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GOOD FOR GOODNESS SAKE?

An evaluation of the performance of ethical funds in Sweden

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ABSTRACT
Using a survivorship-bias free dataset, the fund performance and market timing of 95 Swedish ethical mutual funds and 237 conventional mutual funds between 2004 and 2014 is compared in order to investigate if there is an additional cost associated with ethical investments. For the evaluation of fund performance the CAPM single-index model as well as the Carhart (1997) 4-factor model is applied. Results obtained indicate no statistical significant difference in the risk-adjusted returns between ethical and conventional funds. Furthermore, the market timing ability of fund managers is analyzed using the Henriksson-Merton (1981) model. Results show no significant differences between groups, implying that neither ethical nor conventional fund managers are able to forecast market changes correctly. Conclusively, an ethical perspective does not seem to impair the financial returns of the Swedish mutual funds.

Keywords: Performance evaluation, Ethical investments, Mutual funds, Socially responsible investing

JEL: A13, G11, G12, G23

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Table of Contents

1 Introduction

One of the most remarkable developments within the financial community during the recent years is the emergence of socially responsible and ethical investments. As the expectations of companies to act in a sustainable and ethical way have been established in society, the development has turned to fund and asset managers. Investors with a socially responsible objective screen their investment universe with a variety of social and environmental criteria in addition to the traditional financial criteria. This has sparked interest within the academic community, where it is currently debated whether ethical investments are associated with a higher cost or not. Several evaluations of the performance of ethical funds in relation to either a market index or conventional, non-ethical, funds have been conducted to study this issue by using a variety of methods and geographical foci. Currently, studies are presenting conflicting results, where the outcome seems to be dependent on geographic location (Renneboog et al., 2008). It is also debated whether fund managers are able to add value to the funds by their ability to time the market. Several scholars argue that the ability of fund managers can have a large influence on fund performance, perhaps larger than the performance of individual stocks in the fund portfolio (Henriksson, 1984; Bollen and Busse 2001). Thus, in order to accurately compare the performance of funds, the skills of the fund managers should be taken into account.

The purpose of this study is to further investigate whether investors are in fact paying a price for investing with an ethical perspective. Most studies have focused on the fund markets in the United States or the United Kingdom and very limited research has been done on the Swedish market, despite Sweden being considered a front-runner in the field (Bengtsson, 2008). Moreover, Sweden is considered to be very different in terms of institutional structure. Using the definitions established by Hall and Soskoci (2001) Sweden is labeled a coordinated market economy where the relationship between the state and the private sector is characterized by trust and cooperation. The United States and the United Kingdom on the other hand are characterized more as liberal market economies, where the private sector is more detached from the state and business relations are more competitive and formal. These two different types of economies can potentially affect the market for ethical investments.

Furthermore, there have been few studies done on the last decade, despite large changes taking place during this time, such as the recent global financial crisis, as well as new frameworks aiming to regulate the ethical fund market. By focusing on a large data set of Swedish mutual funds with Sweden and Europe as the investment universe we thus aim to fill a gap in the current research. Formally, two questions are addressed in this thesis. First, the financial performance of ethical and conventional mutual funds is compared in order to investigate if there is any difference in the returns over the last ten years. Second, the study continues by looking at the market timing ability of the two fund categories to see if the fund managers' skills differ significantly.

The paper is structured as follows. In section two the theoretical background is presented. The third section gives an overview of previous research and in section four our hypotheses are established. Section five continues with giving a background to the market of ethical investments and a definition of what constitutes an ethical investment. The data and method used for our study are presented in the sixth section and section seven reports the results from the analyses. The results are discussed in section eight and section nine concludes.

2 Theoretical Background

The study of ethical funds and their performance relative to conventional funds originates from the historical debate regarding the relationship between corporate social responsibility, also referred to as CSR, and financial performance. There are two opposing theories in this field**.** According to neoclassical economic theory there is a tradeoff between social and environmental goals and profitability (Walley and Whitehead, 1994). Companies wishing to reduce their negative impact will incur higher costs by doing so, thus impairing the financial result. The debate about shareholder versus stakeholder value is central in this discussion. As Friedman (1970) stated: "there is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits". Hence, firms should care only about maximizing shareholder value, while the issue of social responsibility and stakeholder value is for governments and NGOs to deal with. The other view argues in favor of firms engaging in social responsibility. Freeman et al. (2010)

and Porter and Kramer (2011), among others, argue that companies will also create value for the shareholders by meeting the needs of stakeholders. In fact, if not striving to create value for stakeholders, the value for shareholders may actually be destroyed. Customer boycott, being unable to hire and retain the most talented people and even facing the risk of having to pay fines to governments are factors affecting the financial performance of a firm. Furthermore, Porter and Van de Linde (1995) argue that companies investing in new technologies and practices in order to reduce their negative impact have a comparative advantage over other companies.

Relating this debate to the mutual fund market, traditional financial theory argue against ethical investments since the incorporation of additional restrictions into the decision model will cause the investment universe to be limited. Effects of this include reduced diversification, increased volatility and in the end lower returns (Sauer, 1997). The proponents on the other hand argues that when investors screen companies both on financial aspects as well as on social and environmental factors, the financially weaker and less sustainable companies are avoided leading to a stronger fund portfolio (Herremans et al., 1993).

The line between what companies must do in order to comply with laws and regulations and what are voluntary initiatives adopted in order to be a more sustainable company is constantly moving. The above quotation from Friedman (1970) continues with "so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud." And the rules of the game are definitely an evolving entity. Firms wishing to fulfill minimum compliance today must reduce their emissions and prevent pollution. They must consider labor standards and pay minimum wages. Corruption and the paying of bribes have been banned through laws in several developed countries and violating these can lead to hefty fines. With this increase in regulations, which companies must adhere to, the opinion of what constitutes a good and responsible company has shifted (Dahlsrud, 2008). Voluntary frameworks and standards, such as the UN Global Compact or the OECD Framework for Multinational Enterprises have in principle become an obligation for companies to join in order to not be seen as destructive to society. Moreover, the strive to be included in various "sustainability indices" and lists of

sustainable companies has encouraged firms to work even more seriously with these issues (Miljörapporten, 2010).

The development of ethical frameworks and changed norms regarding CSR holds implications for investors. As more companies are fulfilling the criteria for what is considered responsible and ethical, the more potential investment objects exist for the ethical funds and hence there are fewer restrictions on the investment universe. In accordance with the traditional financial theory this should imply improved performance of these funds.

A related important aspect is the institutional context in which firms and investors act. Sweden is in this regard very different from the United States and the United Kingdom, where most studies of ethical fund performance have been conducted to this date. Using the definitions by Hall and Soskice (2001), the United States and the United Kingdom are to a large extent characterized by a liberal market economy where firms organize their activities through hierarchies, competition and formal contracts. Sweden, on the other hand is more of a coordinated market economy, where firms and other actors are more dependent on non-market relationships and strategic interactions. The different relationships between the government and the private sector becomes interesting since it affects the general view of CSR and ethical investments and whose responsibility it is. In the liberal market economics, private sector actors are expected, and allowed, to handle these issues by themselves. However, in a coordinated market economy it is rather the state and other public authorities that are expected to take on more responsibility for the development of sustainability. This study of ethical investments in Sweden thus widens the knowledge of this market and may allow for a broader application of the results to other countries characterized as coordinated market economies.

3 Previous Research

Researchers have studied the issue of responsibility and sustainability in relation to profitability in two ways, either by looking at ethical initiatives at the firm level (CSR) or by studying ethical investments at the fund level (most often referred to as ethical

investments). The aim has been to evaluate whether the more ethical actor is more profitable relative to their less ethical counterpart.

Some studies focusing on the firm level find that firms incorporating CSR in their business do perform better. For example, Cheng et al. (2014) shows that companies ranking high on CSR performance face less capital constraints and hence conclude that it is profitable to work with CSR. Eccles et al. (2014) investigates the effect of CSR on organizational processes and performance. By studying a matched sample of 180 firms in the United States, they find that companies which voluntarily adopted sustainability policies in 1993 show significantly different organizational processes in 2009, compared with a matched sample of companies that adopted no policies. The boards of directors in these high sustainability companies were more often in charge of sustainability issues and top executive compensation incentives were more likely to be a function of sustainability aspects. More importantly, it was found that high sustainability companies significantly outperformed their low sustainability counterparts with 4.8 percent in annual stock market performance. In contrast, other scholars argue that CSR activities can have a negative impact on firms' performance. For example, Balotti and Hanks (1998) and Brown et al. (2006) argue that sustainability may be an agency cost. Managers receive private benefits from adopting CSR policies but this could have negative financial implications, for example through a higher cost structure, for their firms. According to Jensen (2001), firms that do not engage in CSR will have a competitive advantage since they do not face the additional constraint, and should thus be more profitable in a highly competitive market.

