Socially Responsible Investment Fund Performance:
The Impact of Social Screens and Intensity

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August 2013

Abstract

Up to now, socially responsible investment (SRI) research has shed little light on the relationship between social screening and the performance of SRI mutual funds. This study aims to provide a more thorough insight into the rapid proliferation of mutual funds that cater the socially responsible investor and the financial contribution of their screening process. By studying an unbalanced sample of 45 SRI mutual funds that are carefully matched to 90 conventional funds, we conclude that there is no significant return differential between the two. Management of SRI and conventional funds also prove to be poor market timers as they seem to time the market in the wrong direction. The evidence presented in this paper brings to the fore that markets reward SRI funds for their level of 'ethicalness'. In line with these findings, we conclude that conventional funds do not show signs of investing in a more ethical manner. Subsequently, this paper will move beyond existing literature when we study the screening process of SRI mutual funds. Only little evidence suggests that there is a positive relationship between screening intensity and financial performance of SRI funds. We aim to answer the overarching thesis by disaggregating the screening procedures and conclude that the *Alcohol* screen hurts risk-adjusted performance. Similarly, *Shareholder Engagement* can add significant value on a risk-adjusted basis for the socially responsible investor. Unfortunately, our tests are unable to determine the direction of the relationships.

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Contents

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1. Introduction

Adam Smith was one of the first to explicitly point out that individuals are only pursuing and maximizing their self-interest, thereby creating the greatest wealth for society as a whole. However, in one of his earlier works, *The Theory of Moral Sentiments,* he explained that people possess a natural sentiment

towards fairness. This primal instinct underlies the virtue of justice. How are Smith's insights reflected in the contemporary field of socially responsible investing?

This paper will investigate whether or not social and ethical considerations limit the investors' ability to maximize their self-interest and will provide an overview of the motivations to invest in a socially responsible manner. In order to do so, this paper studies the financial performance and screening efforts of socially responsible mutual funds (henceforth SRI funds). SRI funds are vehicles that pool and subsequently move the wealth of their clients to investments that are classified as socially responsible. Haigh and Hazelton (2004) provide a clear-cut definition of this process:

> "*it is the practice of directing investment funds in a way that investors' financial objectives are combined with their commitment to social concern. This concern can be justice, economic development, peace and/or a healthy environment."*

The aim of mutual funds dedicated to socially responsible investment is to provide the investor superior risk-adjusted performance by investing in corporations that excel in corporate social responsibility. Screens used in this selection process vary widely. They range from simple screens, like avoiding the tobacco and weapon industry, to screens related to governance issues and the diversity of the workforce. Amongst others, Rockness and Williams (1988) provide a descriptive study and find that managers use a large array of criteria to classify a firm as corporate social responsible. The key feature of their study is the articulation of six uniform factors mutual funds managers use for screening, namely the protection of the environment, equal employment opportunity, treatment of employees, relations with repressive regimes, product quality and innovation and defensive contracting. Nevertheless various studies provide different definitions of social responsibility and the associated screens, which is convenient for fund management, but problematic for academic purposes. This issue will be discussed in detail later in this paper.

The socially responsible investors using these investment vehicles can be categorized into two different groups. Derwall, Koeijk and Ter Horst (2011) identify the *value-driven* investor, those who target non-financial values besides only financial ones. Alternatively, they define the *profit-seeking* investor, who uses SRI screening as means towards achieving superior financial results. The existence of the latter type supports the *benevolence hypothesis*, which states intrinsic motivation is partly selfish (i.e. financial motives) rather than pure altruistic.[1] As the main focus of this paper will be the quantitative

[1]Furguson, Farrell and Lawrence (2008) find evidence for this hypothesis while studying blood donations. They claim that blood donation is motivated by self-interest (i.e. the donor and the recipient benefit), rather than altruistic motives (i.e. only the recipient benefits).

performance of SRI mutual funds, the empirical study considers only the latter, namely the profit seekers. The *value-driven* investor will be discussed in more detail in a later chapter.

Especially now it is interesting to study socially responsible investing. Bauer, Koedijk and Otten (2005) explain that social awareness has soared over the last decades due to issues such as civil rights, nuclear energy and more recently, the environment. Consequently, this growing awareness of social issues would also percolate down to the investment industry. The latest report from the United States Social Investment Forum (henceforth USSIF) reports that socially responsible investment mutual funds domiciled in the United States account for 11.2 percent, or $3.74 trillion, of the total assets under professional management at the end of 2011. This proliferation is not only confined to the United States, but is also expected to travel transatlantic as a recent study by KPMG shows.[2] Since, the wealth management industry in the United States invests at least one dollar out of every nine in SRI mutual funds, it is not surprising that this development has sparked the interest of academics. Providing deeper understanding to those interested or already engaged in socially responsible investing is crucial for the future development of the SRI industry. The reason why this understanding is of such importance is that institutional and retail investors should have a better understanding of how SR strategies may affect portfolio performance, in order to streamline asset allocation and refute the prejudice that taking into account social concern is costly.

This paper will move beyond the existing literature on SRI investing in fourfold. First of all, this paper will use the Carhart (1997) four-factor model to study the risk-adjusted performance of these funds rather than the single factor CAPM (Hamilton et al. (1993), Goldreyer (1999) and Statman (2000) amongst others). Second, a lengthier and up to date time window of SRI funds will be used as compared to dated studies. Third, a study of market timing ability of SRI fund managers will be performed and compared to conventional non-SRI funds, as research on this topic remains scarce. Fourth, and most important, this paper will advance the SRI debate by not only comparing the financial performance of SRI and non-SRI funds, but also reviewing the significance of the screening process, screening intensity and the individual screens used by the SRI funds. This paper tries to move beyond examining aggregate screening categories and studies the individual screens that lie at the very fundament of socially responsible investing. The working thesis in this paper is as follows: *Which features of social screening used by socially responsible investment funds, add value for the retail investor?*

The remainder of this paper is structured as follows. The next chapter provides a comprehensive literature overview regarding the performance of socially responsible investing and fundamental

[2]The European Social Investment Forum (EuroSIF) concludes in their 2012 report that the SRI industry in Europe is flourishing. Moreover KPMG European Responsible Investment Survey find that in Europe socially responsible investment funds only accounted for 1.6 percent of assets under management in 2010 and therefore is still considered a niche market. However, they have good reasons to expect a rapid transatlantic travel in the short term because of increasing interest of pension funds and retail investors in Europe.

deviations continued by a discussion of the screening procedures. Thereafter, the literature overview extends to the drivers of SR investing. The empirical part of this paper starts with a discussion of the sample and is followed by the methodology. The results will be discussed throughout chapter six. Finally, we will discuss implications for retail investors and conclude with caveats of the study and directions for future research.

