Individual Investors
and
Socially Responsible Mutual Funds

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Umeå 2018
To my parents
Abstract

This thesis examines the behavior of individual investors towards socially responsible mutual funds. The results are reported in the four self-contained papers.

Paper [I] profiles SR individual investors. An understanding of SR investors’ characteristics is important for the development of hypotheses and for understanding the adoption of SR investing. We find evidence indicating, for example, that females, more educated, relatively older individuals, those with higher wealth and those living in municipalities with a higher proportion of SR investors are more likely to hold SR equity mutual funds.

Paper [II] studies the relation between investments of adult children and their parents. The paper explores the importance of parent-child socialization in the formation of prosocial behavior. The study contributes to the understanding of when prosocial behavior is formed and how parent-child relationships influence it. We find evidence that there is a correlation between parents and children in the investment in SR mutual funds and that parental resources and parental experience are influential in the transmission of this prosocial behavior.

Paper [III] documents individual investors’ trading behavior in relation to SR equity mutual funds. Results indicate that SR investors are less likely to sell SR than conventional fund as past negative returns decrease. Nonetheless, fund flows of SR and conventional funds are similarly sensitive to past returns. There is, however, evidence that sticky SR investors’ fund flows are more sensitive to past positive returns and are less sensitive to past negative returns on their SR than on their conventional funds. Despite sticky SR investors showing behavior in line with values-driven motives, they also appear to be less likely to reinvest in SR than in conventional funds.

Paper [IV] examines whether SR investors are willing to forgo higher returns to invest responsible. Based on administrative data on individual investors’ equity mutual fund portfolios, it is found that socially responsible (SR) investors forgo return by investing in a socially responsible manner. In comparison with similar conventional investors (in terms of characteristics), SR investors have an equal performance on their non-SR part of their total portfolio, but an inferior performance on their SR part. Analysis of individuals’ money flows to funds further indicate that fund flows of SR investors who invest in only SR funds are less sensitive to past returns. Given that investors who value non-financial fund attributes, e.g., ethical or social, may be presumed to care less about the finance performance, the results lend support to an investment behavior, at least partly, driven by prosocial concerns. Taken together, the findings favor the interpretation that some individuals willingly forgo higher financial returns to invest in accordance with their social preferences.

Key words: individual investors, mutual funds, socially responsible investing, prosocial behavior, behavioral finance
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[IV] Lapanan, Nicha (2018), Do socially responsible individual investors willingly forgo higher returns?, Manuscript.
1 Introduction

1.1 Background

Socially responsible (SR) investing has been growing in popularity among both individual and institutional investors in most parts of the world (GSIA, 2016). According to the European Sustainable Investment Forum, the value of the SR assets in Europe has increased from EUR 34 billion in 2002 (Eurosif, 2003) to over EUR 11 trillion by the end of 2015 (Eurosif, 2016). In Sweden, the total amount of SR assets under management (AUM) has grown from EUR 200 billion in 2007 (Eurosif, 2008) to more than EUR 800 billion in 2015 (Eurosif, 2016). This growth of the market for SR assets is in part due to an enforcement of governmental regulations which directs all public pension funds to submit an annual report describing their activities related to SR investing (Bengtsson, 2008). Similarly, institutional investors have been the leading force driving the demand for SR assets in most countries in Europe (Eurosif, 2016). Nonetheless, individual investors have also been showing increasing awareness of these assets. The share of retail investors in the market for SR assets increased from 5.90 percent to 22.07 percent from 2011 to 2015 (Eurosif, 2012, 2016). This is, however, largely due to the increased participation of high-net-worth individuals (Eurosif, 2016).

The growing popularity of SR investing raises questions about the way individual investors perceive SR assets. A common assumption made in the prior literature on SR investing is that SR investors have a taste for assets (see, e.g., Fama and French, 2007) and that they therefore look beyond risk and return when evaluating assets. Derwall, Koedijk, and Ter Horst (2011), however, suggest that investors in the market for SR assets may differ in terms of their motives; that is, they may have either profit-driven motives, values-driven motives or both. These motives, if shared by a sizable group of investors, may systematically influence stock prices. Hong and Kacperczyk (2009), for example, find that sin stocks (i.e., those of tobacco, alcohol and gambling firms) are less often held by individual investors who are more likely to hold SR assets than other investors.

1 The numbers reported by Eurosif are based on survey responses from several key participants in the market for SR assets, including banks, insurance firms and pension funds.
2 By recognizing that the group of SR investors is heterogeneous, Derwall et al. (2011) argue that the puzzle of positive abnormal returns on both sin stocks (e.g., stocks of firms involved in the weapons, alcohol, tobacco, pornography or gambling industries) and SR stocks can be solved. These authors further suggest that the heterogeneity among investors may also explain the disappearing abnormal returns on SR stocks over time.
norm-constrained institutions such as pension funds. These stocks are also less covered by analysts and have higher expected returns than conventional stocks with otherwise comparable characteristics (Hong and Kacperczyk 2009).

Further, how SR investing affects asset prices is often explained using the Merton (1987) model with incomplete information. According to Merton (1987), assets with a smaller investor base are priced lower due to limited risk sharing. As a result, he argues that investors in an asset with a smaller investor base would consider idiosyncratic risk in addition to systematic risk. Consistent with this argument, investors would require a higher expected return from an asset that is shunned by some other investors. In line with this view, Heinkel, Kraus, and Zechner (2001), by deriving an equilibrium model, show that the exclusion of polluting firms by green investors leads to a decrease in the investor base of those firms and, therefore, to a higher cost of their capital. They show that the proportion of funds controlled by green investors determines the incentives for polluting firms to reform, because at some point their cost of reforming becomes lower than their cost of capital.

Fama and French (2007), on the other hand, propose a framework to explain how tastes for assets (and SR investing viewed as an example of such tastes) can affect asset prices. In their model, misinformed investors who misperceive the distribution of payoffs affect asset prices in a similar way as investors with tastes for assets. They further show that the impact of investors’ tastes on asset prices depends on the amount of invested wealth, the number of assets imbued with tastes, the diversity of misinformed positions in the market portfolio and the correlation between the underweighted and the overweighted assets of the misinformed investors. One important difference between the effects on asset prices of misinformed investors and investors with tastes for assets is that the effect of the latter is not expected to diminish over time (Fama and French 2007). Based on the above, it is unequivocal that SR investing affects asset prices, unless the informed investors take actions that completely offset the actions of the misinformed investors. Approximating the effect in magnitude, however, requires a better understanding of the individuals who engage in SR investing.

Traditional models in finance rely on the assumption that individuals are rational and behave in a way that maximizes only their own wealth. SR investing is often used as a counter-example to this view by showing that individuals do not care only about assets’ risk and return. A large amount of evidence, often from the
fields of psychology and economics, supports this view and suggests that individuals may act in a prosocial manner under different circumstances. Bénabou and Tirole (2010) state that prosocial behavior arises from a complex mix of interdependent motivations, including true altruism, material incentives or social and self-esteem concerns. Frey and Meier (2004a), for example, find that individuals are even willing to donate anonymously. Glazer and Konrad (1996), however, find that anonymous donations are rare and represent at most around 1% of the total number of donations. Bénabou and Tirole (2010) suggest that individuals’ concerns about their own image are crucial in understanding their prosocial behaviors. For example, they suggest that there is a limit to the efficacy of publicizing individuals’ good and bad deeds (the overjustification effect) which, in relation to SR investing, suggests that its increasing publicity may consequently lower its perceived importance among individuals.

The behavior of SR investors confounds our understanding of individuals in the investment context. Hypothetically, the first priority of individuals buying assets should emanate from profit-driven motives, as individuals can contribute to the societal well-being through other channels, such as donations. Although the question with respect to the motives of SR investors remains largely unanswered, the evidence so far seems to favor the interpretation that individuals are willing to sacrifice higher returns when investing in SR assets. The prior studies on SR investors’ behavior, however, rely mostly on market-level data such as the flows in and out of SR and conventional mutual funds (see, e.g., Bollen 2007, Benson and Humphrey 2008, Renneboog, Ter Horst, and Zhang 2011), surveys (see, e.g., Williams 2007, Nilsson 2008, Dorfleitner and Utz 2014) and experiments (see, e.g., Riedl and Smeets 2017, Døskeland and Pedersen 2015). While this literature contributes greatly to our understanding of the subject, the use of this type of data has its own limitations.

In early studies of SR investing, attempts to understand investors’ motives often focus on the performance of SR funds. The evidence regarding this issues remains inconclusive, perhaps due to the country-specific settings (see, e.g., Bauer, Koedijk, and Otten 2005, Kempf and Osthoff 2007, Gregory and Whittaker 2007, Renneboog, Ter Horst, and Zhang 2008a, Aktas, De Bodt, and Cousin 2011, Utz and Wimmer 2014, Ghoul and Karoui 2017).

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1 Bénabou and Tirole (2010) show how too much publicity can undermine prosocial behavior. They argue that too much publicity causes good actions to be thought of as motivated by concerns about self-image, thus crowding out those with altruistic motivations.

attempts focus on comparing the flows in and out of SR and conventional funds (see, e.g., Bollen 2007; Benson and Humphrey 2008; Renneboog et al. 2011). These studies on fund flows, however, analyze the aggregate behavior of investors. Therefore, the results may be biased by the behaviors of institutional investors or high net worth individuals, which is the reason why studies of this kind may not capture the behavior of individual investors. To my knowledge, only the study by Riedl and Smeets (2017) directly measures investors’ motives and links them to actual behavior. Their evidence shows that financial motives play a smaller role among SR investors than do social motives. Although they find that investors who talk more about investing (social signaling) and those who show stronger social preferences in the trust game experiment are more likely to hold SR funds, they also find that there is no relation between their percentages of SR equity fund holding and the strength of their social motives. On the other hand, Mackenzie and Lewis (1999) interview a small group of SR investors and find that investors perceived the integration of SR investing as a demanding task and that some therefore prefer to allocate a smaller portion of investment in SR assets to alleviate their guilty consciences and to avoid higher search cost.