On the fund level, several scholars have made attempts to find an answer to the discussion of ethics versus profitability by comparing the performance of ethical funds with conventional funds and various market indices. The results have been mixed and few have managed to find statistically significant differences between the ethical and non-ethical funds (Bauer et al., 2005). Kreander et al. (2005) for example conducted a matched-pair analysis on 60 European mutual funds, 30 of which were labeled ethical and 30 as non-ethical. Funds were matched based on age, country, size and investment universe. By applying the Sharpe (1966), Treynor (1965) and Jensen (1968) performance measures the authors find no significant difference between the two groups of funds.

A common way to compare fund returns is to apply a financial performance measurement model such as the single factor Capital Asset Pricing Model (CAPM) or a multi-factor model, the most common being the Fama and French (1993) 3-factor model and the Carhart (1997) 4-factor model. By using the latter, Gil-Bazo et al. (2010) find that ethical funds in the United States had slightly better before- and after-fee performance than non-ethical funds with similar characteristics during 1997-2005. Bauer et al. (2005) apply the same model on a collection of mutual funds from the United States, Germany and United Kingdom. After controlling for investment style they find no significant difference in risk-adjusted returns between ethical funds and conventional funds. Renneboog et al. (2008) however find conflicting results when studying ethical fund performance in the United States, the United Kingdom, and in several continental European and Asia-Pacific countries. Using the matched-pair method each ethical fund is compared to a conventional fund with similar characteristics, such as age, size, the presence of load fees, and risk exposure. They find a tendency amongst ethical funds to underperform, however most results are insignificant. Exceptions from this lack of significance are however found in France, Japan and Sweden, where the ethical funds significantly underperform the conventional funds with 4-7 percent per annum. In conclusion, a majority of previous research conducted on the subject indicates that investors can incorporate ethical aspects into their investments, without jeopardizing future returns**.** However there are some conflicting results, which seem to be dependent on geographic location.

The role of fund managers and the ability of managers to time the market in order to add value to the fund's performance has also been the topic of some research. The majority of studies conclude that there seems to be no such skill of fund managers. Henriksson (1984) studies 116 open-ended mutual funds in the United States for the period 1968-1980. When applying a model developed by the author together with Merton in 1981 the results obtained indicate that the fund managers are not able to forecast the market movements. Kreander et al. (2005) also investigate the market timing ability of the fund managers in their sample of European funds. The results reveal that neither type of fund, ethical nor conventional, exhibit any ability to time the market. Ferruz et al. (2010) studies conventional and socially responsible pension funds in the UK. Employing two market

timing models, Treynor-Mazuy (1966) and Henriksson-Merton (1981), the authors find a negative market timing ability for both categories of fund managers. Somewhat conflicting results are however found in a more recent study by Ang and Lean (2013), investigating the market timing ability of ethical funds in Luxembourg. The same two models are applied and results show that the ethical fund managers in their sample do possess some market timing skills and an ability to forecast the stock market trend.

4 Hypotheses

Based on the previous research in combination with the theoretical background two hypotheses are derived. The first regards the relative performance of ethical funds. As concluded in the above section, there is no consensus in the previous research on whether ethical funds do perform better, worse or the same relative to conventional funds. This study investigates this further by applying multifactor performance models on a Swedish dataset covering the last ten years. Financial theory stipulates that the more restrictions you impose on the investment universe, the lower return you will receive. If this theory is still valid, we will obtain results indicating that there is a difference in return, in favor for the conventional funds. However, the recent developments within both firms' sustainability work and the more widespread knowledge about ethical investments should in line with the traditional view widen the potential investment universe for ethical funds. Hence, the difference between the two types of funds should be eliminated. Our first hypothesis is thus that the average monthly return of Swedish ethical and conventional funds does not differ significantly from each other.

The second issue this study addresses is the role of the fund managers, more specifically their ability to time the market and change the composition of the holdings in order to reduce risk and improve performance. Conflicting results in this area of research as well calls for further investigation. This part of the study can be seen as a validity check to the first hypothesis and to some extent an explanation of the results obtained. The market timing will tell us what drives the results in the fund performance. If there is a significant difference in market timing ability then this can alter the reasoning behind the results for hypothesis one. The essential argument behind the first hypothesis is that there will be no

significant difference in fund performance due to an increased investment universe. However, if the market timing ability of the conventional and ethical funds is found to be significantly different, then even if we obtain insignificant difference in the fund level performance the underlying argument behind hypothesis one may fail. The insignificant differences in fund performance can in this case be driven by differences in market timing skills, and not by an increased investment universe as theorized. The second hypothesis suggests that this will not be the case, but that the results of the validity test will be in line with hypothesis one. Thus hypothesis two states that no significant difference will be found in the market timing ability of ethical fund managers and conventional fund managers.

5 Ethical Investments

5.1 Defining Ethical Investments

The definition of what constitutes ethical investments varies between different regions (Sandberg et al., 2009). Although the market for funds incorporating ethics or other social concerns in to the investment decisions is rapidly growing there are great differences between the funds. Furthermore, besides the lack of consensus of what constitutes an ethical fund there is no common understanding of what to call this type of investments (Sandberg et al., 2009). Socially responsible investments, SRI, is the most common term used in the United States while mainly European investors use the term ethical investments. The lack of a common definition can be problematic and create uncertainty for investors and obstruct any comparison between different funds. Research on ethical fund performance can for example reach very different conclusions depending on the definition used (Sandberg et al., 2009). A further reason for why the lack of standardization is problematic is connected with the desire to "mainstream" ethical investments. Without a clear definition of the concept it is hard to adopt it and incorporate it in the investments decisions. Without a predefined framework additional costs might be incurred as investors find themselves forced to develop their own framework and methodology. The lack of a general framework can furthermore result in lower credibility for ethical investments, as it is difficult to communicate the virtues of a practice without a common definition.

The launch of the UN PRI has to some extent facilitated the process of standardization and creation of a common definition (Sievänen et al., 2013). The definition is wide and flexible enough to be adopted by a majority of actors. The UN PRI definition of responsible investments is the following:

> Responsible investment is an approach to investment that explicitly acknowledges the relevance to the investor of environmental, social and governance factors, and of the long-term health and stability of the market as a whole. It recognizes that the generation of long-term sustainable returns is dependent on stable, well-functioning and well governed social, environmental and economic systems.

Regardless of the common definition set up by UN PRI, there is still a variety of methods and screening criteria applied by the different ethical funds. Table 1 lists the main strategies applied. Even within these broad strategies there are large variations in the implementation. Lee et al. (2010) for example identified 11 screening criteria used by the funds applying an exclusion or inclusion strategy. These include alcohol, tobacco, gambling, defense/weapons, animal testing, product/services, environment, human rights, labor relations, equal employment and community investment.

In Sweden, the most common method is the norm based screening in combination with exclusion. The UN Global Compact in combination with the International Labor Organization (ILO) conventions is the most frequently used standards for exclusion. The strategy is often combined with active ownership, which ultimately may lead to divestments of holdings (Eurosif, 2014).

In this study we use a broad definition of what constitutes an ethical fund, meaning that we include all types of screening strategies listed in Table 1, in line with the UN PRI. We will use the term ethical investments/funds in the remaining part of the paper.

Table 1: Strategies for ethical investments

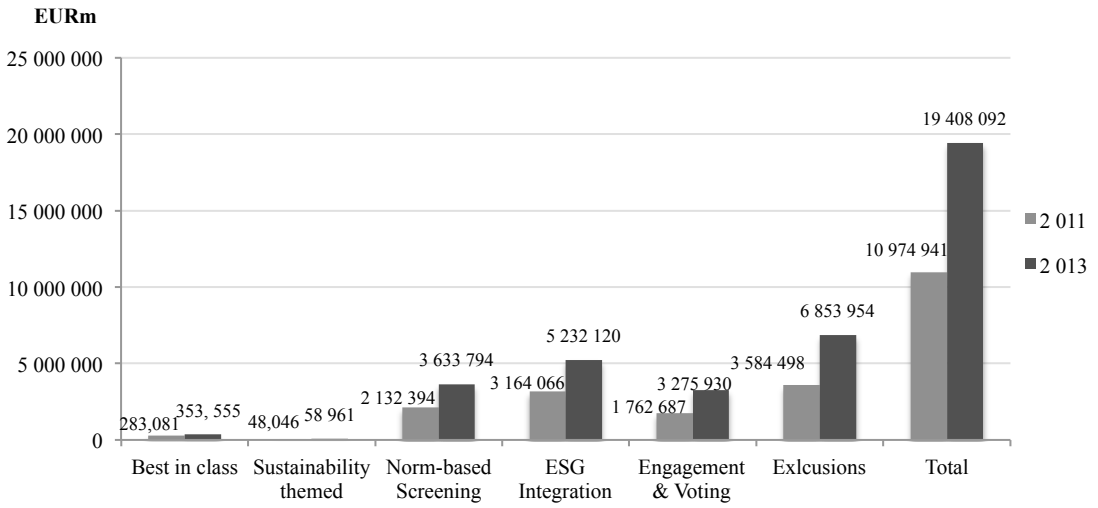
Negative Screening • **Sector Based** • **Norm Based**	Excluding companies based on criteria relating to their products, activities, policies or performance. Sector based implies excluding whole sectors while norm based screening means companies are excluded if they are considered to have violated international norms such as UN Global Compact or ISO 26000.
Positive Screening	Selecting companies or industries in which to invest based on their products, activities, policies or performance.
Best-in-Class	Investing in the companies regarded to be the leaders in their respective industry, with respect to their governance and management processes and Environmental, Social, and Governance (ESG**)** performance.
Thematic Investments	Selecting assets on the bias of investment themes such as climate change or demographic change.
Active Ownership	Investors use their formal rights and informal influence to encourage companies to improve.