2. Theoretical background

A rich literature exists in the field of social responsible investment, ranging from simple comparisons between SRI and non-SRI funds to more elaborate multifactor tests. One field of SRI research is concerned with the performance of a social index. A social index simply tracks various listed companies defined as corporate social responsible. In order to measure the relative performance of socially responsible investments, scholars use a SRI index and directly compare this against a conventional benchmark. Statman (2000) is one of the scholars who studies the returns on the Domini Social Index[3] and compares the returns on the index to those of the S&P 500. The paper concludes that there is no return differential in relation to the benchmark.[4] Schröder (2006) endorses this finding in a more recent study.

The other field focuses on the performance of SRI mutual funds. Goldreyer (1999) and Hamilton, Jo and Statman (1993) are amongst the first to study the performance of SRI funds. These early studies regress a sample, consisting of 49 and 32 funds respectively to a single factor to test performance. The former study finds ambiguous results whereas the latter finds no significant differential at all. One reason for these results might be usage of a single factor model (i.e. CAPM) which does not take into account any style tilts of individual funds. These style effects explain at least some of the variation in fund returns in general. Gregory, Matatko and Luther (1997) find in their empirical study that small firm effects explain part of the SRI fund performance. In addition, SRI funds tend to be biased towards growth stocks as concluded by Guerard (1997) who studies the styles of this unique fund type. Therefore, more advanced multifactor techniques such as the Fama-French three-factor model (1993) or the Carhart four-factor model (1997), are more appropriate to review fund performance. A study by Bauer et al. (2005) reviews the performance using the latter models and concludes that over the period 1990-2001 no significant difference exists between ethical and conventional funds domiciled in the United States, United Kingdom and Germany exists. Bauer, Derwall and Otten (2007) study more recent data from

[3]The Domini Social Index includes U.S. stocks of corporations that, based on quantitative screens, are defined as socially responsible. For example firms cannot derive more than two percent in sales from operations related to tobacco and alcohol etc. Additionally, the index uses quantitative screens such as diversity of employees and environmental awareness.
[4]In contrast studies by Luck and Pilotte (1993) and Kurtz and DiBartolomeo (1996) find a slight difference between the Domini Social Index and S&P 500, however both studies use a very short time frame and conclude that determinants of outperformance were rather due to style exposures than attributable to a social factor.

Canada and conclude no statistical difference between SRI and conventional funds, which corroborates with earlier studies. The results of Schröder (2006) are in line with previous scholars that find no statistical significant differential. Bello (2005) pushes the question and concludes that besides lack of performance difference, SRI funds do not differ significantly in portfolio asset allocation and degree of diversification. The aforementioned studies suggest SRI funds achieve at least risk-adjusted returns equal to returns of their conventional peers.

These results could be clustered as observed due to deficiencies in the performance evaluation models that are used (i.e. multifactor models) argue Kreander, Gray, Power and Sinclair (2005). They try to overcome this problem by using 'match pair techniques' developed by Mallin (1995). Their tests conclude no significant difference in performance between ethical and non- ethical funds in Europe. They do conclude, in line with the mutual fund literature, that both ethical and non-ethical trusts underperform the market, although ethical trusts perform a little bit better than their non-ethical equivalents. Rather than studying fund performance in a traditional manner, Kempf and Osthoff (2007) construct portfolios that buy firms scoring high SRI ratings and sell short those that score poorly. They find that by investing according to this strategy a four percent annual net alpha can be achieved; suggesting abnormal returns from SRI investing is possible.

Other papers such as Bazo, Verdu and Santos (2010) focus on fund characteristics to evaluate performance. These scholars find that only SRI funds that are operated by asset managers who specialize in this market outperform their conventional peers whereas the funds ran by generalists do not outperform. Likewise, Bauer et al. (2005) find that older SRI funds perform better than younger ones, suggesting a learning effect.

While an expansive array of literature exists on the performance of equity investment funds, the opposite holds for fixed-income studies. Derwall and Koedijk (2009) study this not-to-be-forgotten asset class. They find no significant spread between SRI bond funds and their conventional peers over the period 1987-2003. However, they do uncover a 1.3 percent annual outperformance of SRI balanced funds (i.e. a combination of equity and fixed income funds).

Much effort is contributed towards studying the financial performance of socially responsible investing. Many of those efforts conclude that these investments achieve similar results compared to their conventional peers, although some find ambiguous results. While the performance debate continues we try to answer the following question: why did the SRI fund industry grow so large over the last years?

2.1 Underperformance

In order to answer this question, we must first get to the underlying rationale of how this strategy is able to yield superior returns. There are many different theories that underly the value differential between SRI

funds and their conventional peers. As discussed in the previous paragraph, scholars find ambiguous results. Where are these deviations observed by scholars based upon? There is a clear scholarly dichotomy in reviewing the relation between financial performance and social responsibility. On the one hand, the more conventional group of scholars, who argue that any social responsibility effort negatively impacts financial performance. Whereas, on the other hand, the proponents stress that firms engaging in socially responsible efforts can generate a competitive advantage, consequently materializing in superior (financial) performance.

The difference in performance can be explained from the perspective of the *value-driven* investor (i.e. one that holds or shuns certain investments for motives other than pure financial ones), which is referred to as the *shunned-stock hypothesis* (Derwall et al. (2011)). These investors will shun certain investments and as this group becomes large enough, prices of the non-ethical investments will start to deteriorate. Whilst prices fall, expected returns increase of these investments.[5] Consequently, if these are included in a portfolio, abnormal returns can be achieved. When we use this same rationale, one could argue that there might be larger demand for SRI mutual funds, consequently driving up prices and simultaneously lowering expected returns of these vehicles, ultimately materializing in poor fund performance. This finding is supported by a study of Fabozzi, Ma and Oliphant (2008).