1.2 Research objectives

This thesis aims to advance our understanding of SR individual investors’ behaviors and motives, as well as to explore potential factors that may influence their adoption of SR investing. It also aims to expand the empirical research and to contribute to theoretical understanding in the field by identifying factors that can potentially differentiate SR investors from conventional investors. To achieve this objective, the following three research questions are posed:

RQ 1: Who among individual investors engages in SR investing?

RQ 2: What influences individual investors to engage in SR investing?

RQ 3: Do mutual fund investors trade SR funds differently than conventional funds and, if so, how?

To answer these questions, the thesis draws insights from data on the mutual fund underperformed. On the other hand, Bauer et al. (2005) and Utz and Wimmer (2014) find no significance differences in the performance between SR and conventional funds.

Paper I profiles SR individual investors. An understanding of SR investors’ characteristics is important for the development of hypotheses. Thus, the study aims to describe investors’ socio-demographic characteristics (e.g., their age, gender or education), which can be helpful in understanding the adoption of SR investing. Paper I is directly related to the first research question and it also provides fundamental information for the rest of the studies, as socio-demographic characteristics are often important control variables.

Paper II studies the investments of parents and children and explores the importance of parent-child socialization in the formation of prosocial behavior. This study contributes to the understanding of when prosocial behavior is formed and how parent-child relationships influence it. The paper provides evidence related to the second research question above.

Paper III documents individual investors’ trading behavior in relation to SR equity mutual funds. It investigates whether SR investors buy and sell SR funds differently from conventional funds and whether fund flows of SR and conventional funds are equally sensitive to past returns. This paper contributes to the answer to the third research question.

Paper IV examines SR investors’ actual mutual fund performance and it extends the analyses in Paper III by using various measures of returns. This paper also contributes to the answer to the third research question.

The organization of the thesis is as follows: in Chapter 2, I provide a review of the existing literature on SR investing, with an emphasis on SR individual investors; in Chapter 3, I describe the data and discuss the methodology used in the studies; in Chapter 4, I present summary statistics about the Swedish mutual funds; in Chapter 5, I present a brief summary of each of the papers and, in Chapter 6, I conclude with a discussion of the contributions and the limitations, and provide suggestions for future research.
2 Literature review and theoretical foundations

This chapter reviews the prior literature related to SR investing. The chapter includes three main sections: SR investing, SR investing in Sweden as revealed by my data, and SR investors. In the first section, I begin by defining SR investing. The definition of SR investing has changed over time and no real consensus has yet been reached. Following this, I review the history of SR investing, which provides some background on the early motives of SR investors and how they may have become more complex over time. In the last section, I review the literature focusing on SR investors. I discuss both individual and institutional SR investors, but with more emphasis on the latter.

2.1 Definition of socially responsible investing

Although SR investing is a commonly and widely used term both in the financial industry and in academia, there is no agreement regarding its definition and its interpretation is thus problematic (Berry and Junkus, 2013). At the time of writing, SR in this thesis denotes “socially responsible,” as defined earlier in the introduction. SR, however, often stands for different terms, depending on the background of readers. For practitioners today, the term SR commonly means “sustainable and responsible.” In academia, it is still common to refer to an investment strategy that incorporates personal values and societal concerns as a “socially responsible investment strategy.” Recent examples of this usage include Riedl and Smeets (2017) and Trinks and Scholtens (2017).

In terms of the financial industry, there are many organizations related to the field of SR investing. Some of the more prominent are the European Sustainable Investment Forum (Eurosif), the European Fund and Asset Management Association (EFAMA) and the United Nations (UN) through their Principles for Responsible Investment (PRI). Among these organizations, the definition of SR investing has evolved over time, reflecting the growing complexity of SR investment strategies. I will take the case of Eurosif as an example, since it is one of the older organizations in this area.

Prior to 2003, Eurosif defined the term “SR investing” as the use of an investment strategy with a focus on ethical concerns, where using norm-based
screening criteria was the most common approach. Later on, a broader definition of “SR investing” was developed and the term referred to an investment strategy that integrates environmental, social and governance (ESG) factors (Eurosif, 2003). Most recently, in 2016, Eurosif established the following definition:

“Sustainable and Responsible Investment (SRI) is a long-term oriented investment approach, which integrates ESG factors in the research, analysis and selection process of securities within an investment portfolio. It combines fundamental analysis and engagement with an evaluation of ESG factors in order to better capture long term returns for investors, and to benefit society by influencing the behaviour of companies.” (Eurosif, 2016, p.9)

For the purposes of this thesis, the exact meaning of SR investing is less of a concern. What is important is that SR investors presumably understand that the term “SR investing” signals an investment strategy that may include either norms or societal concerns (or both) in the screening and the selection of assets, and therefore they must be aware that SR investing may have an effect on their portfolio risk and return. Empirical evidence shows that this is the case. Berry and Junkus (2013), for example, find that conventional and SR investors generally agree on the factors included in an SR investment strategy.

### 2.2 History of socially responsible investing

SR investing dates back several hundred years and was initially associated with religious beliefs. For example, Jewish law prescribes several directives on how to invest ethically (Schueth, 2003). The modern development of SR investing is thought to have begun around the 1900s. In the United States (U.S.), the formal beginnings of SR investing can be traced back to the U.S. Pioneer Fund (PI), which incorporates screening criteria for social responsibility and, therefore, does not invest in tobacco-, alcohol- and gambling-related businesses. The fund was established in 1928. It started incorporating the screening criteria in the late 1940s and it is still active today (see, e.g., Hylton, 1992; Knoll, 2002). Since the inception of Pioneer Fund, SR investing grew slowly over the next 40 years, being mostly adopted based on religious convictions. Most SR funds thus focused on

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5On July 3, 2017, Pioneer Investments became part of the Amundi Group. According to the company’s statement, although the founder of the fund believed that he should invest in what he believed to be useful goods and services (he referred to these as basic values) PI (n.d.), the firm has never claimed to use screening criteria for sin stocks or social responsibility PI (n.d.).
avoiding investments in sin stocks (Knoll, 2002).

During the same period, there was also a movement towards SR investing in Europe. Bengtsson (2008) however, argue that this was uncoordinated and not really influenced by the movement in the U.S. As in the U.S., according to Bengtsson (2008), SR investing in Europe was also driven by religious beliefs. In Sweden, the Temperance and Baptist movements established the first ethical equity fund “Aktie Ansvar Aktiefond” in 1965 (Bengtsson 2008). The fund used an exclusionary method (also known as negative screening criteria) to screen out firms that produced weapons, alcohol and tobacco. During the period from 1960 to 1980, the Church of Sweden had a significant role in the development of the Swedish market for SR assets (Bengtsson 2008). As a result, the motives for SR investing during this period are thought to be associated less with economic benefits and more with religious and ethical beliefs (Bengtsson 2008).

During the 1970s, SR investing became mainstream in the U.S. (Knoll, 2002). This wave of adoption of SR investing was associated with the opposition to the Vietnam War and the apartheid regime in South Africa (Knoll, 2002). During this period, social and political awareness was raised among the public, leading investors to become more active in challenging firms that profited from wars (Knoll, 2002). In Scandinavia, the development of the market for SR assets has been rather steady, with the Aktie Ansvar Aktiefond being the only SR fund throughout the 1960s and the 1970s (Bengtsson, 2008). It took 15 years after the initiation of the first SR fund for the Church of Sweden to establish the second SR fund in Scandinavia, in 1980 (Bengtsson, 2008).

In the late 1980s and the 1990s, environmental awareness increased, as evidenced, for example, by the establishment of the UN’s World Commission on Environment and Development in 1983 and the Earth Summit in 1992 (Eurosif, 2014). Investors became increasingly aware of ESG issues, leading to the establishment of the first SR index fund, the KLD 400 Social Index (now MSCI KLD 400 Social Index), in 1990 (Eurosif, 2014). In Scandinavia, the late 1980s saw the beginning of more commercialized SR assets (Bengtsson, 2008). During this period, an increased number of SR funds were introduced, especially environmental funds and funds with positive screening criteria (i.e., funds that actively search for firms that meet certain ethical, social and environmental criteria). Specifically, the first environmental fund was established in 1988 and it used exclusionary criteria to avoid firms with poor environmental practices. Two years later, two additional environmental funds were established in Norway,
using negative screening criteria together with a best-in-class strategy (i.e., a strategy of investing in firms with the highest social, ethical and environmental scores) and therefore pioneering the first positive screening strategy used in the market for SR assets in Scandinavia (Bengtsson 2008).

Since 2000, SR investing has become mainstream in capital markets, with a significant development in terms of both the number of associated organizations and the amount of AUM (EFAMA 2014). In 2005, the UN called for institutional investors and representatives of many nations to develop the PRI and the framework was completed in 2006 (Eurosif 2012). During this period, several Scandinavian private investment firms set up specialized units, conducting in-house studies on SR investing (Bengtsson 2008). Several private firms also adopted the concept of SR investing at the firm level, by integrating it into all of the products they offered (e.g., Banco and KPN). The government has also played an important role in the development of the market for SR assets. For example, starting in 2001, all state-controlled pension funds in Sweden have had a duty to annually report how they have incorporated environmental and ethical considerations into their investment policies (Bengtsson 2008). Since the mid-2000s, an increasing number of investment firms have started to incorporate a so-called engagement approach in their policies and have therefore extended their roles to influence firms’ behavior towards SR investing (Bengtsson 2008).

As of 2013, the AUM of the organizations that have signed the UN’s PRI account for more than EUR 34 trillion, with more than half of the members originating in Europe (EFAMA 2014). Almost half of the members of the Swedish Investment Fund Association are signatories of the UN’s PRI (EFAMA 2014).

The history of the market for SR assets indicates that SR investing has been more of a value-oriented investment approach than a purely profit-driven one. However, as this type of investing has gained in popularity, either by the force of regulation or through voluntary acts, investors’ attitudes towards the market for SR assets should not be seen as being driven solely by their social values. The growth of this market may also be associated with the marketing and the strategic perspectives of assets. As will be explained in the following sections, prior research has found different reasons as to why investors purchase SR assets.
2.3 Motives of socially responsible investors

Based on the above history, it can be understood that the early movement towards SR investing was driven mostly by the demand from individual investors. Today, however, institutional investors constitute a large part of the market for SR assets. Because the early SR investing movement was initiated mostly by groups of religious individuals, their motives for buying were not difficult to understand. The recent developments in the market for SR assets, however, have shown growing complexity in terms of screening strategies. SR investors in today’s market have many options and, at the same time, they face the ongoing debate about whether there is a difference in the performance of conventional and SR funds.