Source: UN PRI

5.2 Market Development

Globally, socially responsible investments are gaining importance as the market share in relation to total assets under management (AUM) exhibits strong growth. In the United States it was reported that USD 6.57 trillion was invested with a socially responsible and ethical perspective at the start of 2014, corresponding to more than one sixth of total investments and a growth of 76 percent between 2012 and 2014 (US Sif Foundation, 2014). Likewise, the European market for social responsible investments has displayed an impressive growth, with the most common strategy, exclusions, growing by 91 percent between 2011 and 2013, as seen in Figure 1.

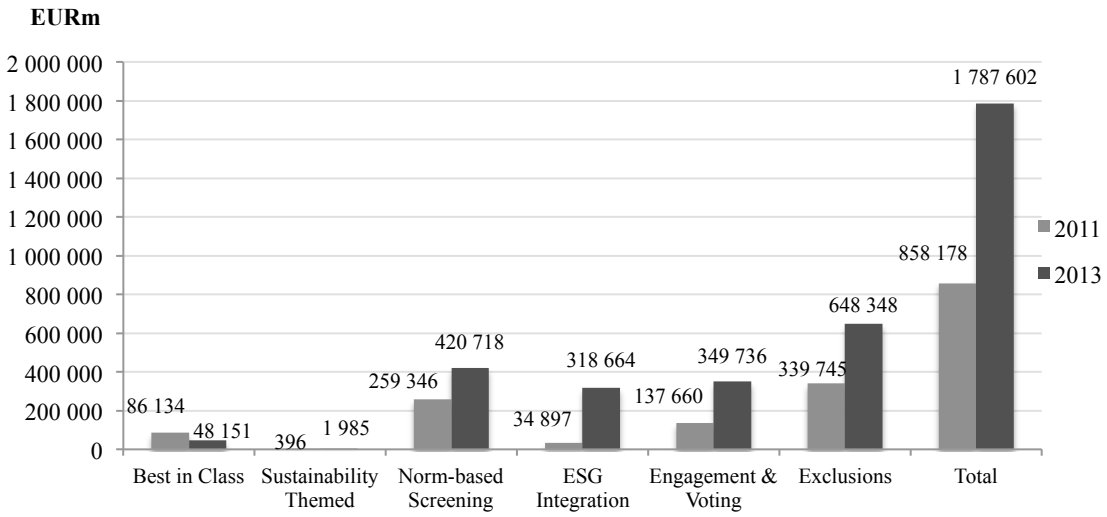
Figure 1: Europe – Breakdown by ethical investment strategy



Source: Eurosif 2014

In Sweden, the total market for ethical investments is also expanding. As displayed in Figure 2, the total assets under management are increasing in all categories of ethical screening strategies. The predominant strategies applied by Swedish investors are the norm based screening and exclusions. The exclusion based strategy amounted to EUR 648 billion (SEK 5.8 trillion) in 2013, exhibiting a growth of 91 percent from 2011.

Figure 2: Sweden – Breakdown by ethical investment strategy



Source: Eurosif 2014

The origins of ethical investments date back hundreds of years, with religious groups being the first ethical investors. Ethical investments, in its modern form can however be argued to be the result of the political climate of the 1960s (Bauer et al., 2005). Increased awareness about the environment, civil rights and the risks associated with nuclear energy among investors was a main driver in the development. One of the world's first ethical funds was the Swedish *AktieAnsvar Aktiefond*, established by the Temperance movement and the Baptist church in 1965 (Bengtsson 2008).

In Sweden, the state has been a major driver behind the development of ethical investments, in line with the coordinated market economy definition as stated by Hall and Soskice (2001). In 2000 the Swedish government proposed a new law (SFS 2000:192) set out to reform the Swedish national pension funds, *AP-fonderna*. In the bill it was stated that "the funds should consider ethical and environmental aspects without impairing the overall purpose of a high return." Although this part was not kept in the final act, the text in the bill was taken seriously by the AP-funds (Viel Lamare, 2014), as the AP-funds from this event onwards began implementing ethical and environmental aspects into their investment decisions. Continuing on this path all AP-funds joined together in 2007 to form *Etikrådet*, a common body serving to facilitate and coordinate the funds' ethical investments. This action may have been a source of inspiration for the private sector, as they in 2008

launched Swesif (the Swedish Sustainable Investment Forum), which was formed to promote sustainable investments. In 2011 Swesif also launched *Hållbarhetsprofilen*, which was created to facilitate the transparency and the cohesiveness of ethical mutual funds. As of now, the framework for ethical investments in Sweden thus seems to have been developed first within the public sector in Sweden and the framework then served as an example for the private sector in their development of ethical investments.

Besides important domestic actors driving the development of ethical investments in Sweden, the influence from international organizations and initiatives are equally important. The OECD Guidelines for Multinational Enterprises and UN Global Compact have been very strong drivers behind companies' work with corporate social responsibility. For investors, the UN PRI (Principles for Responsible Investments) initiative is perhaps the most influential (Sjöström, 2014).

6 Data and Method

6.1 Data

6.1.1 Selection of Mutual Funds

To study the performance of ethical and conventional funds we construct a time series database with data provided by Morningstar Sweden, an independent provider of investment research (Morningstar Sweden, 2014). This data includes monthly returns of all mutual and index funds registered in Sweden, net of all management fees between the years 2004 and 2014. The original sample consists of 1355 funds. We have restricted this study to actively managed Swedish mutual funds, and consequently all passive funds and all funds managed from abroad have been excluded. Furthermore, only equity funds are included which by the definition set up by Morningstar calls for a minimum of 75 percent equity holdings in the fund. Additionally, the investment universe of the funds is restricted to Europe, including Sweden, meaning that a majority of the fund's holdings must be invested within this region. Due to these restrictions, 332 funds where kept in the final sample used in this study.

Ensuingly, the funds have been sorted into either the ethical or the conventional group, depending on their investment philosophy. As previously discussed there is currently heterogeneity in how the ethical funds choose to invest, although a majority of the Swedish funds use negative screening processes. The purpose of this study is not to separate between different types of ethical funds or screening methods and hence we choose not to exclude ethical funds based on their screening process, but instead to use a broad definition where all screening methods are allowed.

To sort out the ethical funds, information from Morningstar was combined with a review of each fund based on researching reports, websites and in a few cases by contacting the fund manager. Based on this, a total of 95 funds that incorporates one or several ethical screening criteria have been selected. The group of non-ethical funds included in our analysis consists of 237 funds that rely solely on traditional financial analysis when selecting investment objects. As many funds in the sample are not active throughout the whole period, the average number of active mutual funds per month is lower, with 67 ethical funds and 149 conventional funds active each month on average. The trend in the data is that the share of ethical funds is decreasing. In November 2004 we count 68 active ethical funds and 114 conventional funds. In the last month in the period, October 2014, the number of ethical funds is 58 while the corresponding number for conventional funds is 198. All funds included in the dataset are presented in Appendix A.

Table 2: Summary statistics of ethical and conventional funds 2004/11-2014/10

	Avg. monthly return	Std dev.	Min.	Max.	Avg. fund size	Avg. age	Total no. of funds
Ethical	0.85	4.47	-15.38	19.54	2 302	12.50	95
Conventional	0.89	4.39	-14.82	18.64	4 685	10.46	237
Market	0.74	5.85	-22.06	13.79			

Source: Morningstar Sweden, Finansinspektionen

Notes: Average monthly return is expressed as a percentage. Average fund size is in million SEK as of 31/12/2013.

Table 2 presents some descriptive information of the funds in our dataset. We note that the average monthly return is rather similar for both the ethical and conventional funds. The return of ethical funds however has a larger spread, seen by the slightly larger standard deviation**.** This could possibly be explained by the smaller sample of ethical funds. Interestingly, the market displays lower mean return and higher standard deviation than both the conventional and ethical mutual funds. Regarding the age of the funds we note that the ethical funds in general are older, 12.5 years versus 10.5 years for the conventional funds. At the end of 2013 the average ethical fund is about half the size (in terms of assets under management) of the average conventional funds.