Additionally, the critics of social responsible investing point out that any effort regarding social responsibility of firms are costly and will result in above average costs that subsequently will manifest itself in below average financial performance. So, these practices puts firms in a competitive disadvantage rather than a desired advantage to their peers (Friedman (1970) and Jensen (2002)). Besides the fact that SR practices are costly for firms, they may also be costly for socially responsible investment funds. Integrating the screening procedures can be a time-consuming and costly activity (Laurel (2011)). Also, managers claiming social responsibility should monitor the efforts of the companies that they invest in carefully and this may lead to additional monitoring costs compared to conventional mutual funds (Areal, Cortez and Silva (2010)). Besides monitoring the investments, investors also expect the fund to enter into discussions on social issues such as sustainability. The previous duties are non-existent for conventional mutual funds and therefore could increase the total expense ratio of SRI funds, hurting their net performance.

Another, indirect cost of screening investments is that it limits the investment horizon. This confines the possible diversification benefits of SRI funds and therefore, under the Markowitz (1952) assumptions, portfolios constructed will be inferior to those without such limitations, materializing in

[5]Using the following formula; $P = \frac{CF}{1+r}$, we conclude that when prices fall due to lower demand whilst simultaneously cash flows remain similar, it must be that the expected rate of return increases therefore increasing the expected returns of non-ethical investments.

inferior risk-adjusted financial performance. However, we note that the effect is highly dependent on the initial objectives of the mutual funds, the asset classes involved and the portfolio constructions. So, the practical costs depend on the extent of exclusion. For example, if a part of the universe is cut-off, that is already considered off-limits in light of the investment mandate, the indirect costs will be low. Vice versa, if the part that is cut-off includes highly lucrative opportunities indirect costs will be high. In contradiction to modern portfolio theory, scholars have found evidence that specialized funds (i.e. limited diversification) in some cases improves risk-adjusted fund performance (Bazo et al. (2010)), so even though the screening limits the investment horizon, practical costs associated with this limitation might not be as severe as thought.

2.2 Out-performance

The modern portfolio based school, is contrasted by the proponents of social responsible investing. Proponents believe that SRI efforts result in a competitive advantage (Porter (1991)) and subsequently in superior financial performance. The underlying rationale that socially responsible efforts lead to better results is referred to as *stakeholder theory*. Barnett and Salomon (2006) sum the possible advantages of investing in screened companies. Firms engaging in social responsible efforts are able to attract capital at lower cost, obtain well suited employees and are able to market products and services more easily due to a better reputation. Kempf and Osthoff (2007) find evidence supporting this theory. A strategy that invests in high ESG score firms and sells those with low ESG scores achieves a four percent net outperformance.[6] Diltz (1995) and Derwall, Guenster and Koedijk (2005) endorse these findings whilst constructing hypothetical portfolios.

Alternatively, Jo and Statman (1993) argue that SRI funds may earn superior returns by omitting non-SR stocks. They argue that investors underestimate the possibility of harmful information that affects non-ethical firms. An example would be underestimating the probability of an oil spill. This will lead to amplifying declines in prices of an oil manufacturer when such harmful information is released. A portfolio, which shuns these non-ethical firms, is not affected by these events. Therefore, expected returns on ethical firms will be higher and investing in them might be more rewarding. Hong and Kacperzyk (2009) acknowledge this additional risk that is associated with firms involved in gambling, tobacco and alcohol. These risks are often combined with high litigation costs. Moreover, governments also play an important role through promoting SR investments via tax benefits. For example, the Netherlands introduced in 1995 already the 'Green saving and Investment Plan' that provides benefits for this special

[6]ESG scores are a single number statistic developed by Thompson Reuters and scores firms on four pillars namely, economic performance, environmental performance, social performance and corporate governance performance.

asset class. Additionally, taxing the tobacco and alcohol industries makes these industries relatively less profitable. These initiatives would (artificially) increase returns for the retail investor.

The argument that SRI funds might suffer from lack of diversification is countered by Bello (2005). The key conclusion of his study is that the SRI and conventional samples show similar diversification characteristics. Therefore screening does not necessarily imply that diversification benefits diminish by a significant margin. This is in line with the argument that the screening process excludes investments already off-limit considering the funds' mandate.

In contrast to the previously discussed *shun-stock hypothesis*, Derwall et al. (2011) provide an alternative hypothesis namely the *errors-in-expectations hypothesis*. The latter is based on the assumption that SRI screens are able to generate abnormal returns because the market finds it difficult to incorporate and identify benefits from corporate social responsible efforts. This delay in pricing should prove profitable for SRI funds when the markets eventually learns the benefits of socially responsible efforts. In addition to the latter argument, Renneboog, ter Horst and Zhang (2007) stress that screening may generate value if screening yields non-public information. When considering the USSIF screens in Table I of the appendix, we conclude that all of these can be identified using non-public information except for *Shareholder Engagement*. Fund management actively discusses environmental, social and governance issues with the firms' management and subsequently tries to influence firm policy. This is not possible for an average retail investor and therefore may yield non-public information and in turn increase risk-adjusted performance of the SRI mutual fund.

Besides the latter argument, best-in-class performers possibly possess valuable intangible characteristics leading to a strong corporate reputation that could fuel superior firm performance (Fombrun and Shanely (1990)). This goodwill has an insurance-like effect when firms experience negative events. As a result of this goodwill some stakeholders temper their negative attitude towards firms in these negative events (Godfrey, Merrill and Hansen (2009)). Following this rationale one might expect that these benefits are ultimately reflected in the differential between SRI and conventional funds. The materiality of the efforts, the incorporation in valuation models and the subjectivity of CSR practices, can lead to prices deviating from fundamental values.

Alternatively, the previously discussed arguments can be explained from a different perspective, as correlation does not necessarily mean causation. Consider the problematic phenomenon of reverse causality, which may be apparent. Firms that are profitable probably have deeper pockets and therefore a higher probability exists that they direct this cash to socially responsible purposes compared to a poor performing firm that is in need of cash (Stanwick and Stanwick (1998)).[7] Thus, corporate social

[7]As a third option, the relation could be bidirectional. King and Lenox (2001) find a positive relationship between environmental and financial performance, however also cannot determine the direction of the relationship.

responsibility (CSR) can be considered a 'luxury good' only pursued by companies who are already highly profitable, whereas poor performers only focus on improving short term financial performance and have no room and/or time to engage in these practices. In essence, when firms initiate SR practices this simply signals that firms are doing well and therefore can be considered a leading indicator in picking outperforming stocks. We should scrutinize our previous argument by a mistake that many investors make namely, the assumption that an operationally and financially sound company makes a good investment.[8] Because, even though companies pursuing SR practices can be considered good companies, they not need to be good investments. One should take this alternative explanation in mind when interpreting results presented in this paper.