The previous studies on SR investing are mostly conducted at the market level, using data on fund flows or stock prices (see, e.g., Derwall, Guenster, Bauer, and Koedijk, 2005; Bauer et al., 2005; Bollen, 2007; Kempf and Osthoff, 2007; Gregory and Whittaker, 2007; Bauer et al., 2008; Renneboog, Ter Horst, and Zhang, 2008a; Renneboog et al., 2011; Aktas et al., 2011; Ghoul and Karoui, 2017). These studies mostly emphasize the question of how SR investing impacts the performance of SR portfolios or SR securities such as stocks of sin firms and SR mutual funds. Whether an SR investment strategy results in lower returns or not is still inconclusive, but many prior studies find that controversial stocks tend to be cheaper than non-controversial ones and that they earn positive abnormal returns (see, e.g., Fabozzi, Ma, and Oliphant, 2008; Hong and Kacperczyk, 2009; El Ghoul, Guedhami, Kwok, and Mishra, 2011).

In an attempt to explain the positive abnormal returns on both sin stocks and stocks with high scores with respect to their corporate social responsibility (CSR), Derwall et al. (2011) argue that this puzzle can be solved by recognizing that investors in these stocks are heterogeneous. Derwall et al. (2011) propose the shunned-stock hypothesis and the error-in-expectation hypothesis to explain how asset prices are related to investors’ motives. They argue that investors in controversial stocks are driven by value motives and use negative screening (shunning), while investors in stocks with a high CSR rating are driven by profit motives (error-in-expectation) and use positive screening.

Motivated by the Merton (1987) model with incomplete information and the findings in Hong and Kacperczyk (2009), Derwall et al. (2011) argue that if
institutional and individual investors do not invest in controversial firms, the investor base of the securities of those firms would be smaller and the risk-sharing opportunities would thus be limited. This, in turn, leads to a higher expected return, because investors need to be rewarded for the idiosyncratic risk that they cannot eliminate through diversification. Therefore, sin stocks that are shunned by investors can be traded at a lower price (Derwall et al. 2011). On the other hand, Derwall et al. (2011) argue that stocks of firms with superior CSR ratings can also earn abnormal returns because investors may fail to incorporate firms’ CSR practices correctly into prices. They state that this can occur because of investors’ lack of tools to measure the value of CSR or because of the misalignment of accounting standards that write off CSR-related expenses without recording their intangible value (Derwall et al. 2011). However, the abnormal returns arising from investors’ error-in-expectations are likely to diminish over time as they learn about the mispricing (Derwall et al. 2011). Moreover, for the error-in-expectation hypothesis to hold, firms’ CSR practices must be related to their expected future cash flows and the value-related information of their CSR practices must not be fully reflected in their prices (Derwall et al. 2011).

Although it advances our understanding of SR investors and their influence on stock prices, the framework provided by Derwall et al. (2011) is not without limitations. One can argue that SR investors’ motives may not be fully understood by studying only stock prices. First, the results from prior studies on the performance of controversial stocks and stocks with high CSR ratings are not consistent. Using data from the U.S., both Hong and Kacperczyk (2009) and Kempf and Osthoff (2007) find positive abnormal returns for controversial stocks, but the results in the latter study are statistically insignificant. Moreover, the results for stocks of firms with high CSR ratings seem to differ depending on the countries and the periods covered (see, e.g., Derwall et al. 2005, Kempf and Osthoff 2007, Statman and Glushkov 2009, Ghoul and Karoui 2017). Second, the positive abnormal returns on controversial stocks could also be explained by the error-in-expectation hypothesis. For example, investors may overprice the litigation risk of controversial firms. Hong and Kacperczyk (2009) and Kim and Venkatachalam (2011), however, argue that this is not likely the case. Third, the actions of investors with a profit motive may completely offset the actions of those with a value motive, and this may not be observable in market prices. Therefore, understanding the heterogeneity among SR investors may not be easily detected from observing the presence or the lack of abnormal returns.
among sin or highly rated CSR stocks.

Another approach to the study of SR investors’ motives is to use investor-level data. Regarding institutional investors, Jansson and Biel (2011), for example, conduct a survey of 19 Swedish institutional investors with respect to their attitudes towards SR investing. They find that institutional investors perceive firms that consider social, environmental and ethical factors in their operations to be less risky. This is consistent with the assertion that firms that do not effectively comply with environmental or sustainability laws have a higher probability of legal lawsuits and thus increase the risk for investors (Scheffer and Kaeb, 2011). Therefore, one non-values-driven reason for institutional investors to invest in SR assets is the lower risk associated with these assets. A second non-values-driven motive is that institutional investors have to comply with regulations. Since 2000, the United Kingdom (U.K.), Australia, Belgium, Germany, France, Italy, and Sweden have passed regulations related to SR investing which require pension funds to disclose the extent to which they adopt SR investing criteria in their investment decisions (Renneboog et al, 2008b). A third motive is indicated in Massa (2003), who finds that fund firms benefit from having a larger number of fund families. Lastly, mutual fund managers may decide to offer SR funds simply because there is a rising demand from investors; Eurosif (2016) shows that the AUM of retail SR funds have been growing each year.

Regarding individual investors, a number of studies find that SR investors do not care less about financial performance than conventional investors (see, e.g., McLachlan and Gardner 2004, Vyvyan, Ng, and Brimble 2007, Døskeland and Pedersen 2015). McLachlan and Gardner (2004) survey a group of investors and find no significant difference between conventional and SR investors in their perceived importance of financial returns. Vyvyan et al. (2007) find that individuals consider financial performance to be the most important factor in investment decisions. They also suggest that there is an attitude-behavior gap in terms of SR investing (i.e., while investors rate the importance of environmental factors higher than that of financial returns, their actual investment behavior indicates that profit maximization is their main concern). Døskeland and Pedersen (2015) conduct a natural field experiment of online banking investors and SR investments. Participants in their studies are given differently framed information, i.e., wealth-frame and moral-frame, regarding SR investment. They find that investors who are given the wealth-frame information are more likely to search and invest in SR funds more than those who are given the moral-frame
Other studies, however, find inconsistent results. For example, Barreda-Tarrazona, Matallín-Sáez, and Balaguer-Franch (2011) conduct an experimental study with 166 participants and find that the participants invest in SR mutual funds even when they offer lower returns. This study suggests that although investors are guided by financial returns and diversification, those who are more concerned with social and environmental factors invest significantly more in SR funds when they are informed about the funds’ policies regarding SR investing. Williams (2007) studies survey responses from individual stakeholders in relation to their attitudes towards CSR and finds that investors who are concerned with social issues as consumers, appear to extend this behavior to their financial portfolio strategies. Nilsson (2008) conduct a survey among Swedish mutual fund investors and find that investors who find social, ethical and or environmental issues important and believe that they can make an impact as an investors appear to invest a larger portion of their portfolios in SR funds. Riedl and Smeets (2017) study SR investors’ motives by linking their survey responses, their brokerage data and their observed behavior in an experiment. They find that social-signaling motives (when investors talk more about their investments) and social preferences (when investors give more money back in the experimental game) are significantly related to SR decisions. Moreover, investors in their study who hold SR funds do not expect higher returns from those funds, whereas investors who do expect SR funds to perform worse than conventional funds avoid investing in SR funds.

The studies on SR individual investors’ motives discussed above are conducted at an individual-investor level; however, most of them rely on survey responses and experiments. The most common criticism of survey data (which reveals only stated preferences) is that actual behaviors are not observed (Adamowicz, Louviere, and Williams 1994). Therefore, as in Vyvyan et al. (2007), investors who state that they wish to invest more responsibly might actually not do so. For the experimental method, the primary concern is that a lab environment is designed to be specific for certain situations, and therefore individuals’ behavior in the lab may differ from their actual behavior (see, e.g., Levitt and List 2007; Benz and Meier 2008). Still, even data on revealed preferences (i.e., data on actual behavior) are not without limitations. Adamowicz et al. (1994) state that the problem with revealed preference data (they refer to it as the indirect method) is that it may suffer from collinearity among attributes. A recent study
by Riedl and Smeets (2017) tries to minimize these problems by matching all three types of data. While this study has significantly advanced our understanding, its limitation, in my view, is that it uses data from only one brokerage firm to observe investors’ actual behavior. According to prior studies on mutual funds, it is found that there is a relation between fund families and investors’ behavior (see, e.g., Jain and Wu 2000, Massa 2003, Nanda, Wang, and Zheng 2004, Barber, Odean, and Zheng 2005). In terms of SR investing, for example, it is possible that the chosen brokerage firm in the study advertised heavily and therefore appealed to some specific group of investors. Moreover, Riedl and Smeets (2017) focus more on investors’ motives and the possibility of holding SR funds. However, it may be that SR investing was considerably advertised during the study period. More investors may therefore have been willing to buy such funds at the time, but they might have withdrawn from investing in SR funds shortly afterwards.

Furthermore, Berry and Junkus (2013) find that SR investors’ perceptions of SR assets may differ from those of vendors. In this study, investors rank environmental factors as a key component of corporate SR behavior, while corporate governance and religious values are less important. Berry and Junkus (2013) also find that investors prefer to judge SR behavior in a broader context; that is, in relation to other firms in the market or in relation to stakeholders. They conclude that the exclusionary approach used widely in the market for SR assets may not match the needs of SR investors.