One potential hazard when reviewing fund returns is the survivorship-bias problem, as pointed out by Brown et al. (1992). This implies that an exclusion of dead funds leads to an overestimation of average performance. The dataset from Morningstar include all funds that have existed between the years 2004 and 2014 including funds that died during that period and hence the survivorship-bias problem is mitigated. For each month, the average monthly return is recalculated to include only the currently active funds.

6.1.2 Market Portfolio Factors

The market portfolio factors used in the multifactor model are obtained from the Kenneth R. French Data Library, which contains monthly data on the size, book-to-market and momentum portfolios for the European region over the years 2004-2014. These portfolios will be further described below. Data from 16 European countries are included; Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. Bloomberg is the data source primarily used for stock returns and accounting data, Datastream and Worldscope has been used as supplements when needed (Fama and French 2012). The market portfolio is focused on the European region in order to imitate the funds' investment universe. The data includes both Sweden and the rest of Europe in order to obtain larger portfolio variation as well as a larger sample of funds.

6.2 Method

6.2.1 Evaluating the Performance of Mutual Funds

When measuring the performance of mutual funds there are various methods that can be applied. Historically, the most common model applied is a CAPM-based single-index model (Bauer et al., 2005). CAPM allows for a time-series analysis of portfolio performance relative to the market index performance. It is hypothesized that the market index is the most efficient portfolio because it offers the highest return relative to risk. A higher return than the market portfolio should thus only be feasible by incurring higher risks, where β_{0i} in Equation (1) below measures the risk of the portfolio. (Black et al., 1972). The intercept of the model, α_i, is commonly known as the Jensen's alpha and is interpreted as a risk adjusted measure of over- or under-performance relative to the market proxy (Jensen, 1968; Bauer et al., 2005). A positive alpha indicates that funds outperform relative to the market, while a negative alpha indicates that the funds underperform relative to the market.

The CAPM is given by:

$$R_{it} - R_{ft} = \alpha_i + \beta_{0i}\left(R_{mt} - R_{ft}\right) + \varepsilon_{it} \qquad (1)$$

where R_{it} is the return of portfolio *i* in month *t*, R_{ft} is the risk free rate in month *t*, which in our case is the Euribor one month interbank rate[1]. R_{mt} is the expected return of the European market porfolio. Finally, ε_{it} is the error term.

In relation to CAPM more recent literature suggests that the market portfolio can be outperformed without incurring higher risks, implying that the market alone is not the most efficient portfolio. Several scholars have attempted to construct a model that gives a better explanation of fund behavior, the most acknowledged being the Fama and French (1993) 3-factor model and the Carhart (1997) 4-factor model which builds upon the former.

Besides containing the value-weighted market proxy from the CAPM, Fama and French included two additional risk proxies: the returns on size-, and the book-to-market sorted equity portfolios. They found that securities with lower market capitalization and lower book-to-market ratios consistently outperformed the market portfolio even when accounting for risk. This model is an improvement from the single-factor CAPM model but is still lacking in some aspects (Bauer et al., 2005). Carhart (1997) extends the work by Fama and French by adding a fourth factor, namely the momentum anomaly described by Jegadeesh and Titman (1993). They found that investors who buy past winners on the stock market and sell past losers can realize significant abnormal returns of 12 percent per annum on average. This momentum anomaly was found to be robust over time. Using the Carhart (1997) 4-factor model as our framework we can thereby capture systematic risk by measuring the ethical and non-ethical fund performance relative to the excess market return, size, book-to-market ratio and momentum in order to review whether the ethical portfolios over- or underperform relative to their non-ethical counterparts.

[1] Euribor (Euro Interbank Offered Rate) is based on the average interest rates at which several European banks borrow funds from one another. The Euribor rates are considered to be the most important reference rates in the European money market. The interest rates do provide the basis for the price and interest rates of all kinds of financial products like interest rate swaps, interest rate futures, saving accounts and mortgages. See http://www.euribor-rates.eu/ for more details.

The Carhart (1997) 4-factor model is expressed in the following way:

$$R_{it} - R_{ft} = \alpha_i + \beta_{0i}\left(R_{mt} - R_{ft}\right) + \beta_{1i}SMB_t + \beta_{2i}HML_t + \beta_{3i}MOM_t + \varepsilon_{it} \qquad (2)$$

Where the *SMB* portfolio is the return difference of *small minus big* stocks ranked on the market capitalization, the *HML* portfolio is the difference in return between *high minus low* stocks in respect to their book-to-market ratio and the *MOM* portfolio is the *momentum* return difference between the past year top performers and the bottom performers. As in the CAPM, the intercept, α_i, is the Jensen's alpha measuring the over- or under-performance of the portfolio.

The market portfolios *SMB, HML* and *MOM* are pre-constructed by the Kenneth French database and follow the method set out in Fama and French (2012). The factors are based on all stocks in the market (in this case the 16 European countries listed above), which are ranked either on their size or their book-to-market ratio. *SMB* is constructed by first sorting all stocks based on market capitalization, second by forming a small sized portfolio from the 10 percent smallest securities and a large capitalization portfolio from the largest 90 percent of the stocks. In the final step *SMB* is obtained by subtracting the return of the large portfolio from the return of the small portfolio. The superior return of small stocks compared with larger stocks is thus captured by the *SMB* factor in accordance with Fama and French (1993). The *HML* portfolio is created by ranking all stocks on their book-to-market ratio and taking the difference in return between the 30 percent highest book-to-market ratio stocks, referred to as value stocks, and the 30 percent stocks with the lowest book-to-market ratio, referred to as growth stocks. The *HML* factor accordingly captures the observed superior performance of value stocks in relation to the growth stocks. The *HML* and *SMB* portfolios are reformed annually. Finally, the MOM factor incorporates the momentum effect in accordance with the Carhart (1997) findings that past winners outperform past losers. The *MOM* factor is the difference in return between a portfolio of 'winners' formed from the past 12 month top 30 percent performers and a portfolio of 'losers' constructed from the bottom 30 percent performers during the same time period. The 'winner' portfolio and the 'loser' portfolio are then reformed monthly.

6.2.2 Evaluating the Market Timing Ability of Fund Managers

An additional aspect of the performance of mutual funds is the skill of the fund managers. Since our sample consists solely of actively managed funds, a valid question is whether the active management has actually resulted in any excess returns for the investors (Henriksson 1984). With a market timing ability, the fund manager can foresee changes in the market and change the composition of the fund's holdings in order to obtain a better performance and reduce risk. When market returns are expected to be high the fund portfolio will be shifted to high beta assets (i.e. high risk assets such as stocks) and vice versa when market returns are expected to be low. Neither the CAPM nor the Carhart 4-factor model is able to capture the market timing ability of fund managers, and consequently the results from these models might suffer from bias if the market timing ability exists. This is due to the fact that the beta coefficient is kept constant in these models, while in practice it varies over time. Equation (3) was developed by Henriksson and Merton (1981) in order to overcome this shortcoming.

$$R_{it} - R_{ft} = \alpha_i + \beta_{0i}(R_{mt} - R_{ft}) + \gamma_i I(R_{mt} - R_{ft}) + \beta_{2i} SMB_t + \beta_{3i} HML_t + \beta_{4i} MOM_t + \varepsilon_{it} \quad (3)$$

Where α_i is a measure of the excess return of the fund due to the stock selection ability of the fund manager, I is a dummy variable with a value of 0 if $R_{mt} - R_{ft} < 0$ and 1 if $R_{mt} - R_{ft} > 0$. Furthermore, γ_i indicates the excess return of the fund created by the market timing ability of the fund manager. A significant positive γ_i thus implies that a market timing abilty exists while a negative or insignificant γ_i is a sign of a non-existent market timing ability.

Finally, the efficiency of the estimates will be examined. Three types of diagnostic tests will be performed on the regression residuals: the Jarque-Bera test for normality, the Breusch-Pagan test for heteroskedasticity and the Breusch-Godfrey test for autocorrelation.

7 Results

7.1 Relative Performance of Ethical and Conventional Funds

7.1.1 CAPM

The first step in the analysis of fund performance of ethical and conventional funds respectively is to apply the CAPM model to our data. In Table 3 the OLS estimates from the regression of Equation (1) is presented. We run the regression on ethical and conventional funds separately. To further enhance comparability a 'difference' portfolio is constructed by subtracting conventional returns from ethical returns. This portfolio examines differences in risk and return between the two investment approaches. Consequently, any differences in the risk-adjusted returns are implicitly ascribed to the ethical screening.

From the results in Table 3 some conclusions can be drawn. First, the alpha coefficient is interpreted as a measure of under- or over performance of the portfolio with respect to the market. Results show that the alpha is negative and statistically insignificant for both ethical and conventional funds. Hence no inference can be drawn regarding the funds' performance relative the market proxy. Perhaps more importantly, we note that there is no significant difference in the abnormal returns between ethical and conventional funds, which is demonstrated by an insignificant alpha in the difference portfolio.