2.3 Costs versus Benefits

Thus, two schools explain how costs and benefits could percolate down to SRI funds' returns. On the one hand, costs associated with socially responsible efforts will hurt fund performance, but on the other hand intangible benefits that materialize will push fund performance. Whether these effects are symmetric and/or cancel out is ambiguous and debatable, however little attention has been directed towards disentangling this effect. For the empirical analysis in this paper, we posit the hypothesis that costs associated with investing in a socially responsible manner can be made up for by picking outperforming investments. Barnett and Salomon (2006) articulate this tradeoff in an elegant manner;

> "*Even though SRI funds must draw from a limited pool of firms, they draw from a richer pool – one that is more likely to contain well-run, stable firms that outperform the broader market over the long run*".

2.4 Screening

In order to invest in a socially responsible manner, funds use screening procedures. One of the most important issues in SRI studies is the articulation of these screens and the uniformity amongst them. Providing a clear-cut definition remains the Holy Grail in SRI research and unfortunately remains more of an art than an exact science. How are we able to cope with this problematic issue? Perhaps the most important and controversial question in the academic field of socially responsible investment is its definition. The USSIF provides an overview of screens used by SRI fund managers as constructed by Bloomberg. This overview can be found in Table I of the Appendix and will be used in this study. We will further elaborate on these screens in a later stage. It is noteworthy that the European equivalent

[8]This bias is known in the field of behavioral finance as the *attention grabbing effect.* For example, during the tech bubble, tech stocks where heavily promoted and many firms seemed to be performing well or showed promising prospects, however nearly all of them turned out to be bad investments.

(henceforth EuroSIF), articulates different, more general strategies rather than screens. These can be found in Table II of the Appendix. The discrepancy between the categorization of the USSIF and EuroSIF evidently signals that a clear-cut definition may be nonexistent and difficult to articulate. Moreover, as the financial industry is dynamic and innovative by nature, it is difficult to identify such a uniform set of screens, as they remain in ongoing evolution. Besides this inconsistency, SRI funds also differ to a great extent from with regard to the type and intensity of screens used for filtering out investments, thereby creating even more problems.

Let us first address the question regarding definition. Dunfee (2003) answers the aforementioned question in its broadest sense. He defines social investing as a strategy that uses identifiable non-financial criteria concerning any social or religious dimension. Of course, this definition gives way to subjectivity and may lead to biases. One of the first studies that tried to tackle this issue is a paper written by Rockness and Williams (1988). They articulate six uniform firm characteristics managers use for screening purposes. These are, the protection of the environment, equal employment opportunity, treatment of employees, relations with repressive regimes, product quality and innovation and defensive contracting. While these screens remain relevant, nowadays more common methods are used to screen social investments. To make the reader more familiar with the most commonly used procedures we will discuss these next.

Maybe the most well-known method is the *best-in-class* approach. Renneboog et al. (2007) define the latter as the approach where one wants to include firms that meet superior social standards within a category or industry. In order to determine these firms many asset managers make use of ESG-scores. This statistic quantifies environment, social and governance efforts in a single measure. Managers oftentimes combine the latter approach with *exclusion*. This procedure filters sinful firms, those for example deriving large parts of their income from the weapon or alcohol industry. In addition to these procedures the EuroSIF identifies three other methods. First, *sustainability themed investments* that involve any effort related to climate change and sustainability. Second, *impact investing* that is concerned with investments in companies that focus on making a social and environmental impact of any kind. Third, *engagement,* where managers try to seek long-term influence in the behavior of a company trough practicing active ownership such as dialogue and proxy voting. It is safe to conclude that there are many methods available to the asset management industry to invest in a socially responsible manner. Despite the fact that this is convenient for the asset management industry, it proves to be problematic for academic purposes. Therefore we will dig further into this issue next.

2.5 Inconsistency and problems

Providing transparency and accuracy regarding screening methods to retail investors is paramount and can be considered the main problem that would undermine the growth of the SRI industry. A speaking example of this problematic issue is illustrated by the inclusion of Royal Dutch Shell in the FTSE4GOOD in 2001.[9] Using the definition provided by Dunfee (2003) Royal Dutch Shell may be justified as a social responsible investment as the company is continuously involved in community, environment and climate change projects.[10] Some individual investors might find this very problematic as Royal Dutch Shell's operations involve polluting activities. In addition to the Royal Dutch Shell example, Dunfee (2003) provides another example concerning the healthcare company Merck. On the one hand an investor might shun this company as it uses animal testing, however on the other hand one might include this company as its activities are socially useful and the company is involved in humanitarian programs. The key conclusions in his paper is that controversies regarding the definition of social responsibility remain as individuals differ in moral values (diversity and subjectivity), and therefore it is neither possible to provide nor desirable to construct a uniform definition of social responsibility. This is endorsed by Marrewijk (2003). From the previous argument we can conclude that screens used by SRI funds can differ quite substantially, not because of the fact that the industry is unwilling to screen in a uniform way, but because of market demand (i.e. to meet heterogeneous investors' values). Even if there was uniformity amongst screening procedures, different screens would influence diversification and financial performance in different manners. Additionally, the intensity of the screening affects these two variables as well.