In sum, prior studies find that SR investors are more concerned about ethical issues than conventional investors. In some of the studies, the evidence also reveals that attitude is related to the likelihood of owning SR funds. In addition, the movement towards SR investing has evolved over time. Bénabou and Tirole (2010), for example, use the case of France and how it reversed its opinion on carbon taxes to show how attitudes and behavior may change over time. In my view, therefore, our understanding of the topic remains limited and little is known about the behavior of SR investors. More evidence is therefore needed, especially on the motives and behavior of individuals.
2.4 Demographic characteristics of socially responsible investors

Gergen, Gergen, and Meter (1972) argue that a demographic profile can reflect an individual’s experience, which, in turn, may be associated with how the individual responds to a situation. In line with this view, numerous studies on SR investors focus on identifying differences in the demographic characteristics between SR and conventional investors. For Sweden, Nilsson (2008) uses survey data and finds that female and more educated investors are more likely to invest a higher proportion of their total portfolios in SR funds. Junkus and Berry (2010) and Pérez-Gladish, Benson, and Faff (2012) also find that females are more likely to invest in SR funds. Williams (2007) and Riedl and Smeets (2017), on the other hand, find no significant relationship between gender and SR investing. Regarding the level of education, The majority of the studies except Williams (2007) find that more educated individuals are more likely to invest in SR assets (Nilsson, 2008; Junkus and Berry, 2010; Pérez-Gladish et al., 2012; Riedl and Smeets, 2017).

Findings related to income, wealth, age, marital status and place of residence of SR investors tend to find contradictory results. In Sweden, Nilsson (2008) finds that age, income and place of residence do not have a significant relationship with investing in SR funds. McLachlan and Gardner (2004) also find no statistically significant difference in the age groups between SR and conventional investors; however, they do find that SR investors tend to be in the extreme ranges (16-25 and >65), while conventional investors tend to be in the mid-range categories. On the other hand, Junkus and Berry (2010) find that younger investors are more likely to be SR investors. They also find that SR investors tend to be less wealthy than conventional investors and are more likely to be single and self-employed.

These results indicate that context, such as how the survey questions are formulated or the institutional setting of each country, may influence the outcome of a study. Moreover, there are potentially omitted confounding factors, such as the level of investors’ risk aversion. For example, Powell and Ansic (1997) find that females appear to be less risk-seeking than males and that this difference in the level of risk aversion results in different investment strategies between females and males (see, e.g., Croson and Gneezy, 2009, for a survey paper on gender differences in preferences).
2.5 Behavior of socially responsible investors

Despite the growing interest in SR investing, little is known about the behavior of SR individual investors. Only a few studies examine this topic and, to my knowledge, most of these try to understand the behavior of SR investors through the behavior of mutual fund flows, by comparing inflows and outflows of SR and conventional funds. The first study regarding SR fund flows is that of Bollen (2007). Using the U.S. mutual fund data, Bollen (2007) finds that SR fund flows are less sensitive to past negative returns and more sensitive to past positive returns than those of conventional funds. The study also shows that fund flows of SR funds are less volatile than fund flows of conventional funds. Similarly, Renneboog et al. (2011) find that SR funds, especially those that use sin screening, are less sensitive to past negative returns. They further find that different SR attributes affect fund flows in a distinctive way and that SR funds with environmental screens are more sensitive to past positive returns than conventional funds. Their results also show that the differences in the relationship between fund flows and past returns are region-specific. For example, the flow-return relation of SR funds is different from that of conventional funds in the U.S. and some other parts of the world, but this is not the case in Europe.

In line with Bollen (2007) and Renneboog et al. (2011), Benson and Humphrey (2008) find that conventional fund inflows are positively related to past returns. From their results, however, SR fund flows are negatively related to past returns. Benson and Humphrey (2008) interpret these results as showing that SR fund flows are less sensitive to past returns and SR investors are less concerned with fund performance than conventional investors. Note that both Bollen (2007) and Benson and Humphrey (2008) state that they do not have a measure for the distribution channels of the fund flows (i.e., they do not know whether institutional or individual investors contribute more to the flows).

Benson and Humphrey (2008) also find that the estimated coefficient on the lagged flow for SR funds is positive and larger than the coefficient on the lagged flow for conventional funds. They interpret this result to mean that SR investors are more likely than conventional investors to reinvest in a fund they already hold. In my view, however, this interpretation can be problematic for at least two reasons. First, the lagged flow does not account for the investor clientele of the fund, such as institutional, individual or high net-worth investors. For example, institutional investors may have to comply with certain regulations and
therefore may have less flexibility to take positions in non-SR funds. In addition, the contributions from a few high-net-worth individuals may exceed those from a larger number of other individual investors simply because they are larger in size. Second, the development of SR funds, especially after the late 1990s, has been driven by regulators, social movements and institutional investors. It is therefore possible that SR funds are experiencing a growing number of new investors who are buying SR funds for the first time.

Taken together, the few existing findings on SR versus conventional fund flows show that these flows respond differently to fund performance. However, as discussed above, more evidence is needed in order to enhance our understanding of the topic.

2.6 Prosocial behavior of investors

The increasing awareness about various issues related to the environment and the societal and corporate governance has been observed to have an effect on the behavior of investors, regulators and other stakeholders in firms. Bénabou and Tirole (2010) state that traditional economics views posit that a firm should be controlled by profit-maximizing shareholders while governments are in charge of protecting other stakeholders and correcting market failures. The recent trends in CSR and SR investing, however, are not moving in the direction outlined by the traditional view. Bénabou and Tirole (2010) provide two reasons that may cause individuals and firms to act more responsibly. First, individuals may attempt to correct government failure and, second, they may want to promote values that are not yet shared by regulators. Regardless of the reasons, however, the phenomena of CSR and SR investing show that individuals act in a way that benefits other stakeholders. In other words, many investors demonstrate prosocial behavior.

In the subsections that follow, I first review the economics literature on the origins of human prosocial behavior and then I discuss prosocial behavior in the context of investing.

2.6.1 Prosocial behavior in economics

Studies of human prosocial behavior are conducted in many research fields. While the same questions, such as why do individuals behave prosocially, are
asked across all fields, different perspectives are used to answer them. Psychologists, for example, define altruism as a practice that concerns or promotes the welfare of others without a conscious regard for one’s own self-interests (Hoffman 1981). Given this view, studies in psychology often emphasize such things as the interplay between nature and nurture in the development of prosocial behavior (Penner, Dovidio, Piliavin, and Schroeder 2005). An evolutionary theorist, on the other hand, studies altruism from the perspective of a necessity for evolutionary success; the mechanisms thought to be necessary for the process are, for example, kin selection, reciprocity and group selection (see, e.g., Penner et al. 2005, for a survey). Evolutionary theorists therefore focus more on the genetic and biological explanations for prosocial behavior.

The assumption of human self-interest has long been central to economic and finance theory. In the most basic form, individuals are generally assumed to maximize their own utility without regard for others. A large amount of evidence, however, shows that individuals often act in the interest of others (see, e.g., Fehr and Gächter 2000b, Frey and Jegen 2001, Henrich, Boyd, Bowles, Camerer, Fehr, Gintis, and McElreath 2001). Many economists, therefore, integrate knowledge from psychology in an attempt to explain economic behavior. Frey and Jegen (2001), for example, discuss an interesting example of how psychology advances the understanding of economics. They state that when Titmuss et al. (1970) proposed in his book *The Gift Relationship* that monetary rewards for donating blood would result in lower donation amounts, Solow (1971) and Arrow (1972), eminent economists at the time and later Nobel Prize winners, were skeptical of Titmus’s idea and could not find any reason why an increase in monetary incentives would not lead to a higher supply. According to Frey and Jegen (2001), social psychologists during that period had identified that monetary rewards undermine intrinsic motivation (see, e.g., Lepper, Greene, and Nisbett 1973, Lepper and Greene 1978), but it was not until the late 1990s that the idea started to be widely accepted and integrated into economic theory.

Today, economists use the term prosocial to refer to the notion that individuals care for the well-being of others (see, Meier 2007) and studies on individuals’ prosocial behavior constitute a large part of the economics literature (see, e.g., Camerer 2003, Fehr and Schmidt 2003, Konow 2003, Meier 2007, for a survey). To map out the link between individuals’ motives and prosocial behavior, Meier

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Henrich et al. (2001) conduct an experimental study across 12 countries (15 small-scale societies) and find that individuals appear to care about fairness and reciprocity.
suggests that human prosocial phenomena can be explained through three approaches. First, individuals may have a prosocial preference and care about others’ utility rather than only their own; their prosocial preference may arise from altruism or inequality aversion (see, e.g., Becker, 1974; Andreoni, 1989; Fehr and Schmidt, 1999; Fehr and Gächter, 2000a, for theory and evidence). Second, individuals are reciprocal; that is, they respond positively (negatively) to the positive (negative) behavior of others (see, e.g., Fehr and Schmidt, 1999; Fehr and Gächter, 2000b; Frey and Meier, 2004a,b; Falk and Fischbacher, 2006, for theory and evidence). Theories on altruism and reciprocity are regarded as outcome-based models, since both self-utility and the utility of others are modeled together (Meier, 2007). Third, individuals are driven by self-identity concerns in the sense that they want to have a good self-image. According to the self-identity model, individuals do not care about the effects of their prosocial behavior on others, but consider how it affects their own identity (see, e.g., Bodner and Prelec, 2003; Tirole, 2006). Based on these approaches, the term prosocial should have a broader meaning than altruism, in the sense that all altruistic acts are prosocial, but not all prosocial acts are altruistic (Meier, 2007).

2.6.2 Prosocial behavior in investing

Investors’ demand for CSR and SR assets form the phenomenon of prosocial bias in investment decision-making. Research in finance and other related disciplines has so far primarily focused on the question of how CSR is associated with firms’ cost of capital (see, e.g., Aupperle, Carroll, and Hatfield, 1985; McWilliams and Siegel, 2000; 2001; Orlitzky, Schmidt, and Rynes, 2003; Edmans, 2011; Deng, Kang, and Low, 2013), firms’ expenses (see, e.g., Cronqvist, Heyman, Nilsson, Svaleryd, and Vlachos, 2009; Eccles, Ioannou, and Serafeim, 2014) or whether an SR investment strategy affects the performance of mutual funds (see, e.g., Derwall et al., 2005; Bauer et al., 2005; Kempf and Osthoff, 2007; Gregory and Whittaker, 2007; Renneboog et al., 2008a; Aktas et al., 2011; Ghoul and Karoui, 2017). Only a few studies look at CSR and SR investing directly from the perspectives of individual investors (see, e.g., Epstein and Freedman, 1994; Bollen, 2007; Jansson and Biel, 2011; Riedl and Smeets, 2017) and even fewer

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Mackey, Mackey, and Barney (2007), for example, propose a theoretical model to show that firms can maximize their market value and yet, at the same time, engage in activities (CSR) that lower their future cash flows. Deng et al. (2013) find that the social performance of acquiring firms (CSR rating) is a determinant of merger performance; that is, high CSR acquirers earn higher returns when mergers are announced.
study individual investors’ motives and link the results to SR investors’ actual investment behaviors (see, Riedl and Smeets 2017). Furthermore, the central question in most of the studies regarding individual investors is whether they value non-financial attributes.