Table 3: Results from CAPM model

	Alpha	Market β	Adj. R^2
Ethical	-0.182	0.662***	0.68
	(0.262)	(0.041)	
Conventional	-0.148	0.654***	0.68
	(0.259)	(0.041)	
Difference	-0.035	0.008	0.01
	(0.048)	(0.008)	

Notes: Standard errors in parenthesis. The portfolio of ethical funds consist of 97 funds while the conventional fund portfolio consists of 237 funds.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

7.1.2 Carhart 4-factor Model

As discussed in the method section, the Carhart multifactor model, which includes several additional performance measures, has been deemed superior over CAPM in explaining mutual fund performance. Hence, the next step is to estimate the Carhart 4-factor model on the data. The OLS estimates from the regression of Equation (2) are displayed in Table 4. As previously, the portfolio of ethical and conventional funds and the 'difference' portfolio are studied separately.

Table 4: Results from the Carhart model

	Alpha	Market β	SMB	HML	MOM	Adj. R^2
Ethical	-0.092	0.686***	0.313**	-0.277*	-0.097	0.70
	(0.262)	(0.049)	(0.134)	(0.145)	(0.074)	
Conventional	-0.083	0.680***	0.442***	-0.271*	-0.076	0.72
	(0.251)	(0.047)	(0.128)	(0.139)	0.071)	
Difference	-0.010	0.006	-0.129***	-0.007	-0.022*	0.23
	(0.043)	(0.008)	(0.022)	(0.024)	(0.012)	

Notes: Standard errors in parenthesis. The portfolio of ethical funds consist of 97 funds while the conventional fund portfolio consists of 237 funds.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

From the results in Table 4, several observations can be made. First, the higher adjusted R^2 confirms that the multifactor model is adding explicability and is superior to the CAPM in explaining fund returns. Second, a similar exposure to the market portfolio for both the ethical and conventional funds, as noted in CAPM, prevails in the Carhart model as well with very similar values on the beta coefficient. Third, both ethical and conventional funds are rather exposed to small caps, with a significantly larger exposure among the conventional funds, seen in the significantly negative SMB coefficient on the difference portfolio. Fourth, both fund categories are predominately invested in growth stocks, and the difference in exposure between the two is insignificant. The final observation we note is that Jensen's alpha remains insignificant for both categories of funds. So does the alpha on the 'difference' portfolio, implying that there is no difference between the funds' return

even when considering the additional size, book-to-market and momentum portfolios in the Carhart multifactor model.

7.1.2.1 Extension: Development of performance over time

In order to study the evolution of ethical fund performance over time we divide our sample period into three different, non-overlapping, sub-periods. We further wish to capture any possible effect of the global financial crisis, hence the sub-periods are: pre-crisis period of 2004-2006, crisis-period of 2007-2010 and post-crisis period of 2011-2014. Table 5 reports the OLS estimates of the Jensen's alpha from the 4-factor model in Equation (2) above, for the ethical, conventional and difference portfolios respectively for the three sub-periods.

Table 5: Results from Carhart model for different sub-periods

	Alpha 2004-2006	Alpha 2007-2010	Alpha 2011-2014
Ethical	-2.378***	-0.407	-0.047
	(0.784)	(0.481)	(0.307)
Conventional	-2.256***	-0.456	0.003
	(0.778)	(0.449)	(0.308)
Difference	-0.122	0.048	-0.050
	(0.111)	(0.087)	(0.049)

Notes: Standard errors in parenthesis. For the period 2004-2006, the portfolio of ethical funds consists of on average 74 funds while the conventional fund portfolio consists of on average 126 funds. For the period 2007-2010 the ethical fund portfolio consists of 72 funds and the conventional portfolio consists of 175 funds. For the last period, 2011-2014, the ethical fund portfolio consists of 61 funds and the conventional fund portfolio consists of 162 funds.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

From Table 5 we note that it is only in the first period, 2004-2006 that we obtain significantly negative alphas for both ethical and conventional funds, indicating an underperformance in relation to the market return. However, the alpha in the 'difference' portfolio is insignificant. Furthermore, the alphas in the subsequent periods are insignificant for both fund categories, and the alpha for the 'difference' portfolio is consequently insignificant as well. The significantly negative alphas for both ethical and conventional funds in 2004-2006 are noteworthy and raise the question of what causes the

funds to underperform. This will be investigated further in the next section where the market timing ability of the fund managers is studied.

7.2 Market Timing Ability

7.2.1 The 4-factor Henriksson-Merton model

In order to further shed light on the performance of ethical funds an analysis of the market timing ability of the fund managers is conducted through applying the multi-factor Henriksson-Merton (1981) model on the set of ethical and conventional funds. Table 6 presents the results of the estimation of Equation (3). Reported are the OLS estimates for both ethical and conventional funds.

The alpha coefficient is a measure of the stock selection ability of the fund managers while the γ_i measures the ability to time the market movements. The alpha coefficient for both ethical and conventional funds is positive, however statistically insignificant, indicating that fund managers of neither type of fund posses any stock selection ability. The results moreover show that the market timing ability is negative for both categories of funds, but once again no significance can be established. A negative and/or insignificant γ_i in the Henriksson-Merton model indicates a non-existence of a market timing ability. Hence the fund managers in our sample of funds are not able to add value to the fund performance, irrespective the type of fund.

Table 6: Results from the 4-factor Henriksson-Merton model

	Alpha	γ_i	Adj. R^2
Ethical	0.219	-0.138	0.70
	(0.397)	(0.132)	
Conventional	0.181	-0.117	0.72
	(0.381)	(0.127)	

Notes: Standard errors in parenthesis. The portfolio of ethical funds consist of 97 funds while the conventional fund portfolio consists of 237 funds.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

7.2.1.1 Extension: Market timing ability for different sub-periods

The market timing analysis is extended and applied to the three different sub-periods as previously done within the Carhart model section. This in order to detect any development in the ability of fund managers and to be consistent with the performance analysis above. Table 7 presents the results of the estimation of Equation (3). Reported are the OLS estimates for both ethical and conventional funds respectively for the three sub-periods. The results obtained for all three sub-periods are in line with the whole period 2004-2014 above. The market timing ability coefficient, γ_i, is consistently negative but insignificant, reinforcing the non-existence of market timing ability seen above. The stock selection alpha is also insignificant throughout the three sub-periods, indicating that the fund managers do not possess any stock selection ability.

Table 7: Results from Henriksson-Merton model for different sub-periods

	2004 - 2006		2007 - 2010		2011 – 2014	
	Alpha	γ_i	Alpha	γ_i	Alpha	γ_i
Ethical	-1.220	-0.801	-0.362	-0.016	0.355	-0.200
	(1.161)	(0.601)	(0.775)	(0.208)	(0.495)	(0.193)
Conventional	-1.058	-0.829	-0.551	-0.033	0.368	-0.181
	(1.148)	(0.595)	(0.724)	(0.194)	(0.498)	(0.194)

Notes: Standard errors in parenthesis. For the period 2004-2006, the portfolio of ethical funds consists of on average 74 funds while the conventional fund portfolio consists of on average 126 funds. For the period 2007-2010 the ethical fund portfolio consists of 72 funds and the conventional portfolio consists of 175 funds. For the last period, 2011-2014, the ethical fund portfolio consists of 61 funds and the conventional fund portfolio consists of 162 funds.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

7.3 Diagnostic Tests

Three diagnostic tests are performed on the residuals from the regressions in order to test the efficiency of the estimates. The results are presented in Appendix B. First, the Jarque-Bera test is performed in order to investigate if the assumption of normal distribution. We fail to reject the null hypothesis of normal distribution at any conventional levels in both the CAPM model or the Carhart 4-factor model, indicating normally distributed residuals. Second, the Breusch-Pagan test for heteroskedasticity is performed. We fail to reject the null hypothesis of constant variance, implying that heteroskedasticity is not an issue. At last, the Breusch-Godfrey test is applied to investigate the existence of serial correlation,

where results indicate no presence of such correlation. In conclusion, the tests performed seem to support the validity of the results obtained from the performance models.

8 Discussion of Results

Sweden has been labeled a frontrunner in the field of ethical investments. Despite that, rather few studies on the performance of ethical funds have focused on the Swedish context. The large bulk of studies have been using data from the United States or the United Kingdom. These countries differ from Sweden in rather significant ways. Where the former are characterized by liberal market economies, the latter is more of a coordinated market economy (Hall and Soskice, 2001). The institutional variations between these two types of market economies can potentially have an impact on the performance of ethical funds, hence making the results from previous studies on the United States and the United Kingdom difficult to apply to countries that do not share the same characteristics. With this study we provide additional insight into the topic of ethical investments and fund performance by using a sample of Swedish ethical and conventional mutual funds. Ethical funds managed within the coordinated Swedish market economy are found to perform in accordance with previous studies done within liberal market economies. Our results support the first hypothesis and thus indicate that there is no difference in the average monthly return between Swedish ethical and conventional funds during the period 2004-2014.