Let us first consider the intensity of the screening process. Intensity is referred to in the literature as the number of individual screens used in the investment process. Oftentimes it is also considered a proxy for the confinement of the investment horizon. Barnett and Salomon (2006) sparked the debate on screening intensity. Their empirical work finds a curvilinear relationship between the number of screens used and the financial performance of investment funds. If a SRI mutual fund uses many screens in the process, the fund effectively filters underperforming stocks from the portfolio and increases risk-adjusted returns. On the other hand, if only few screens are used, the fund is still able to benefit from proper diversification. They claim that only those who are 'stuck in the middle' cannot properly diversify and do not reap the reward of screening and subsequently earn below par returns. Renneboog et al. (2007) find results in line with Barnett and Salomon (2006), but they only study the linear relationship rather than a non-linear one. They conclude that each additional screen used in the process yields an additional excess

[9]Shell is currently still a constituent of the FTSE4Good index. All constituents and index information can be retrieved from the following link: http://www.ftse.com/Indices/FTSE4Good_Index_Series/Downloads/FTSE4Good_Factsheet.pdf

[10]Shell's sustainability efforts can be found in the 2012 sustainability report that can be downloaded from the following link, http://reports.shell.com/sustainability-report/2012/servicepages/downloads/files/entire_shell_sr12.pdf

return of 0.026 percent monthly that corresponds to 0.31 percent per annum, thus adding value to the wealth of a retail investor. Subsequently, these scholars run a conditional model and find that the coefficient loses statistical significance, suggesting that screening neither adds nor destroys value.

Laurell (2011) follows a similar approach in line with Barnett and Salomon (2006). While using an updated sample, she concludes no significant linear, nor non-linear relationship between screening intensity and financial performance. From the conclusions of the previously discussed studies it is safe to say that results seem ambiguous. Therefore this paper will advance the debate by studying the individual contribution of each screen to the financial performance of mutual funds. Rather than using a screening intensity scores, we will include each individual screen in the model.

So far there is very limited academic work that considers this screening process. Diltz (1995) is amongst the first and decided to construct categories himself, due to the lack of uniformity as discussed. He studied a very short time frame of only two years using a one factor CAPM model. The key finding of this study is that screens related to a good environmental record (comparable to the first three screens that will be used in this study) and the omission of companies related to military and nuclear operations (comparable to the weapons/military screen) positively affect abnormal returns. Another study by Renneboog et al. (2007) conclude results contrary to the previous discussed study. Whilst using a conditional four-factor model they find that environment screens negatively impact abnormal returns. In addition, governance and social screening helps achieving positive abnormal returns. Additionally, Laurell (2011) finds that none of the individual screens used shows significant results, except for corporate governance. She studies different time periods, and finds that during times of economic turmoil the corporate governance screen seems to earn excess risk-adjusted returns.

From previous empirical works we learn that additional research in this area is necessary. During the second part of this paper we will further study the concepts discussed in this chapter.

2.6 Convergence of SRI and non-SRI funds

Although the SRI fund industry is developing quickly, there is still no uniformity of screening practices. Some convergence of the investment processes between SRI and conventional funds is already apparent. This is demonstrated by the fact that large influential institutional investors, such as pension funds, are getting more and more aware and pressured to invest in a socially responsible manner.[11] Laurel (2011) discusses how socially responsible investing is becoming the norm rather than the trend for institution. Social pressures could range from governments that legally require some SRI criteria to be used by

[11]For example, PGGM amongst others, recently banned Wal-Mart from their investments universe due to concerns about employee relationships. Additionally, the California Public Employees' Retirement System (CalPERS) started reporting an ESG frameworks in their fiduciary duties as of 2012, which can be retrieved using the following link: http://www.calpers.ca.gov/index.jsp?bc=/about/press/news/invest-corp/towards-sustainable-investment.xml.

pension funds, to high net worth individuals and corporates who force funds to include social criteria into the investment decision (Laurel (2011)). This social pressure would eventually lead to a convergence of SRI and non-SRI funds. Mottis and Crifo (2010) support the latter argument as they believe that screening will soon become mainstream. These scholars interpret the lack of uniformity in screening methods as a characteristic of a transition that is taking place in the industry (i.e. convergence). If there is indeed a convergence between SRI and conventional funds, the differential between the average performance of SRI and non-SRI funds should be small as we match SRI funds to equivalent non-SRI peers. Moreover, funds on average should show similar levels of exposure to an ethics index.

3. Rationale of SRI investing

Is socially responsible investing driven by self-interest only, or can we identify other drivers that yield utility besides financial outcomes? Bauer and Smeets (2013) find that SRI investors are primarily motivated by non-financial utility. This chapter explains the different types of motivators for SRI investments.

3.1 Behavior of the socially responsible investor and the warm glow of giving

Consider a blood donor who voluntarily donates blood, without any compensation and without any self-interest. We will refer to the aforementioned act as pure altruistic (i.e. the act of helping others solely, without being motivated by any selfish factors (Ferguson et al. (2012)). Flowing from altruism one might experience a sense of positive emotional gains from doing good, or in this example donating blood, which is defined as the *warm glow of giving* (Andreoni (1990)). In the world of economics, this positive emotional gain can be defined as utility. These insights directly extend to the realm of social responsible investments. As articulated by Derwall et al. (2011), the *value-investors* are motivated by social concerns besides financial objectives, contrasted by the *profit-seeking* investor who is motivated by selfish factors only.

Let us now continue with the example of the gratuitous act of blood donations. Consider the situation where the same blood donor as before receives remuneration in the form of cash payments in exchange for donating blood. Besides purely altruistic motivated donors, financially motivated ones will now enter the market of blood donation. These alternatively motivated donors may be problematic, as illustrated by the following example. When remunerated blood donation was introduced post World War II, blood banks in the United States experienced deterioration in quality of the blood donated and many argued that this was related to the compensation, although evidence of this relation was very limited (Domen (1995)). The social turmoil caused by this, eventually led to de discontinuation of paid blood

donations in the early 1970s.[12] This example illustrates that rewarding pro-social behavior can be problematic in twofold. First, alternatively motivated donors entered the market that proved to be problematic. Second, rewarding pro-social behavior also triggers another more problematic phenomenon explained by Titmuss (1970) in his book *The Gift Relationship*. In this book, Titmuss argues that providing payments to donors reduces the *warm glow of giving* of altruistically motivated donors (i.e. the deterioration of utility). These insights led to a noteworthy conclusion of the study by Lacetera and Macis (2009). They conclude that a substantial share of donors stop donating if remunerated even a small amount of cash. They note that this is only true for cash payments and does not hold for other forms of compensation (such as gift certificates, vouchers etc.). These insights are backed by Benabou and Tirole (2006). They argue that providing rewards or punishments to push pro-social behavior can lead to the opposite effects as the utility of altruistically motivated investors diminishes.