In my view, a missing link between the study of prosocial behavior in economics and the study of it in finance is that finance research puts a lot less emphasis on the origins of the prosocial bias in investing. Although it is not within the scope of this thesis to study SR individual investors’ motives in detail (i.e., whether they originate from altruism, reciprocity or self-image concerns), I believe that it is necessary that we try to connect the findings on prosocial behavior from the research in economics to the findings from the research in finance on SR investing.

In this respect, Bénabou and Tirole (2010) provide a paper on how underlying prosocial motives could potentially undermine or promote CSR and SR investing practices. They suggest that there are three views on CSR: i) “win-win,” which reflects the belief that a firm can be more profitable while also doing good, ii) “delegated philanthropy,” meaning that stakeholders demand that firms engage in philanthropy on their behalf and iii) “insider-initiated corporate philanthropy,” which suggests that the desires of management or board members drive CSR practices (e.g., donating to organizations in which their own members sit on the board) (Bénabou and Tirole 2010). The first view posits that investors are driven by profit motives, while the latter two views posit that individuals have prosocial biases and that the origins of prosocial behavior are significant to the design of policies related to CSR (Bénabou and Tirole 2010).

Although Bénabou and Tirole (2010) argue that altruism, material incentives (such as tax deductions) and social and self-esteem concerns are the underlying motivations for prosocial behavior, they put the strongest emphasis on image concerns. In the view of Bénabou and Tirole (2010), motives originating from individuals’ image concerns have both positive and negative effects. On the positive side, the growing popularity of SR investing serves as a reminder to

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8 Based on my understanding, Bénabou and Tirole (2010) view SR investing as a driver of CSR, given that they state that:

“For instance, a small number of environmentally concerned investors can always invest in the existing clean companies; it is therefore likely that CSR has had little impact on stock prices in the past. As SRI popularity increases, other firms may have to start incurring higher abatement costs in order to attract funding, depressing yields” (p.13) and do not make a distinction between how motives may affect CSR and SR investing differently.

Bénabou and Tirole (2010), unlike Meier (2007), classify reciprocal fairness as being in the same category as altruism.
individuals to be aware of social issues such as poverty or environmental damage from human consumption; individuals have a tendency to avoid thinking about these issues. On the negative side, the image value of SR investing is likely to diminish as SR assets are more advertised. Moreover, as more individuals adopt SR practices, the value of investing more responsibly becomes lower but, at the same time, the stigma for those who do not behave correspondingly becomes higher; in other words, there is a moral comparison (Bénabou and Tirole, 2010). One of the potential outcomes is that there may be an adverse reaction to the more moral individuals (e.g., resentment), possibly leading to an increase in social costs (see Tirole, 2006; Monin, 2007 for a detailed discussion). Lastly, it is also possible that individuals will use good behavior in one context to justify more mediocre behavior in another context (Bénabou and Tirole, 2010); for example, investors who invest in SR funds may, at the same time, invest in stocks of firms with low CSR ratings. Indeed, an interesting finding in this thesis that appears to support this hypothesis is that most SR investors invest only a fraction of their holdings in SR funds. However, it remains to be examined whether the parts of their portfolios that consist of conventional funds have poor CSR ratings.

Besides image concerns, Bénabou and Tirole (2010) suggest that the interplay between material and image concern motives is another crucial factor in understanding prosocial behavior. They state that material and image concerns are often interdependent and their interplay is important because it is the underlying reason for crowding out and the overjustification effect: as image concerns become more important, material incentives such as monetary ones become less important; therefore, as material incentives increase, the supply decreases, as in the case of blood donations (see, e.g., Titmuss et al., 1970; Andreoni, 1989, 1990; Frey and Jegen, 2001 for theoretical and empirical findings). Similarly, Starr (2008) states that there might be a warm glow effect (i.e., positive emotional feelings from helping others) when individuals invest responsibly.

In addition, Starr (2008) states that SR investors may be driven by a reciprocal fairness motive. According to Meier (2007), reciprocity is gaining a lot of attention in explaining the behavior of participants in society. The act of reciprocity is well documented in many fields, including biology and anthropology. Trivers (1971), for example, state that the behavior of reciprocity is observed among many living species, such as birds and non-human primates.
For humans, reciprocity is said to be the foundation of group behavior because it explains why there is positive cooperation in society (Fehr, Fischbacher, and Gächter 2002). Based on the reciprocity motive, Starr (2008) states that SR investors may react positively to firms that provide good care to their stakeholders and react negatively to those that fail to behave fairly towards their stakeholders while generating good profits. Nevertheless, studies of firms’ financial performance and their CSR practices do not provide supporting evidence in favor of a reciprocal hypothesis. Many studies, such as Orlitzky et al. (2003) and Flammer (2013), find evidence supporting the reciprocity argument and show that firms with better CSR practices yield higher returns. Studies such as Becchetti and Ciciretti (2009) and Garcia-Castro, Ariño, and Canela (2010), however, offer different conclusions, arguing that a potential selection problem among firms with good CSR practices may have led to misleading results in prior studies. Following the same line of thought, Bénabou and Tirole (2010) argue that it is very difficult, if not impossible, to understand motives for adopting CSR practices based on the data because there is often a mix of all three interpretations: while the “win-win” and “delegated philanthropy” views suggest a positive relation between firms’ performance and CSR activities, the “insider-initiated corporate philanthropy” view suggests a negative relation.

Perhaps studies based on individual-level data may help fill in the gap and advance our knowledge of prosocial behavior in finance. As already discussed, the difficulty in studying prosocial behavior is that it is often driven by a mix of motives, which also differ across individuals (see Tirole 2006 for a theoretical framework). Moreover, to better understand and estimate the social cost of prosocial behavior, Meier (2007) states that it is important that we have a better understanding of the interaction between different types of individuals. In support of this view, Frey and Meier (2004a) demonstrate that individuals’ prosocial behavior depends on others’ prosocial behavior. They find that students in their experiment were more willing to donate after they were informed of others’ donations, indicating that there is a tendency for individuals to change their behavior after they learn of others’ behavior. At first glance, the growing value of the retail market for SR assets intuitively supports this line of argument. The growth in recent years, however, has mostly been driven by high-net-worth individuals (Eurosif 2016), which may prove to lead to a shift in the demographic characteristics of SR investors. Thus, what actually drives the growth of the market for SR assets remains to be examined.

Further, Meier (2007) suggests that studies of prosocial behavior should also
consider the institutional environment of individuals. The social context, such as the enforcement of related laws and regulations, can influence individuals’ perceptions towards SR investing. Moreover, not all aspects of the institutional environment affect individuals equally. Changes in the policies related to SR investing have also been enacted by regulators. As of 2001, regulations were in effect in many countries, such as the U.K., Belgium, Australia, Italy, Germany, France and Sweden, that require firms to disclose their policies on SR investing (see Renneboog et al. 2008b). In Sweden, public pension funds have been required to submit reports on their SR investing since 2001 (Bengtsson 2008).

To the best of my knowledge, little is known about SR investors and there is only one study (Riedl and Smeets 2017) that examines their motives and that investigates whether there is a link between motives and the likelihood of investing in SR funds. Using a trust game experiment introduced by Berg, Dickhaut, and McCabe (1995) to measure intrinsic social preferences, Riedl and Smeets (2017) find that stronger social preferences are positively correlated with the probability of holding SR funds. Individuals in their study who reported in a survey that they often talk about investing are also more likely to hold SR funds. However, the study draws a sample from one brokerage firm in the Netherlands and does not explore how individuals’ behavior and attitudes may change over time. Therefore, many aspects of the behavior of SR individual investors remain to be explored.
3 Data and methodology

3.1 Data

This thesis uses data from several different sources. First, a part of individuals’ socio-demographic characteristics are obtained from the Longitudinal Integration Database for Health Insurance and Labor Market Studies, provided by Statistics Sweden. Starting from 1990, Statistics Sweden has been collecting information each year on individuals who are 16 years of age or older and are registered in Sweden as of December 31st. In essence, these data cover almost the entire Swedish population.

For the purposes of this thesis, and as a parsimonious approach, only individuals who were born during 1963 and 1973, their parents and their partners are included in the study. These individuals are observed annually during the period from 1999 to 2007; that is, when those born in 1963 were between 36 and 44 years of age and when those born in 1973 were between 26 and 34 years of age. The following demographic and socioeconomic characteristics of the individuals are included:

- age
- gender
- marital status
- level of education
- income
- industry of employment
- measures of cognitive ability (i.e., score on a test of cognitive ability for male investors and high school grades for both male and female investors born in 1973)
- municipality of residence
- highest level of education
- educational orientation

For the parents, the data set includes their income and level of education as of 1980 (for parents of the 1963 cohort) and 1990 (for parents of the 1973 cohort).
(i.e., the socio-demographic characteristics of the parents when the individuals were around 17 years of age are used).

Second, data on individuals’ financial assets and wealth is obtained from the Swedish Tax Agency. This data set contains information on individuals’ stock and mutual fund holdings, as well as their positions in derivative securities, reported at the end of each year. The data set also includes detailed wealth information, categorized into holdings of real estate, cash, mutual funds and stocks, as well as individuals’ liabilities.

Third, mutual fund data are obtained from the Swedish Investment Fund Association (SIFA). The following information is included:

- fund name
- fund firm name
- type of fund (i.e., balanced, equity, bond, fund of fund and hedge fund)
- International Securities Identification Number (ISIN)
- daily net asset value (NAV)

This data set contains all funds that are registered with SIFA, which means that the funds are marketed in Sweden. The list is up to date as of 2010, and it covers the period from 1997 to 2010.