When comparing our results to previous research we see both similarities and disparities. Renneboog et al. (2008) studies ethical funds in several countries and regions for the years 1990-2003, among them 26 Swedish funds. For the Swedish funds the authors observe a significant underperformance relative to the conventional funds. It is thus necessary to consider some possible explanations for these contradictory results. There could be three potential explanations for this. First, the Renneboog et al. (2008) study uses a different method by matching each ethical fund to a conventional fund with similar characteristics. Second, our sample of funds is significantly larger than that of Renneboog et al. (2008) with 95 ethical funds studied as opposed to 26 funds. Finally, we focus on a different time period. As discussed previously the most recent decade has seen some considerable

developments within the market of ethical investments. The market of ethical investment is today much more mature than 20 years ago and today common frameworks and methodologies exist, which could explain why no difference between ethical and conventional funds is observed in the more recent time period**.** The period in our study has also seen some major turbulence on the global financial markets with the crisis that hit the world in 2007/2008, which potentially could interfere with our results. On the other hand, our results are in line with those of a large number of studies. Bauer et al. (2005) and Kreander et al. (2005) for example both conclude that there is no significant difference between the return of ethical and conventional funds.

An interesting thing to note is the results we obtain when dividing our sample into different time-periods. During the years 2004-2006 both the ethical and conventional funds perform significantly worse than the market index. This, together with the aspect of market timing ability is interesting to study further. Our results indicate that neither ethical nor conventional fund managers have any ability in timing the market movements, supporting hypothesis 2. These results are in line with previous research, for example Henriksson (1984) in the United States and Kreander et al. (2005) in a European context. It further supports the argument put forward by for example Nesbitt (1995) that fund managers' poor market timing ability costs investors lost returns every year. To investigate the contribution of the fund manager it would thus be of interest to compare the performance of actively managed ethical funds in relation to their passive counterparts. Another interesting aspect, which is outside the scope of this paper, is the investigation of different types of ethical funds with respect to the screening strategy applied. Different screening criteria result in different types of fund characteristics. For private investors choosing between the large varieties of ethical funds on the market it would be valuable to know which type is the more profitable.

The Carhart (1997) 4-factor model, through the inclusion of three additional market portfolios, allows us to study differences in investment styles between the two categories of funds. Results show that there is no significant difference between ethical and conventional funds with respect to their exposure towards value or growth stocks. Both types of funds tend to be more invested in growth stocks, as seen by the negative coefficients on the

HML variable in Table 4. Turning to the size factor, *SMB,* the results are more interesting. We note a significant difference in the coefficient on *SMB* (Table 4) with conventional funds being more exposed to small cap companies relative to the ethical funds**.** This observation is not in line with Bauer et al. (2005) who find the reverse relationship for funds traded in the United Kingdom and Germany. Once again reasons for this might be the different time period focused on as well as the different geographical scope, however, we find our results to be reasonable. Small companies might not have the capacity to work with CSR or communicate their improvements, hence small companies are less likely to fulfill the criteria of ethical funds compared to large companies. A further aspect of this is that the various sustainability indices used by fund managers when selecting investment objects is dominated by large cap companies, once again limiting the ethical funds exposure towards small cap.

Another interesting aspect worth further study is the underlying cause of the lack of significant difference in financial performance between ethical and conventional funds. As mentioned, this could be due to the fact that sustainable companies perform better than their less ethical counterparts, which may offset the lower return due to a smaller investment universe. There is however another potential cause. The increase in voluntary frameworks and standards, such as the UN Global Compact or the OECD Framework for Multinational Enterprises may have increased the number of potential ethical investments and thus reduced potential volatility for ethical funds. This development may have led to similar investment universes for both ethical and conventional funds, which could explain the lack of significant differences in financial performance between the two fund categories. For future research it would thus be of interest to compare the underlying holdings of ethical and conventional funds, to investigate the level of heterogeneity between the portfolios.

Finally, there is a risk of "greenwashing", meaning that companies claim to be socially responsible when in fact they are not. The risk is that ethical funds fail to detect this discrepancy between what the companies communicate and what they actually do and the funds are thus not so ethical as they claim to be. If this is the case for the funds in our dataset, it could explain the lack of significant differences. With "greenwashing" of

companies, the ethical funds would hold similar stocks as the conventional, erasing any difference in returns stemming from the ethical screening. It is beyond the scope of this study to establish whether this is the reality, but it is certainly worth studying in the future.

9 Conclusion

The growing popularity of ethical investments has raised questions about their financial performance compared to traditional investment alternatives. In this thesis we have studied differences between actively managed mutual ethical funds and conventional mutual funds on the Swedish market between 2004-2014 with the objective to answer two questions. First, is there a difference in the performance between the two fund categories and second, does the market timing ability of fund managers differ?

Using two models commonly applied when measuring the performance of mutual funds, the CAPM single-index model and the Carhart (1997) 4-factor model we report the following findings. Foremost, no significant difference in returns between ethical and conventional funds on the Swedish market can be identified. Neither ethical, nor conventional funds display any significant under- or over-performance relative to the market as a whole. Only when dividing the time period into three different sub-periods a significant negative return for both fund categories is observed for the sub-period 2004-2006, however the performance difference between the two funds still remains insignificant. Furthermore, there is a difference in investment style between the two types of funds, where the ethical funds have a significantly larger share invested in large cap companies than the conventional funds. When investigating the market timing ability of fund managers we employ a multifactor version of the Henriksson-Merton (1981) model. Based on the results from this analysis we conclude that both ethical and conventional fund managers lack an ability to time the market and hence the managers are not able to improve the performance by being skillful.

Going back to our purpose we conclude that investors do not seem to be paying a price when investing in ethical funds. We note no significant difference in return or market timing ability over the last decade between the ethical and conventional mutual funds. For

the morally conscious investor it is thus seems perfectly possible to invest with an ethical perspective without impairing the financial returns.

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Appendix A – List of Mutual Funds Included in the Dataset

Table A.1: Ethical funds

Fund name	Inception date	Obsolete date
Aktie-Ansvar Europa	15/06/00	
Aktie-Ansvar Sverige	01/01/92	
Banco Etisk Norden	09/10/87	18/09/09
Banco Etisk Sverige Pension Inc	11/09/00	25/05/07
Banco Human Pension	11/09/00	01/09/09
Banco Offensiv Pension Inc	11/09/00	25/05/07
Banco Samarit Pension	11/09/00	01/09/09
Carlson TCOs Etiska Fond Inc	31/01/01	04/09/08
Cicero Biotech & Healthcare	01/12/00	29/03/12
Cicero MÖ Sverige	03/01/00	29/03/12
Cicero MÖ Time	03/01/00	29/03/12
Cicero SRI Sverige	06/11/00	
Cliens Mixfond Sverige A	31/12/04	
Cliens Mixfond Sverige B	15/10/12	
Cliens Sverige A	31/12/04	
Cliens Sverige B	15/10/12	
Cliens Sverige C	15/10/12	
Danske Fonder SRI Eur Inc	01/08/01	20/10/05
DNB Sverige Hållbar	19/08/13	
DNB Sverige Koncis A	30/10/00	
DNB Sverige Koncis B	21/03/13	
DNB Global Hållbar A	03/04/14	
DNB Global Hållbar B	03/04/14	
DNB Småbolagsfond A	20/09/91	
DNB Småbolagsfond B	21/03/13	
DNB Sverige Marknad A	22/01/14	
DNB Sverige Marknad B	04/02/14	
DNB Sverigefond A	22/07/92	
DNB Sverigefond B	21/03/13	

Fund name	Inception date	Obsolete date
DNB Sweden Micro Cap	29/05/97	
DNB Utlandsfond A	19/01/95	
DNB Utlandsfond B	21/03/13	
Lärarfond 21-44 år	08/04/99	
Lärarfond 45-58 år	08/04/99	
Lärarfond 59+	08/04/99	
Eldsjäl Biståndsfond	03/01/96	02/10/12
Eldsjäl Gåvofond Inc	15/12/96	02/10/12
Eldsjäl Sverigefond Inc	15/12/96	02/10/12
GustaviaDavegårdh Pure New Energy	30/04/07	30/12/11
GustaviaDavegårdh Sol, vind & vatten	20/04/09	03/05/13
Länsförsäkringar Miljöteknik Inc	10/12/90	05/12/05
Nordea Inst Aktie Europa	13/12/02	05/09/14
Nordea Inst Aktie Sverige	20/04/98	
Nordea Inst Aktief Euro icke-utd	01/03/12	05/09/14
Nordea Inst Aktief Sverige icke-utd	01/03/12	
Nordea Swedish Stars	27/10/99	
Nordea Swedish Stars utd	01/03/12	
Öhman Hjärt-Lungfond	01/09/89	
Öhman Nordisk Miljöfond	21/12/98	
Robur Gåvofond Inc	14/06/99	03/11/06
Svenska Kyrkans Miljöfond Inc	19/12/97	09/02/07
Ethos Aktiefond	14/06/06	
SEB Cancerfonden	06/04/99	17/02/11
SEB Etisk Globalfond	21/10/91	
SEB Etisk Globalfond Utd	28/02/13	
SEB Östersjöfond/WWF	27/01/99	
SEB Stiftelsefond Sverige	14/01/98	
SEB Swedish Ethical Beta Fund	02/05/06	
Svenska Läkaresällskapets Fond	02/09/05	
Premiesparfonden Inc	02/11/00	21/05/10
Premievalsfonden Inc	12/09/00	21/05/10