The insights gained from the blood donation studies can be extended to the context of social responsible investing. When SRI funds yield better risk-return tradeoffs than its social peers (i.e. no cost associated with pro-social behavior), will the social responsible investors still experience a *warm glow of giving*? In other words, will altruistic investors drop out if they receive a better risk return tradeoff, in other words, will they drop out if they do not have to "sacrifice returns"? These questions can best be answered whilst studying the behavior of SR investors. Reidl and Smeets (2013) try to address some of the aforementioned questions in their working paper. They distinguish between investors with strong social preferences and conventional investors. Their paper concludes that pro-social investors are more likely to hold SRI funds without tax incentives, compared to conventional investors. In other words, they are willing to sacrifice returns (tax benefits) in order to do good (invest in SRI funds rather than conventional funds). Additionally, these same SR investors also accept to receive lower net returns on SRI fund holdings than on conventional equity funds. This is striking as it strengthens the evidence that there are indeed investors who act out of pure altruistic motives only.[13] Bauer and Smeets (2013) endorse this as they find supporting evidence. They conclude that social identification weighs more heavily than risk perception of SRI funds. They find that for this reason, investors allocate more wealth to a bank that is considered socially responsible rather than one not considered socially responsible per se.[14] Others have looked at cash flows in and out of SRI funds. SR investors can be considered more loyal to the fund as they exit positions more slowly compared to conventional funds (Geczy, Stambough and Levin (2005)). These findings are endorsed by Bollen (2007), who concludes that social factors are at force, because SRI

[12]United States Department of Health, Education, and Welfare, National Heart and Lung Institute: Summary Report: NHLI's Blood Resource Studies, June 30, 1972.

[13]Fehr and Schmidt (1999) argue this might be due to aversion of inequality whereas Andreoni (1990) stresses that these investors experience a *warm glow of giving*.

[14]i.e. ASN and Triodos bank might be classified as a socially responsible bank, amongst others. Wealth allocated can be deposits in current accounts, investment accounts, saving accounts etc.

mutual fund investors are less likely to sell of poor performing positions relative to their conventional peers. This last observation suggests that SR investors indeed derive a form of utility from investing in a socially responsible manner and strengthen the argument that altruistic motives are apparent.

On the contrary, from the previous tests we cannot derive whether superior returns (the rewards) might undermine the intrinsic motivation or SR investors, hence why investors might drop out of superior socially responsible investments. However, testing this goes beyond the purpose of this study.

3.2 Other drivers of socially responsible investing

As already discussed, there may be investors holding SRI funds out of altruistic motivation, selfishness or a combination of both. Besides financial motivations (selfish) there are others. It is expected that activist groups and the media are able to exert more and more pressure on organizations to comply with social norms (Orlitzky, Schmidt and Rynes (2003)). Getting to the true colors of socially responsible investors has shown to be a difficult task, although some have tried.

Reidl and Smeets (2013) claim that a part of the investors hold this fund type because of reputational reasons, that is, one might suffer from reputational damage if one does not comply with social norms. Besides reputational reasons, social identification is important as argued by Bauer and Smeets (2013). They demonstrate that, similar to brand and product identification, investors are motivated to hold SRI funds because of social identification, which can also be considered selfish. The social identification argument is backed by a study of Hong and Kostovetsky (2012). These scholars find that fund managers' political preferences are linked to the amount of wealth they direct towards socially responsible investments, suggesting social identification. Many other heterogeneous motivators underly social responsible investments. Unanswered questions continue to persist, and this area remains fruitful for future research.

4. Data

The second part of this paper constitutes an empirical analysis focusing on the performance of the SRI investments funds. The data on socially responsible investment funds can be considered relatively scarce as it is a young and growing tranche within the asset management industry. Given the fact that the United States has one of the most developed capital markets, and therefore the most developed asset management industry, this paper will study US domiciled mutual funds only. Moreover, SRI funds are much younger than traditional mutual funds and therefore only a limited time series will be available. Our data set ranges from January 1st, 1985 until December 31st, 2012. Funds that are classified as socially responsible can be identified through various mutual funds screeners, but most importantly through the website of the United States Social Investment forum (henceforth USSIF). Next to SRI funds, a sample of conventional mutual

funds will be constructed as benchmark. We need to ensure that this random sample is highly comparable to the SRI sample.

4.1 Fund data

As we do not have access to the Bloomberg Environmental, Social and Governance (ESG) data service, we want to retrieve SRI fund data from the United States Forum of Sustainable and Responsible Investment, which is considered our primary data source. Other scholars use similar data when studying SRI fund performance (Geczy et al. (2005), Areal, Crotez and Silva (2010) and Wimmer (2012)).[15] The USSIF reports a list of all mutual funds that use one or more screen as part of their investment strategy. From this list we exclude balanced funds and bond funds as we focuses on equity mutual funds solely.[16] Additionally, we eliminate duplicate entries, because of the fact that funds offer different share classes. These are eliminated because they simply correspond to different amortization schemes and cost structures while the underlying pool of funds is invested according to the same mandate (i.e. using the same screens).[17] Hence, we omit different share classes and focus on Class-A shares of each fund to improve comparability and avoid double counting. The same procedure holds for the difference in classification of institutional shares and retail shares. Retail shares are included only as we are concerned with the inclusion of this fund type in a retail portfolio. Moreover, retail shares provide the longest time series. From the funds identified, only one is considered closed-end, namely the Principled Equity Market Fund.[18] Also, this fund is omitted from the dataset. The above filters reduced our sample and resulted in an unbalanced sample that consists out of 45 SRI. The evolution of the sample population is graphically displayed in Figure I below. Noteworthy, is the fact that entry of SRI funds spurred in 2005, when eight new SRI funds originated to cater the segment.

[15]Bauer, Derwall and Otten (2007) use the Canadian equivalent, namely the Canadian Social Investment Organzation (SIO).