Fourth, data on SR funds and their characteristics are collected manually. To categorize funds into SR and conventional funds, I screen the fund names for the following terms:

- sustainable
- ethical
- SRI
- social
- green

I then check for additional funds that may not have the above labels but are listed on the websites of the Swedish Pension Agency (SPA) and Swedbank (one of the largest banks in Sweden), and with the annual reports from Polksam (2006) (a
leading Swedish insurance firm) and Skillius (2002, 2003, 2005, 2007, 2008). The data from SPA and Swedbank are obtained during 2011 and they may be subject to a look-back bias. The reports from Folksam (2006) and Skillius (2002, 2003, 2005, 2007, 2008), however, provide detailed information on the screening criteria of SR funds in Sweden during the period from 2002 to 2008 (except in 2014). This cross-check procedure, following the name screening, helps in detecting SR funds that are not easily identified by their names, such as theme investment funds (e.g., alternative, clean or renewal energy).

One advantage of the data sets used in the thesis is that they contain accurate, complete and detailed information about individuals’ investment choices and their socio-demographic characteristics over the sample period. Moreover, the same data, but with different cohorts and periods, have been used in many prior papers in the field of household finance (see, e.g., Calvet, Campbell, and Sodini 2007, 2009a, b; Calvet and Sodini 2014).

According to Campbell (2006), one of the biggest challenges in studying household finance is that the data on households are usually not an accurate measure because households tend to avoid revealing details about their wealth and often have complicated finances with multiple investments and savings accounts at different institutions. Each of the accounts, moreover, may be subject to a different tax treatment. Therefore, it is often difficult to obtain accurate and complete information about individuals’ wealth and their holdings of risky assets. For data to have high measurability, Campbell (2006) suggests that the data should have at least five properties. First, the sample should be representative of the population. Second, the data should contain a precise measure of wealth, including a breakdown into relevant categories. Third, the data should allow for the possibility of disaggregating assets into different asset classes; ideally, the data would provide specific information about each asset. Fourth, the data need to have a high level of accuracy. Finally, the data should provide a record of the same households over time (i.e., they should be panel data).

I believe that my data fit Campbell’s (2006) definition of a good household database. Although the data used in this thesis is representative of two cohorts with an age difference of ten years, the data contain, for each cohort, all individuals born during that year. The sample is therefore not subject to a

\[^{10}\text{I am grateful to Åsa Skillius for providing the reports on Swedish ethical funds.}\]
further selection problem. Furthermore, the wealth data, provided by the Swedish Tax Agency, are highly accurate and detailed. For each individual, I observe the value of the different asset classes they own, including the value of their savings in bank accounts and the value of their investments in mutual funds, stocks and real estate, as well as the value of their liabilities. I can also observe more specific information, such as the number of shares of a given stock or the number of units of a given mutual fund held by each individual investor.

In contrast to survey data, the detailed wealth data from the tax authorities are often less prone to measurement error because the procedure generating the data involves several rounds of validation. That is, individuals first file tax reports, which are then checked by the tax authorities and which are finally returned to individuals for a final confirmation. Survey responses, on the other hand, are gathered on a voluntary basis. Individuals may not want to reveal information about their wealth or simply may not be able to accurately recall that information because their finances can be quite complex (e.g., they may own many different assets in many different accounts and countries (Campbell, 2006)).

3.2 Methodology

The papers in this thesis fit into the realm of positivist, as opposed to normative research; that is, they attempt to describe what SR individual investors do instead of arguing what they should do. An advantage of this thesis, therefore, is the availability of panel (i.e., cross-sectional time-series) data, which allow for the possibility of observing the same individuals over time.

In this regard, Kennedy (2008) suggests four features of panel data that have made them increasingly popular among researchers. First, the availability of panel data allows for the possibility of controlling for unobserved individual-specific effects. Considering the considerable heterogeneity across individuals and the heterogeneity over time for the same individual, the possibility of controlling for unobserved heterogeneity is considered to be one of the most important advantages of panel data (Kennedy, 2008). As a result, concerns regarding a potential omitted variable bias can be significantly mitigated (see Hausman and Taylor 1981, Hsiao 1985 for a detailed discussion). Second, panel data are more informative. The greater variation in the data, resulting from the combination of the variation across individuals and the
variation over time for the same individual, leads to more efficient estimates and reduced multicollinearity problems. Third, studying panel data may be the only reasonable way to study certain phenomena (e.g., employee turnover rates). Finally, in contrast to cross-sectional or time-series data, panel data allow us to study the dynamic properties of a phenomenon (Kennedy, 2008).

Furthermore, there are two sources of information in panel data (see, e.g., Kennedy, 2008; Allison, 2009). The first source represents the information arising from the differences in the characteristics and/or the behavior across individuals. The second source represents the information that arises from the differences in the characteristics and/or the behavior of the same individual over time. As a result, there are different regression techniques that exploit these sources of information separately or jointly. The most common approaches in panel data analysis involve estimating regression models with between, fixed or random effects (see, e.g., Kennedy, 2008; Allison, 2009).

Regression models with between effects use the means of all variables for each individual, which is the reason why these models exploit the variation across individuals. On the other hand, regression models with fixed effects control for individual-specific time-invariant characteristics and, therefore, they exploit the variation over time for the same individual (see, e.g., Allison, 2009). This is achieved by using a within transformation; that is, by subtracting the means of all variables within an individual. The drawback of this method is that it eliminates all time-invariant variables (e.g., gender) and that it does not consider the variation across individuals (Hausman and Taylor, 1981). Finally, regression models with random effects consider both sources of information (i.e., the variation across individuals and the variation over time for the same individual) (see, e.g., Allison, 2009). However, these models are not widely used because of the quite strong assumption that there are no omitted variables (i.e., the individual-specific effect is uncorrelated with the independent variables) (see, e.g., Allison, 2009). If this assumption is violated, the estimates from models with random effects are biased.

Although the availability of panel data allows for a substantial contribution of this thesis, modelling these data is quite challenging. Consider, for example, Papers I and II where the discrete choice model (i.e., logit model) is used. In these papers, the dependent variable takes the value of 1 if an individual holds an SR fund in a given year and 0 otherwise (these individuals are referred to as SR investors). Ideally, the studies should present the results from both the models...
with and without individual-specific fixed effects because both the cross-sectional and time-series variation in the characteristics and/or the behavior of investors are of interest. However, a large number of SR investors are likely to invest in at least one SR fund in all given years which leads to no variation in the dependent variable. In the case of non-linear models with fixed effects, the data on these individuals will be omitted from the estimations and, hence, the remaining sample is relatively small and may not be representative of the population of investors. This can be a serious drawback because fixed effects models rely on the within-individual variation and, therefore, they may be subject to high sample dependence (see, e.g., Clark and Linzer [2015]). Moreover, it also seems inappropriate to use models with random effects because, for the estimates to be unbiased, the random effects estimator requires that the individual-specific effect is uncorrelated with the independent variables. This seems to be particularly true in my studies because the results from the Hausman [1978] test generally reject the null hypothesis, which means that fixed effect estimators seem more appropriate for the data.

Besides the above-mentioned characteristics of the data that make panel data analysis challenging, the presentation of results concerning interaction terms in non-linear models is another area to be concerned about. According to Ai and Norton [2003], interaction effects in non-linear models cannot be interpreted in the same fashion as in linear models because the magnitude of an interaction effect depends on all the independent variables included in a model, which implies that the sign and the magnitude of the interaction effect can vary over different values of the variables.
4 The Swedish mutual fund market

This section aims to provide readers with a background understanding of the data. Since all of the studies in this thesis draw from a sample of individuals born during 1963 and 1973, this section provides information in addition to that provided in the constituent papers in order to facilitate comparison with other papers in the field.

4.1 Mutual fund market trends

This section shows the trend in the number of funds in the Swedish mutual fund market. It is obvious from the data that the mutual fund industry experienced a tremendous growth over the 10-year period from 1997 to 2007 (see Figure 1). The number of fixed-income funds increased from 115 to 604, the number of balanced funds increased from 42 to 279, and the number of equity funds increased from 340 to 1790. Note that the numbers shown here are likely to be lower than the true numbers that would have appeared in a complete data set (there are some funds which I cannot classify in any of the three categories in Figure 1).\(^{11}\)

\(^{11}\)Although I do not have a complete list of mutual funds, the funds listed in the data are likely to be the most commonly held funds during the sample period. This is verified by cross-checking the manually constructed mutual fund wealth of each individual (i.e., multiplying the prices of these funds with investors’ positions in the funds) with the reported fund wealth in KU-31. The results show that almost 95% of the observations perfectly matched, suggesting that the mutual fund contains information on most funds held by individuals.
Figure 1. Number of mutual funds by type over time
4.2 Number of available and held equity mutual funds

This section shows the number of equity mutual funds that are available in the Swedish market and the number of equity mutual funds that are held by the investors in the sample during the period from 1997 to 2007.

![Figure 2. Number of conventional equity mutual funds](image)

Figure 2 shows that the number of available conventional equity mutual funds grew significantly during the period and Figure 3 shows that the number of available SR equity mutual funds also grew, but remained relatively modest. It is interesting to note that Renneboog et al. (2008a) study the performances of conventional and
SR funds across a number of countries, including Sweden. In their data, collected from Bloomberg for the period from 1991 to 2003, there are a total of 26 SR funds.

![Figure 3. Number of SR equity mutual funds](image)

In relative terms, the percentage growth in number of conventional funds held (355%) is in line with the growth of available conventional funds (365%) while the percentage growth in the number of SR funds held (220%) is larger than the percentage increase in number of available SR funds (171%).
4.3 Performance of conventional and socially responsible equity mutual funds

In this section, I present the distribution of annual returns on conventional and SR funds. The box plot comparing the distributions is presented in Figure 4. From the figure, it can be seen that the returns on conventional funds are more dispersed than the returns on SR funds in any given year. These results should not be surprising, considering that there are almost ten times as many conventional funds as SR funds. A particularly interesting observation from the figure is that most of the median returns on conventional and SR funds are not very different, but the distributions greatly differ in their dispersion. In addition, the top quartiles of the returns on SR funds are lower than those of conventional funds and their bottom quartiles are higher than those of conventional funds.
**Figure 4.** Raw annual returns on conventional and SR equity mutual funds
4.4 Market shares among socially responsible funds

This section shows the market shares of the 40 most popular funds. The market share of each fund in each year is calculated as \( \frac{\text{no. of investors in a fund}}{\text{no. of SR investors}} \). The funds are then ranked using funds’ investor base sizes in 2003. The ranks are then assigned to each fund and used as identifications, as shown in the label of the x-axis. In other words, the position of each fund is held fixed throughout each year.