Fund name	Inception date	Obsolete date
Skandia Cancerfonden	01/06/88	
Skandia Idéer För Livet	17/10/95	
Skandia Norden	27/04/12	
Skandia Världsnaturfonden	01/06/88	
GodFond Sverige & Världen A	22/04/09	
GodFond Sverige & Världen B	03/09/12	24/04/14
SPP Aktiefond Europa	30/12/98	
SPP Aktiefond Sverige	23/12/98	
SPP Aktiefond Sverige Aktiv	12/01/96	21/03/14
SPP Global Topp 100	01/10/12	
Banco Etisk Europa	05/07/89	19/02/13
Banco Etisk Sverige Special	28/06/99	29/10/11
Banco Hjälp	29/09/95	15/06/12
Banco Ideell Miljö	15/01/90	15/06/12
Banco Kultur	16/08/96	15/06/11
Banco Offensiv	02/01/84	26/08/11
Banco Samaritfonden	21/02/94	23/09/11
Banco Svensk Miljö	30/09/94	29/10/11
Folksam Framtidsfond	03/04/00	
Folksam LO Sverige	18/03/99	
Folksam LO Västfonden	18/03/99	
Folksams Aktiefond Europa	05/09/94	
Folksams Aktiefond Sverige	05/09/94	
Folksams Idrottsfond	15/09/95	
Folksams Tjänstemanna Sverige	20/12/99	
KPA Etisk Aktiefond	01/03/99	
KPA Etisk Blandfond 2	01/03/99	
Swedbank Robur Ethica Miljö Sverige	26/01/96	29/10/11
Swedbank Robur Ethica Offensiv	30/12/98	17/10/13
Swedbank Robur Ethica Sverige	09/10/87	
Swedbank Robur Ethica Sverige MEGA	23/01/03	
Swedbank Robur Humanfond	28/06/90	

Fund name	Inception date	Obsolete date
Swedbank Robur Talen Mixfd Svge Inc	01/11/99	20/11/08
Swedbank Robur Talenten Aktiefond MEGA	30/11/95	

Table A.2: Conventional funds

Fund name	**Inception date**	**Obsolete date**
Agenta Svenska Aktier	31/05/06	
Ålandsbanken Swedish Small Cap	30/04/94	10/05/13
Alfred Berg Fastighetsfond Norden A	21/11/11	
Alfred Berg Småbolagsfond	17/06/09	30/10/13
Alfred Berg Sverige Plus A	08/06/00	
AMF Aktiefond Europa	30/04/99	
AMF Aktiefond Småbolag	17/05/04	
AMF Aktiefond Sverige	30/12/98	
AMF Aktiefond Världen	30/12/98	
AMF Balansfond	30/12/98	
Arbor European Equity	03/12/07	31/05/11
Awake Swedish Equity	01/04/06	12/12/12
Banco Euro Top 50	28/06/99	16/04/11
Banco Optimal Norden	13/04/93	18/09/09
Banco Småbolag	09/03/89	26/11/11
Banco Sverige	11/04/94	15/06/11
Banco Teknik & Innovation Pension Inc	11/09/00	25/05/07
Capinordic Global Opportunites	22/02/07	27/04/12
Capinordic MM Global Focus	22/02/07	20/03/12
Caprifol Nordiska Fonden	01/09/09	
Carlson Quant Europa Inc	19/12/07	03/09/10
Carnegie Småbolagsfond	31/01/12	
Carnegie Strategifond	11/08/88	
Carnegie Strategifond G	27/05/13	
Carnegie Svea Aktiefond	01/11/05	31/01/12
Carnegie Sverige	08/10/96	15/06/09

Fund name	Inception date	Obsolete date
Carnegie Sverige Select	28/09/07	
Carnegie Sverigefond	08/01/87	
Carnegie Tellus	31/03/08	17/04/12
Carnegie Utlandsfond	02/09/88	17/04/12
Case	30/11/04	
Catella Case	31/12/01	03/09/12
Catella Europa fond	01/02/99	09/11/12
Catella Fokus	31/03/98	
Catella Reavinst fond	16/02/98	
Catella Småbolag	16/02/98	
Cicero Easy Living Inc	29/03/05	19/12/08
Cicero Focus	01/03/07	
Cliens Relativ	31/12/04	21/06/12
Cliens Sverige Fokus	31/03/11	
Coeli Select Sverige	01/06/12	
Coeli Sverige Inc	01/11/01	10/11/09
Consortum Sverige 150/50	31/08/11	30/04/12
Danske Invest Aktiv Förmög.	30/05/96	
Danske Invest Aktiv Förmögenhetsförv utd	16/05/13	
Danske Invest Europa	10/06/99	
Danske Invest Horisont Aktie	11/04/02	
Danske Invest Horisont Aktie utd	16/05/13	
Danske Invest Horisont Offensiv	01/11/12	
Danske Invest Horisont Offensiv utd	16/05/13	
Danske Invest Sverige	05/02/98	
Danske Invest Sverige Fokus	13/09/05	
Danske Invest Sverige utd	07/05/13	
Danske Invest Sverige/Europa	02/12/98	
Didner & Gerge Aktiefond	21/10/94	
Didner & Gerge Småbolag	23/12/08	
Didner & Gerge Small & Microcap	28/08/14	
Dynamica 80 Sverige	15/10/14	

Fund name	Inception date	Obsolete date
Enter Mobile Internet Inc	23/03/00	07/03/08
Enter Select	14/08/07	
Enter Select Pro	06/02/04	
Enter Sverige	30/11/99	
Enter Sverige Pro	30/11/99	
Evli Kapitalsparfond	03/01/00	21/03/14
Evli Sverigefond	13/12/06	23/05/13
Folksam Frenade Liv Sverige Inc	09/12/02	02/06/07
Granit Småbolag	30/12/10	
Granit Sverige 130/30	30/12/10	
Gustavia Småbolag	19/12/08	
Gustavia Sverige SEK	03/10/03	
GustaviaDavegårdh Sverige Maximal	28/01/08	16/12/11
Handelsbanken AstraZeneca Allemans	01/04/84	
Handelsbanken Bostadsrätterna	26/10/87	
Handelsbanken Chalmers GlbFd Inc	27/03/01	22/12/04
Handelsbanken Euroland Aktie Inc	02/12/98	05/12/07
Handelsbanken Europa Selektiv (A1 SEK)	17/10/14	
Handelsbanken Europa Selektiv (A9 SEK)	17/10/14	
Handelsbanken Europa Selektiv (B1 SEK)	17/10/14	
Handelsbanken Europafond	28/04/89	
Handelsbanken Finlandsfond (A1 SEK)	08/10/14	
Handelsbanken Norden Aggressiv	21/09/00	
Handelsbanken Norden Selektiv (A1 SEK)	08/10/14	
Handelsbanken Norden Selektiv (A9 SEK)	08/10/14	
Handelsbanken Norden Selektiv (B1 SEK)	08/10/14	
Handelsbanken Nordenfond	28/04/89	
Handelsbanken Nordiska Småbolag	15/10/98	
Handelsbanken Nordiska Småbolag utd	14/11/12	
Handelsbanken Offensiv 100	10/05/04	
Handelsbanken Pension 50 Aktiv	12/09/14	
Handelsbanken Pension 60 Aktiv	12/09/14	

