLSON STIFTELSEFOND	0,02 -0,68		0,06 -1,44	969,69 264,76	-	1,67 0,55	14,83 16,43	1,50 1,25
	CATELLA INSTITUTIONELL ALLOKERING	0,31		0,64	204,70		0,55	10,43	0,55
	CATELLA INSTITUTIONELL RELATIV	0,27		0,40					0,55
	Danske Fonder Aktiv Förmögenhetsförvaltning	-0,59		-2,89	4 968,79	-	1,99	28,49	1,25
	Danske Fonder Offensiv	0,29		0,82	978,85		0,86	12,21	1,30
2007	Didner & Gerge Aktiefond	0,03	0,53	0,06	11 542,14	-	3,82	12,51	1,22
	Ekvator	0,50	0,64	0,79					1,30
	Eldsjäl Biståndsfond	0,12		0,39	59,49	-	0,25	28,27	2,00
	Eldsjäl Gåvofond	-0,69		-2,51	88,91	-	1,71	19,86	1,60
	Eldsjäl Sverigefond Enter Mobile Internet	-0,57 0,24		-2,31	57,61 61,79	_	0,08	20,69 10,41	1,60
	Enter Select Fokus	0,24		0,36 0,53	01,79	-	0,15	10,41	0,75 0,50
	Enter Sverige	0,22		0,50	271,69			18,74	1,70
	Enter Sverige Fokus	0,16		0,40	,-,			/.	0,50
	Erik Penser Sverigefond	-0,48		-1,59	25,61		2,31	37,31	1,40
2007	FOLKSAM LO FOND SVERIGE	-0,20	0,25	-0,80	12 705,48		1,72	9,55	0,40
2007	Gustavia Sverige	-0,81	. 0,71	-1,13	355,63	-	13,81	24,98	1,50
	Handelsbankens Radiohjälpsfond	-0,20		-0,93	105,70	-	1,35	8,28	1,50
	Handelsbankens Reavinstfond	0,05		0,19	10 725,53		7,45	14,57	1,50
	Handelsbankens Småbolagsfond HQ Strategifond	-0,11 0,21		-0,47 0,45	5 835,31 7 664,43	-	3,89 1,12	14,60 18,18	1,50 1,50
	HQ Sverigefond	-0,21		-0,43	4 529,94	-	4,03	16,21	1,50
	IKANO Svensk Aktiefond	-0,20		-1,17	3 266,25		.,03	4,88	0,60
2007	Kaupthing Småbolag	-1,11		-3,64	181,01	-	3,93	42,68	1,40
2007	Lannebo Småbolag	-0,55	0,40	-1,36	5 619,21	-	1,92	9,73	1,60
2007	Lannebo Sverige	-0,64	0,26	-2,49	872,95	-	13,02	19,72	1,60
	Länsförsäkringar Fastighetsfond	-0,86		-0,75	2 575,10	-	11,73	13,47	1,30
	Länsförsäkringar Mega Sverige	-0,05		-0,35	655,24		1,76	21,42	0,50
	Länsförsäkringar Swarigofond	-0,90 -0,11		-1,71 -0,77	2 758,08	-	3,13 1,00	15,02 19,61	0,75 1,30
	Länsförsäkringar Sverigefond Nordea Etiskt Urval	-0,11		-0,77	8 170,16 340,50	-	4,01	19,28	1,25
	Nordea Selekta Sverige	-0,01		-0,05	340,30		4,01	13,20	1,60
	Nordea Stratega 13	-0,14		-1,37					0,95
2007	Nordea Sverigefond	-0,06		-0,50	6 630,71	-	2,46	14,70	1,50
2007	SEB Sverigefond	-0,13	0,16	-0,81	17 253,51	-	3,57	10,57	1,30
	SEB Sverige Chans/riskfond	0,04		0,19	1 914,35	-		17,12	1,30
	SEB Sverigefond - Stora Bolag	0,04		0,19	9 743,45	-	2,17	8,25	1,50
	SEB Sverigefond Småbolag	-0,02		-0,12	6 602,29	-	11,27	10,47	1,50
	SEB Sverigefond Småbolag Chans/Risk SEB Stiftelsefond Sverige	0,12 -0,44		0,52 -0,99	4 469,58 1 142,10	-	6,17 0,17	11,65 16,64	1,50 1,50
	Skandia Cancerfonden	-0,44		-1,78	381,73		2,39	6,48	1,70
	Skandia Småbolag Sverige	-0,02		-0,06	2 425,89		11,67	10,46	1,40
	Skandia Sverige	-0,08		-0,66	5 577,64	-	7,58	10,88	1,40
2007	Skandia Världsnaturfonden	-0,33		-1,35	491,40	-	1,21	6,16	1,70
2007	SKF Allemansfond	0,11	. 0,35	0,30					1,30
	Spiltan Aktiefond Dalarna	-0,62		-0,78	8,02	-	0,16	21,71	1,50
	Spiltan Aktiefond Sverige	-0,27		-0,30	226,64	-	4,85	9,26	1,50
2007	- T	-0,37		-0,63	58,08		1,25	7,67	1,50
	SPP Aktiefond Sverige	0,20		0,82	1 985,13	-	0,50	14,39	0,70
	Swedbank Robur Ethica Miljö Sverige Swedbank Robur Ethica Sverige MEGA	-0,81 -0,11		-1,31 -0,82	2 109,08 1 645,87		4,80 2,65	5,42 5,39	1,40 0,70
2007	-	0,06		0,16	6 603,41	-	2,36	8,16	1,40
	Swedbank Robur Hockeyfond	-0,10		-0,72	15,57	-	6,39	9,26	1,40
	Swedbank Robur Småbolagsfond Sverige	0,03		0,22	6 681,63	-	4,94	14,71	1,40
2007		0,27		0,71	1 022,17		12,39	10,84	1,60
2007		-0,08		-0,59	9 763,30	-	1,55	8,48	1,40
	Swedbank Robur Vasaloppsfond	-0,07		-0,44	21,26		0,10	8,77	1,40
	Team Catella Tennisfond	-0,14		-0,18	2 111,53			57,94	1,55
	Västernorrlandsfonden Öhman Sverigefond	-0,20 -0,06		-1,33 -0,28	189,20 373,03	_	2,43 21,75	9,44 11,02	1,50 1.20
	Öhman Mixturfond - Aktiv Förmögenhets- förvaltning	-0,00		-0,28	47,02	-	1,00	10,81	1,20 1,40
2007	Total Talling Total Tot	0,11	. 0,10	3,00	47,02		2,00	10,01	1,40