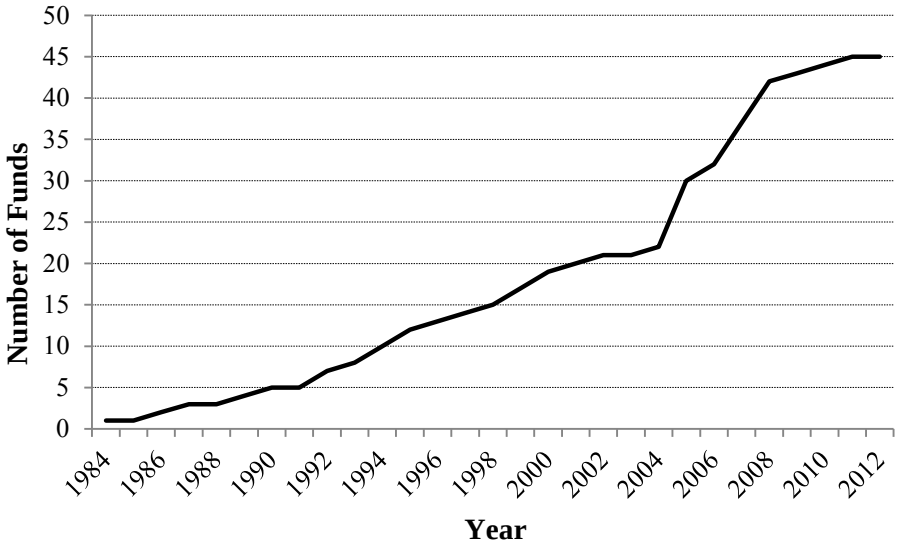
[16]Note that some mutual funds hold very small bond or cash positions for termination reasons, however these positions are on average negligible

[17]Mutual funds classes differentiate in fees charged per share of the fund. Classes are usually identified as Class-A, Class-B etc. Each class pays can pay a different front-end load, back-end load and 12b-1 fee. Primarily these differences service investors with heterogeneous investment horizons. For example, we include the Calvert Capital Accumulation A shares and we omit the Calvert Capital Accumulation B, C, I and Y shares. The underlying pool of AUM is identical, as is their investment mandate. Another example is the Domini Social Equity fund – Institutional Shares and Domini Social Equity fund – Investor Shares. The elimination procedure is done through the identification of the variable crsp_cl_group as provided by CRSP. This variable signals if classes correspond to similar underlying investment pools.

[18]A closed-end fund trade in the open market and the actual price can fluctuate according to demand and supply as it is fixed. Therefore these funds can trade at a discount or premium of Net Asset Value (NAV), hence this fund is excluded from the dataset.

Figure I
SRI Sample population

This figure shows the entry of the SRI funds in the sample. The dataset ranges from January 1st, 1985 until December 31st 2012. The total amount of SRI funds in the sample at the end of 2012 is 45. The SRI funds are identified through The Forum of Sustainable and Responsible Investment website and is based on data from Bloomberg's Environmental, Social and Governance (ESG) Data service.



We now crosslink the identified SRI funds from the USSIF website to the Center for Research in Security Prices (CRSP) database to retrieve monthly net asset values and net returns since inception.[19] We use monthly data, because monthly data is readily available from the CRSP database and available since funds' inception. The monthly total returns are calculated as follows:

$$r_{f,t} = \frac{NAV_{f,t} + D_t}{NAV_{f,t-1}} - 1$$

Where $NAV_{f,t}$ corresponds to the net asset value of fund f at time t and D_t the dividends paid out by the fund in period t. From the same database we also retrieve total expense ratios for comparative analysis.[20] Other fund characteristics, such as total assets under management, the objective identifier and age are also retrieved from this database.

Unfortunately, this sample suffers from *survivorship bias*, because we cannot determine dead and/or merged funds from these databases. These effects might bias our results upwards. This can be nuanced as, Renneboog et al. (2007) found that attrition rates (i.e. funds leaving the sample) in the SRI fund industry are low; therefore the bias might be modest. Nevertheless, it is problematic and should be taken into account whilst interpreting the results.

[19]As screening data is observed as of today, we inherently assume that screening practices did not change over time. We will elaborate further on this issue later in this paper.
[20]Total expense ratios include 12b-1 fees (i.e. marketing and distribution costs, which lie between 25bps–100bps) and any management fees. Management fees are used for covering operating expenses and compensation of fund management.

4.1.1 Factor Benchmarks

Since we use multifactor models in the spirit of Fama and French (1993) and Carhart (1997) we need to download differential portfolios. The market risk premium is proxied by the differential between the value-weighted market portfolio, which includes the NYSE, AMEX and NASDAQ, minus the one-month U.S. T-bill. The return of the small-minus-big (SMB) factor is proxied by the return spread between a small cap portfolio and a large cap portfolio. Equivalently, the return of the high-minus-low (HML) factor is proxied by the gap between a high B/M ratio (value) and a low B/M ratio (growth) portfolio. The momentum factor (MOM) is the differential between a portfolio holding trailing 12-month winners and a portfolio holding trailing 12-month losers. The return spreads are readily available through the Kenneth R. French Data Library.[21]

4.2 Matching[22]

In order to analyze the performance of the SRI mutual funds, we need to compare them to their conventional peers. These funds must be comparable to generalize results and therefore we use characteristic matching. In order to do so, we match each SRI fund with two randomly selected conventional funds in a lengthy process. We use multiple criteria. The first criterion is absolute. We demand that the fund objectives should match.[23] Moreover we use two relative criteria: first, the funds' origin date should not deviate more than one year from the inception date of the matching SRI fund (that is, matches may not deviate more than +/- one year in age). Second, we match based on size, or total assets under management, where size may not deviate more than one standard deviation from the matching SRI fund. All criteria are considered of equal importance. Since we wanted to match each SRI fund to two conventional funds we used criteria as strict as possible (i.e. one year and one standard deviation respectively). The criteria combined should ensure the quality of the match. The final sample of conventional funds consists of 90 funds.

4.3 Screens

As addressed earlier, the use of social screens can result in either under or over performance. On the one hand, it is argued that screening will lead to confinement of the investment universe, therefore limiting diversification benefits, manifesting in below average risk-adjusted returns. On the other hand, it is stressed that these screening methods will single out best-in-class investments, and therefore would generate above average risk-adjusted returns.

[21]The data can be retrieved from the following link: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.
[22]For the matching procedure we use a Stata module named VMATCH created by G.D. van Melle, University of Lausanne.
[23]The fund objectives are matched using CRSP style codes. These style codes combine the Wiesenberger Objective codes, Strategic Insight codes and Lipper objective codes. Even though we match the objective codes, it could be that SRI funds for example overweight certain industries (i.e. tech-stocks as they are by definition less harmful given their production process than other traditional industries such as agriculture or food) and therefore still differ in industry holdings.