Fund name	Inception date	Obsolete date
Handelsbanken Pension 70 Aktiv	12/09/14	
Handelsbanken Pension 80 Aktiv	12/09/14	
Handelsbanken Pensionsfond 70-tal Inc	15/06/00	29/11/05
Handelsbanken Pensionsfond 80-tal Inc	15/06/00	29/11/05
Handelsbanken Potential 75	14/09/09	
Handelsbanken Radiohjälpsfonden Inc	27/03/95	07/03/09
Handelsbanken SBC Bofonden Flermarkn	17/12/90	01/06/12
Handelsbanken Seniorbofond Aktie Inc	13/05/91	19/02/08
Handelsbanken Svenska Småbolag	21/11/94	
Handelsbanken Svenska Småbolag utd	14/11/12	
Handelsbanken Sverige Selektiv (A1) SEK	26/09/14	
Handelsbanken Sverige Selektiv (A9) SEK	26/09/14	
Handelsbanken Sverige Selektiv (B1) SEK	26/09/14	
Handelsbanken Sverige/Världen	18/10/02	
Handelsbanken Sverigefond	25/04/88	
HSB Aktiebofond Inc	13/10/97	11/10/04
Humle Kapitalförvaltningsfond	01/01/08	
Humle Småbolagsfond	01/01/08	
IKC Sverige Flexibel	28/12/09	
IKC Tre Euro Balanserad	03/06/13	
IKC Tre Euro Offensiv	03/06/13	
Indecap Guide Sverige	01/11/03	
Indecap Guide Sverige C	15/05/14	
Inside Sweden	01/10/10	
Inside UK	24/08/12	
Lancelot Avalon	01/11/12	
Lannebo Mixfond	04/08/00	
Lannebo Pension	17/03/14	
Lannebo Småbolag	04/08/00	
Lannebo Småbolag Select	31/10/00	
Lannebo Sverige	04/08/00	
Lannebo Sverige 130/30	11/12/08	

Fund name	Inception date	Obsolete date
Lannebo Sverige Flexibel	16/05/13	
Lannebo Utdelningsfond	01/10/10	
Länsförsäkringar Europa Aktiv	10/12/90	
Länsförsäkringar Fastighetsfond	10/12/90	
Länsförsäkringar Mega Europa Inc	15/06/92	12/06/08
Länsförsäkringar Mega Sverige Inc	15/06/92	23/05/08
Länsförsäkringar Småbolag Sverige	01/09/97	
Länsförsäkringar Sverige Aktiv	10/12/90	
Lundmark & Co Aktiv Europa	15/01/07	
Matrix Swedish Equity Inc	31/10/07	01/10/08
Mobilis Potential A	24/04/13	27/06/14
Mobilis Potential B	24/04/13	27/06/14
Naventi Aktiv Förvaltning Offensiv	24/08/07	
Naventi Offensiv	13/04/12	
Naventi Offensiv Flex	05/01/12	
Nordea Alfa	01/04/84	
Nordea Beta	01/04/84	01/09/12
Nordea Europafond	01/05/89	06/09/14
Nordea Nordenfond	01/04/89	
Nordea Olympia	01/01/88	
Nordea Portföljinvest Sverige Inc	12/04/99	13/04/07
Nordea Private Banking Sverige Plus	01/06/09	19/10/13
Nordea Selekta Europa	27/03/95	06/09/14
Nordea Selekta Sverige	04/05/00	18/10/13
Nordea Småbolagsfond Sverige	14/02/11	
Nordea Spara Premiepension Inc	12/09/00	11/12/06
Nordea Sverigefond	01/01/78	13/06/14
Nordic Equities Strategy	29/12/00	
Nordic Equities Sweden	01/06/09	
Nordnet Superfonden Sverige	10/03/09	
Öhman Pensionsskuldsfond	03/01/00	01/03/11
Öhman Sverigefond	20/03/96	

Fund name	Inception date	Obsolete date
Öhman Världsinfektionsfond	28/09/07	31/12/10
Optimus SmallCap	28/09/07	
PriorNilsson Realinvest A	02/09/13	
PriorNilsson Sverige Aktiv	01/10/12	
PSG Small Cap	31/08/09	
Quesada Sverige	15/09/09	
Remium Småbolag Sverige Inc	01/11/06	30/08/13
Robur Bosparfond Inc	01/01/96	15/10/04
SEB Choice Sverigefond 1	14/05/07	07/12/09
SEB Choice Sverigefond 2	14/05/07	20/11/09
SEB Europafond	11/11/90	
SEB Europafond Offensiv	02/01/91	
SEB Europafond Småbolag	15/08/94	
SEB Nordenfond	06/06/97	
SEB Nordenfond utd	28/02/13	
SEB Östeuropafond	01/04/97	
SEB PB Europeisk Aktieportfölj	09/11/01	
SEB PB Svensk Aktieportfölj	26/10/01	
SEB Schweizfond	01/12/89	
SEB SKF Allemansfond	01/04/84	
SEB Special Clients Sverigefond	01/10/07	
SEB Sverige Småbol C/R utd	28/02/13	
SEB Sverige Småbolagsfond utd	28/02/13	
SEB Sverigefond	31/12/84	
SEB Sverigefond Chans/Risk	18/04/95	
SEB Sverigefond Chans/Risk utd	28/02/13	
SEB Sverigefond Småbolag	21/09/87	
SEB Sverigefond Småbolag C/R	18/04/95	
SEB Sverigefond Småbolag Inst	07/05/14	
SEB Sverigefond Stora bolag	11/11/73	
SEB Swedish Focus	10/11/06	
SEB Swedish Focus Fund utd	28/02/13	

Fund name	Inception date	Obsolete date
SEB Swedish Value	10/11/06	
SEB Trygghetsfond Ekorren	31/10/90	
Sensor Sverige Select	30/11/09	
Simplicity Norden	23/09/02	
Skandia Europa Exponering	08/05/95	
Skandia Junior Golf Fond	30/04/08	27/04/10
Skandia Selected Offensiv	25/11/05	31/10/14
Skandia Småbolag Europa	01/12/00	30/10/09
Skandia Småbolag Sverige	09/12/98	
Skandia Svea Aktiv	14/03/08	05/11/12
Skandia Sverige	05/03/91	
Skandia Sverige Exponering	11/03/13	
Solidar Fonder Flex 100 B	15/08/13	
Solidar Sverige	15/03/10	
Sophiahemmets Fond	02/01/04	
Sparbanken Aktiefond Sverige	31/10/08	
Spiltan Aktiefond Dalarna	26/02/07	
Spiltan Aktiefond Investmentbolag	30/11/11	
Spiltan Aktiefond Småland	25/06/08	
Spiltan Aktiefond Stabil	01/12/02	
Spiltan Aktiefond Sverige	02/12/02	
SPP EMU Aktiefond Inc	30/12/98	12/04/07
Stockpicker Norden Aktiv	01/04/09	01/10/12
Strand Förmögenhetsfond Inc SEK	30/11/05	
Strand Småbolagsfond	31/01/07	
Swedbank Robur Allemansfond III	03/02/87	21/04/12
Swedbank Robur Bas Aktier	09/09/14	
Swedbank Robur Europafond	01/04/94	
Swedbank Robur Europafond MEGA	03/04/00	
Swedbank Robur Exportfond	01/02/93	
Swedbank Robur Förbundsfond	21/11/13	
Swedbank Robur Hockeyfond	17/09/01	16/04/10

Fund name	Inception date	Obsolete date
Swedbank Robur Nordenfond	08/04/92	
Swedbank Robur Ny Teknik	11/11/96	
Swedbank Robur Småbolagsfond Europa	03/08/98	
Swedbank Robur Småbolagsfond Norden	03/04/89	
Swedbank Robur Småbolagsfond Sverige	13/11/95	
Swedbank Robur Stella Europa	15/05/07	25/10/12
Swedbank Robur Stella Småbolag	07/11/96	08/11/12
Swedbank Robur Svensk Aktieportfölj	04/05/04	
Swedbank Robur Sverigefond	01/06/67	
Swedbank Robur Sverigefond MEGA	30/11/95	
Swedbank Robur Sweden High Dividend	15/05/07	
Swedbank Robur Vasaloppsfond	15/10/01	16/04/10
Tangent	01/09/07	03/06/13
Team Catella Tennisfond	15/08/05	16/12/13
Tellus Midas	01/01/07	
Valbay Allocation Fund	31/03/11	12/03/13
Valbay Nordic Equity Fund	31/03/11	28/05/13
Västernorrlandsfonden	01/10/03	20/04/12
Västernorrlandsfonden Likviditet	11/05/07	20/04/12

Appendix B - Results from Diagnostic Tests

Table B.1: Jarque-Bera test for Normality

CAPM model

H_0: Normal distribution			Joint	
	Pr(skewness)	**Pr(Kurtosis)**	**Adj. chi^2**	**Prob>chi^2**
Ethical	0.942	0.068	3.40	0.183
Conventional	0.899	0.239	1.43	0.489

Carhart 4-factor model

H_0: Normal distribution			Joint	
	Pr(Skewness)	**Pr(Kurtosis)**	**Adj. chi^2**	**Prob>chi^2**
Ethical	0.206	0.179	3.48	0.176
Conventional	0.311	0.302	2.13	0.344

Table B.2 Breusch-Pagan for Heteroskedasticity

H_0: Constant Variance	Chi^2	Prob>chi^2
Ethical	0.43	0.514
Conventional	0.35	0.556

Table B.3 Breusch-Godfrey for Autocorrelation

H_0: No Serial Correlation	Chi^2	Prob>chi^2
Ethical	0.73	0.394
Conventional	0.52	0.469