The results are presented in Figure 5. There are two dominant SR funds in 2003 and three dominant SR funds between 2003 and 2007, each of which has more than 10% of SR investors holding it each year. From the charts, it seems that there is little variation in the changes of market share between SR funds, and the dominant funds in 2003 remain the biggest players in the SR fund market in 2007.

Note that the number is calculated from the data used in this thesis, and therefore, only funds held by investors who were born in 1963 and 1973 are included. As a result, Figure 5 may not represent the true market share among SR funds.
Figure 5. Market share among SR funds
5 Summary of papers

5.1 Paper I: Socially Responsible Investing Among Individual Investors

This paper focuses on profiling SR investors. It aims to establish a preliminary understanding of whether SR investors differ from conventional investors. Our results show that there are systematic differences between conventional and SR investors. In particular, females, more educated individuals, and those living in municipalities with a higher proportion of SR investors, are more likely to hold SR equity funds. Although the profile of SR investors seem to be statistically differenced from that of conventional investors, only individuals’ levels of education seem to show a sizable economics significant. For example, holding a PhD degree compared with only having completed compulsory education increases the likelihood of holding SR equity funds by almost 5 percent whereas being female increases the likelihood of holding SR equity funds by only about 1 percent.

5.2 Paper II: Intergenerational Transmission of Prosocial Values: Socially Responsible Investing Among Parents and Adult Children

This paper establishes the relationship between parents and adult children with respect to their investments in SR mutual funds. We find significant results indicating that individuals’ propensity to invest in SR mutual funds increases with the incidence of parents who owned SR funds in the previous period. The results are stronger if mothers invest in SR funds and strongest if both parents do so. We also find that parents’ economic resources during individuals’ adolescence (i.e., when individuals are 17 years old), including parental income and life experience, significantly explain individuals’ adult prosocial investment behavior. The study reveals potentially important insights into the origin of heterogeneity in individuals’ prosocial behavior, showing that individuals’ prosocial values may be formed early in life.
5.3 Paper III: The Investment Behavior of Socially Responsible Investors

In this paper, I document the behavior of individual investors in relation to investment in SR equity mutual funds. Approximately 30% of individuals hold only SR funds. The rest hold both conventional and SR funds and tend to have lower portfolio weight in SR funds. According to prior studies, individuals may think of SR investment as part of their mental accounts, and SR investors may therefore limit their SR holdings to a certain amount. In line with this, Riedl and Smeets (2017) find no relation between portfolio weight in SR funds and the level of an individual’s social preferences. As such, I examine investors’ behavior toward SR and conventional funds in relation to past returns using two approaches: i) looking at their propensity to buy and sell versus hold SR and conventional funds, and ii) looking at fund flows at the individual level and at the fund level. The first approach is more appropriate if individuals think of SR investment as a separate mental account. The second approach reflects investors’ behavior in aggregate when fund flows at the fund level are used, and it has a modeling advantage when fund flows at the individual level are used because it allows for the inclusion of individual-specific fixed effects.

The results indicate no difference in SR investors’ buying decisions regarding SR and conventional funds in relation to past positive and negative returns. However, SR investors’ selling decisions appear to be more sensitive to past negative returns, and they are less likely to sell SR funds than to sell conventional funds as past negative returns decrease. In aggregate, however, fund flows of SR and conventional funds are similarly sensitive to past returns. Nevertheless, when the flows are separated into flows of funds with a higher and a lower proportion of sticky SR investors, the results show that those with more sticky SR investors are less sensitive to past positive returns. At the individual level, however, different results are observed, and fund flows of sticky SR investors appear to be more sensitive to past positive returns and less sensitive to past negative returns. Interestingly, although the evidence in this paper indicates that sticky SR investors are more (less) sensitive to past positive (negative) returns of SR funds, these individuals seem to be less likely to reinvest in their SR funds than in their conventional funds.
5.4 Paper IV: Do socially responsible investors willingly forgo higher returns?

In this paper, I utilize the stylized fact that most SR investors hold mixed portfolios combining both conventional and SR funds. It is thus possible to disaggregate SR investors’ portfolios into SR and non-SR parts. To answer the main research question, I analyze the portfolio performance of SR and conventional investors and investigate SR investors’ fund flows in relation to different measures of past returns.

Regarding portfolio performance, the decomposition of SR investors’ portfolios into SR and non-SR parts reveals that SR investors do not perform worse than conventional investors on the non-SR part but do perform significantly worse on the SR part of their total portfolios. This, in turn, leads to the observation that individuals with positions in SR funds perform worse than comparable individuals with no positions in SR funds.

It is worth mentioning that the analyses of individuals’ portfolio performance are done with and without controlling for investor characteristics. The interesting insight from the results is that there seems to be a selection of individuals who become SR investors. In the unconditional analysis, the difference between average total portfolio return of SR and conventional investors is not statistically significant. However, the results in the conditional analysis (i.e., comparing comparable SR and conventional investors) indicate a significantly lower return for SR investors. Therefore, sorting into the group of SR investors also seems to systematically sort on individuals’ return-generating skills.

Analyses of investors’ fund flows further indicate that fund flows of SR investors who hold only SR funds exhibit a significantly lower sensitivity to past returns, compared to that of comparable conventional investors. On the other hand, fund flows of SR investors who invest in both SR and conventional funds are more sensitive to past returns on SR funds than on conventional funds. These results tentatively suggest that SR investors, particularly those who invest only in SR funds, are driven by values-motives in their choice to invest in an SR manner. For those who invest in both SR and conventional funds, the results are inconclusive because these investors may invest with profit-motives or value-motives (i.e., they prefer SR over conventional funds, but conditionally on the funds’ performance).
6 Concluding Remarks

In this section, I begin by presenting a discussion of findings in relation to the research purposes of the thesis and explore the contributions of these papers to the literature. I then discuss the practical contributions and the limitations of the thesis. Near the end of the section, I provide suggestions for future research.

6.1 Discussion and conclusion

In this thesis, I investigate whether and how SR investors differ from conventional investors. The central hypothesis of this thesis is that SR investors are potentially driven by values-motives. Considering that the traditional financial view posits that investors should base their investment decisions primarily on securities’ risk and returns, any observed systematic differences in the profiles and behavior of SR and conventional investors are of interest. In this aspect, particular emphasis is put on examining the sociodemographic determinants of being an SR investor, factors that influence investors’ adoption of SR investment, and investors’ behavior toward SR and conventional funds. This emphasis corresponds to the proposed research questions outlined in Section 1.2, and the answers to these questions are provided in the four independent studies. Throughout these studies, the analyses are based on representative samples of individuals who were born during 1963 and 1973, and their positions in SR mutual funds are used as a tool to classify them as SR or conventional investors. In more detail, Paper I contributes to the first research purpose of the thesis in that it aims to identify who among individual investors engages in SR investing. Based on the results, there is a clear indication that the profiles of SR investors are statistically significantly different from those of conventional investors. Findings in the first paper generate interest for the rest of the thesis because they establish that individuals who engage in SR investment potentially have a taste for assets and evaluate assets choices beyond their risk and return characteristics. Although the study could not rule out the competing alternative explanation that individuals buy SR funds because of a profit-motive, the determinants of being an SR investor, particularly those with higher economic significance such as being female and having higher education, are also found to be determinants of the more altruistic behaviors in the literature of other fields (see, e.g., Worell 2001, Croson and Gneezy 2009, Meier 2007).
Given the results, the second paper extends the first paper by including, in addition to sociodemographic variables already included in the first paper, parental variables (i.e., dummy variables indicating whether the parents of investors have positions in SR funds and other parental resource variables such as parents’ income and equality of parental time between mother and father). These parental variables allow for the investigation of whether a correlation exists between parents and their adult children in engagement in SR investment. The correlation, if found, could be seen as an indication of intergenerational transmission of prosocial values between parents and their adult children. The results in this paper suggest that mothers seem to have a greater influence than fathers on their children’s engagement with SR investment. The influence is strongest, however, if both parents invest in SR funds. Various robustness tests are performed in this study, and the results favor the interpretation that correlation between parents’ and children’s holdings of SR funds are likely to be driven by the transmission of prosocial values from parents to children rather than social interaction between them. Together, the results in Papers I and II further strengthen the explanation that individuals are primarily driven by a values-motive when it comes to the choice of whether to invest in funds with SR attributes. The findings in Paper II also provide insight into the origin of heterogeneity in individuals’ prosocial values, which also serves to answer the second research purpose of the thesis. That is, the paper provides some understanding about potential factors that influence individual investors to engage in SR investing.

Building on the motivations found in the first and the second papers—that individuals are likely to prefer SR over conventional funds because of a values-motive—the third and the fourth papers aim to examine how investing with this motive influences individuals’ investment behavior. The results documented in these two papers answer the third research question posed in this thesis. That is, the papers aim to answer whether investors trade SR and conventional funds differently. In Paper III, the descriptive results and the empirical analyses are conducted with the goal of providing a detailed presentation of individual SR investors’ behavior. Because this is one of the first studies, to my knowledge, to provide such detailed information on the more general sample of investors, the study seems of great value. The findings in this paper reveal that the investment behavior of SR investors can be quite complex. For example, the majority of investors who have positions in SR funds also have positions in conventional funds, and, in most cases, these investors allocate a
greater portfolio weight to conventional funds. Moreover, sticky SR investors, those who engage in SR investment consistently over a period of time, are more (less) sensitive to past positive (negative) returns and are less likely to reinvest in their SR than in their conventional funds. The behavior of SR individual investors documented here suggests that the proportion of investment allocated to SR assets may not correlate with investors’ level of social preference, which is consistent with the findings of Riedl and Smeets (2017).

Prior studies devote more attention to understanding SR investors’ motives and how they translate into the proportion of investment allocated to SR assets (see, e.g., Nilsson 2008; Pérez-Gladish et al., 2012; Riedl and Smeets 2017). However, individuals’ decisions regarding SR investment may be much more complex. For example, Mackenzie and Lewis (1999) find that investors may be willing to allocate a small amount to SR investments. By doing this, investors may feel better about how they invest (i.e., that they are investing somewhat responsibly) while being able to avoid extra search cost regarding the SR attributes of the funds (Mackenzie and Lewis, 1999). Moreover, Fama and French (2007) suggest that investors who prefer SR over conventional funds seem to have taste for assets, which suggests that these investors are likely to make more consistent investment choices. Inspired by this finding, in the third paper I chose to pay particular interest to sticky SR investors. Nonetheless, there are other ways to analyze the behavior of investors’ fund flows. Hence, in the fourth paper, I extend Paper III by using different measures of performance as well as comparing the fund flow behavior of SR and conventional investors in various ways.

The results in Paper IV nicely complement those found in Paper III. In this paper, I find evidence that fund flows of investors who hold only SR funds are less sensitive to past returns, compared to the flow-return relationship of conventional investors. I also find that fund flows on the SR part of the portfolio of investors who hold both SR and conventional funds are more sensitive to past returns compared to the flow-return relationship on the non-SR part. Another interesting aspect of this study is that the results on fund flow-return relationship differ depending on which measure of returns is used. In addition to extending the study of investors’ fund flows in the third paper, this paper also provides evidence on the performance of SR and conventional investors’ fund portfolios. Interestingly, the results show that whether the portfolio return of SR investors is worse than that of conventional investors depends on whether the models control for investor characteristics. These results suggest that there is potentially a selection into being an SR investor, and it is
probably related to individuals’ return-generating skills. Although the paper does not further investigate SR investors’ return-generating skills, it raises questions regarding investing skills among SR and comparable conventional investors.

Taken together, the evidence found in the four studies suggests that individual investors’ decisions to hold SR funds are mainly driven by a values-motive. The results across four papers, though they provide documentation about the different dimensions of investor behavior in relation to SR funds, also reveal that the analyses of individual behavior easily become more complex. Take the use of performance measure and control variables, for example: The results differ depending on which measures are used or whether the analyses are conditioned on investor characteristics.

6.2 Practical contribution

Apart from contributing both empirically and theoretically to the literature, this thesis also has implications for practitioners and policymakers in terms of making economic predictions and creating relevant investment strategies and policies. Some of the implications for policymakers and practitioners are discussed below.

The first paper shows that SR mutual funds are more appealing to investors with certain socio-demographic characteristics. The results can be of great value for asset managers, especially in marketing research and strategic planning.

The second paper shows that there is a correlation in the likelihood of being SR investors between adult children and their parents. This finding is highly relevant for policy implications because it indicates that early intervention may be equally, if not more, effective than later intervention in promoting responsible investment behavior. For example, Døskeland and Pedersen (2015) find that investors who received financial framed information on SR funds (i.e., SR funds are presented as an attractive investment choice) are more likely to buy SR funds than those who are given moral framed information (i.e., SR funds are presented as an opportunity to contribute to a sustainable economy).

The third and the fourth paper documents the investment behavior of SR investors. Two particularly interesting results are that although SR investors seem to earn lower returns on their SR than on their conventional funds, sticky SR investors are less likely to reinvest in their SR than in their conventional funds. These results
indicate that while fund managers can expect SR investors to be more loyal than conventional investors, they may find it hard to raise more money over the long run. Nonetheless, larger is not always better, because fund managers may find it difficult to invest with too much cash on hand. For example, when a fund becomes very large, it may outgrow the size of the stocks, especially when it focuses on local stocks or small cap stocks. On the other hand, too small a size is not better either, because it may not be able to achieve managerial economies of scale (see Chen, Hong, Huang, and Kubik 2004 for a discussion on fund size). The hesitation of SR investors to increase their exposure in SR funds may impede fund managers from offering more SR fund choices. For example, it may be difficult to offer SR funds that track the US large cap because they may not be able to raise enough money to invest in a well-diversified manner. Consequently, investors who want to invest more responsibly may not be able to find funds that match their investment style preference.

6.3 Limitations

A great difficulty in understanding the behavior of individuals is that their decisions are often based on a multitude of factors and their preferences are heterogeneous. Because the field of SR investing is relatively young, there is less direct evidence about individuals’ SR behavior than there is about their other prosocial activities, such as blood donations. In that case, the change in government policy to increase monetary incentives may have led to lower amounts of donations (Titmuss et al. 1970). However, in other studies on prosocial behavior, the effect of monetary incentives largely depends on individuals’ self-image; individuals who want to be seen as doing good are less motivated to cooperate in prosocial activities with monetary incentives (Ariely, Bracha, and Meier 2009). On the other hand, if prosocial acts are less visible, the use of monetary incentives can be more beneficial; for example, a tax relief to promote the use of a new environmentally friendly technology is more beneficial than promoting the adoption of hybrid cars (Ariely et al. 2009). Moreover, the visibility of prosocial products also varies across countries. For example, the adoption rate of electric cars is much higher in Norway than in China, which likely makes owning an electric car in China a less visible prosocial activity. It is reasonable to expect that the factors that potentially influence SR investing are no less complex than those found in other studies on prosocial behavior. In particular, factors such as policy changes, the public image of SR investing and
investors’ self-image may have great impact on SR investors’ behavior. In this regard, the results from my studies of Swedish SR individual investors’ behavior may be limited to one set of conditions. That is, the perceived value of SR investing and the level of self-image concerns among Swedish individual investors may differ from those of individuals in other countries.

On the other hand, factors such as individuals' genetic backgrounds are also found to determine investment behavior (see, e.g., Barnea, Cronqvist, and Siegel, 2010; Calvet and Sodini, 2014). For example, twins who are raised in different environments are found to invest in a similar manner Barnea et al. (2010). Therefore, it is not uncommon to see that studies which attempt to model individuals’ behaviors generally show regression models with low explanatory power, where an adjusted $R^2$ of 2-3% is rather common (Calvet and Sodini, 2014). My studies are not exceptions. My regressions of individuals’ fund flows on their socio-demographic and investment characteristics, presented in Papers III and IV, have an adjusted $R^2$ of about 3-4%. As a result, it is possible that my findings suffer from an omitted variable bias. Nonetheless, my analyses exploit the benefits of panel data by including individual fixed effects, which can partially control for the unobserved heterogeneity among investors and which can be particularly useful if individuals’ investment styles are time-invariant.

Another potential limitation is that the period of study is from 2003 to 2007 in Papers I, III and IV, and from 1999 to 2007 in Paper II. It is possible that the sample period is too short and does not cover a full economic cycle. Nevertheless, the short study period should be less of a concern in this thesis because all of the studies focus on understanding the potential factors that influence individuals’ adoption of SR investing and on the differences in behavior between SR and conventional investors. One exception, however, is that if the behavior of SR investors converges to that of conventional investors under some circumstances (e.g., during a crisis period), then the sample used in this study may not be fully representative of the behavior of SR investors.

In addition, prior studies find that individuals are more likely to be attracted by mutual funds with particular characteristics, such as funds that have lower fees than average, appear more in the media, belong to a larger fund family, and have better past returns (see, e.g., Khorana and Servaes, 2011; Solomon, Soltes, and Sosyura, 2014; Barber, Huang, and Odean, 2016). For this thesis, only data on funds’ daily net asset values, ISINs and attributes related to their SR activities are available. It is therefore not feasible to perform some of the
more common tests, such as the matched pair analysis used in Bollen (2007) and Renneboog et al. (2011), where samples matched by fund age and fees are analyzed. Nevertheless, the focus of my thesis is on individual investors and their time-invariant characteristics and preferences should be captured by the inclusion of individual fixed effects.

Lastly, the studies in this thesis are based on a representative sample that consists only of individuals who were born in 1963 and 1973. Therefore, the results may be limited to the behavior of individuals at a certain age, given that investment behavior may vary greatly across individuals of different ages (Campbell 2006). Nonetheless, the data covers the information on the same individuals every year from 1999 to 2007; that is, the period when those born in 1963 were between 36 and 44 years of age and the period when those born in 1973 were between 26 and 34 years of age. Hogarth and Hilgert (2002) find that individuals between the age of 35 and 54 demonstrate the highest level of financial knowledge. Moreover, van Rooij, Lusardi, and Alessie (2011) find that stock market participation rates are high among those who are 41 to 50 (27.1%) and 51 to 60 (26.8%) years old, only slightly below the group of those who are 70 years old or older (30.1%). Conversely, the participation rates among those who are 21 to 30 and 31 to 40 years old are 14.4% and 19.4%, respectively.

6.4 Suggestions for future research

This thesis has paved the way for future research by showing that SR investors’ behavior deviates from that of conventional investors in many ways and that the socio-demographic characteristics of individuals and their families seem to be associated with the adoption of SR investing. Except for Paper I, moreover, the research questions posed in these studies are, to my knowledge, novel. Therefore, there remains room for future research to replicate the studies and to re-examine the questions. At the very least, complementary studies that address the limitations discussed in the prior section are recommended.

Further, research on prosocial behavior has established that this behavior is determined by the interplay between intrinsic and extrinsic motivations. In the case of SR investing, Riedl and Smeets (2017) find that social signaling (how often investors talk about their investments) is a determinant for investing in SR funds. This finding is consistent with the theory that image concerns motivate
investors to act prosocially. However, as discussed in Bénabou and Tirole (2010), crowding out and overjustification effects may lower individuals’ intrinsic motivation to act prosocially when, for example, more investors hold SR funds, as growth in the number of investors abates signaling values. In line with this view, it might be of interest for future studies to examine how the advertising of SR assets or the number of SR funds offered in a fund family affect investor behavior. For example, investors may give lower signaling value to SR investing as the number of offered SR funds increases.

In a more general sense, the finding across the four studies reveal that individuals’ decision can be quite complex. Thus, further research is needed to improve our understanding of how investors incorporate SR investment into their actual investment decisions. Perhaps, more attentions could be devoted to understanding the heterogeneity within SR investors rather than broadly categorizing whether a particular investors is an SR investor or a conventional investor.
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