For the second part of the empirical research, we need to obtain the individual screens used by each fund. These will be retrieved from the website of the USSIF. For each SRI fund, USSIF and Bloomberg define screens used in the investment process. The screening data correspond to the screens used as at March 1st, 2013. Because this data is paired with historical returns, the study might suffer from *look-ahead bias*. Unfortunately, we had to accept this bias as historical data is not available. We will discuss the implications of this bias in more detail later. Therefore, the implicit assumption of this empirical study is that screening mandates are difficult to change over time.[24] We will continue to discuss the types of screens as defined by USSIF whilst simultaneously hypothesizing the causality between the discussed screen and the financial performance.

Before we turn to the individual screening effects, we hypothesize that all of the screens increase firm reputation. For example, engaging in community development improves your reputation with stakeholder and potential customers. Another example would be maintaining good employee relationships. By doing so, a firms improves its reputation amongst employees and future employees. Therefore we hypothesize that for all screens, except *Shareholder Engagement*, it is possible to benefit from a reputation effect (Fombrun and Shanely (1990)). A better reputation could facilitate access to capital markets and labor markets (Greening and Turban (2000) and Spicer (1978)). Naturally, this effect is opposite for *Tobacco, Defense/Weapon* and *Gambling* screens. The ultimate relation between the reputation effect and financial performance could be moderated by industry and size effects and will be discussed in a later stage.

4.3.1 Environmental

The environmental category is subdivided into three separate screens. The first screen *Climate/Clean Tech* looks at risks and opportunities associated with climate change, emissions and sustainability of production. Other factors that play a role are efficiency of natural resources, infrastructure and storage. The second screen, *Pollution/Toxics* considers the toxicity of the business and how pollution and waste is being managed. That includes recycling, waste management and water purification. All other environmental issues not specified by the previous two screens are captured in the screen *Environment/Other*. Firms that pass these screens benefit from an important external effect, namely improving reputation with customers, investors, bankers and suppliers as explained in the previous paragraph (Fombrun and Shanely (1990)). Moreover, King and Lenox (2001) find a positive relationship between environmental and financial performance, however they cannot prove the direction of this relationship as discussed earlier in this paper. Porter and van der Linde (1995) claim that pollution

[24]We are not sure whether or not the screening practices we observe today were used for the entire observed period. Therefore we have to assume screening practices remain constant over time. Gezy, Stambaugh and Levin (2005) find that only five of the funds in the Social Investment Forum have altered or added screens, however these scholars did not provide an overview of the specific funds and the changes. These unobserved alterations might bias the results.

management is able to reduce costs and increase efficiency, while Hart (1997) claims these strategies are difficult to imitate by competitors in line with *stakeholder theory.* On the other hand, social investors might be actively seeking these type of investments as argued by Derwall et al. (2011). Therefore increasing demand and lowering expected returns. These effects seem ambiguous and therefore we hypothesize that these cancel out.

4.3.2 Social Screens

The social category is subdivided into four different screens. *Community Development,* deals with providing affordable housing, fair consumer lending, support to small and medium businesses and any other support to low- and mid-income community segments. Next is *Diversity & Equal Employment Opportunities*. This screen considers diversity and equal employment opportunity practices and policies related to employees and owners. *Human Rights,* considers any risk associated with human rights and respect of those. This is especially relevant for companies that operate in developing countries. *Labor relations,* reflects the employee relation programs in a firm, health and safety, employment and retirement benefits, union relations and workforce reduction. The last screen is *Sudan*. This screen is used for excluding forms that have substantial operations in Sudan and is included by USSIF because of human rights violations. This is problematic as they already defined the *Human Rights* screen. We will discuss this in more detail later.

Similar to the environmental screens, passing all these screens will benefit the reputation of a firm, thereby reaping all benefits associated. For example, firms with better reputations are able to attract better employees more easily (Greening and Turban (2000)). Besides reputation a firm could benefit from maintaining a good relationship with a diverse workforce. Hoepner, Pei-Shan Y & Furguson (2010) claim this could increase employees' long term performance. Waddock and Graves (1997) add that firms gain goodwill with their employees' that in turn can materialize in better financial outcomes. Maintaining a good relationship can also be a competitive advantage. Consider a fund manager that does not screen for labor relations. Intuitively, the probability of employees going on strike is higher for firms that maintain poor relationships with their employees. Becker and Olson (1986) find that the latter effect can be significant as equity capital markets punish companies whose employees go on strike by as much as 4.1 percent.[25] Therefore, this should positively impact the differential between SRI and conventional funds' returns.

[25]Times of economic downturn could modify this effect as there is a higher probability of labor strikes during these times. This would amplify the differential during times of economic turmoil. We will discuss this effect later on in the paper.

Diversity can take many forms and may have many different effects. For example, Dobbin and Jung (2010) find weak evidence that there is a relation between gender diversity and stock performance.[26] More diverse boards are better able to execute strategies in international marketplaces (Robinson and Dechant (1997) and are able to generate more diverse ideas and strategies (i.e. avoiding groupthink) (Zahra and Pearce (1989)) which both should contribute to the financial performance of a firm. Noteworthy, is the conclusion of a recent study by Hafsi and Turgut (2013) which argue that a significant relationship between Board Diversity and social performance is evident. They explain that woman provide guidance and sensitivity needed for initiating socially responsible efforts. On the other hand, diversity could ubstract the decision making process (Dobbin and Jung (2010)). Moreover one could expect more diverse boards also might be larger. Yermack (1996) finds that larger boards tend to be less effective. This does not hold true per se.

First, we expect the causality of the *Labor relations* screen to be strongest and hypothesize that these will show positive coefficients. Second, the relationship between *Diversity & Equal Employment* and financial performance remains ambiguous and therefore we hypothesize that this is a zero sum game.

4.3.3 Governance Screens

Governance is subdivided into two subcategories. The first, ***Board Issues*****,** looks at the independence of the directors, diversity, pay and responsiveness to the shareholders.[27] Besides this screen, there is another screen, *Executive Pay.* This screen considers the pay practices of executives, whether they are reasonable and in alignment with share- and stake-holders' long-term interests. Note that these two are closely related. First, we hypothesize that the *Board Issues* screen positively affects returns, as better governance leads to better stock return performance (Core, Holthausen and Larcker (1999)). Second, even though reasonable board pay could cultivate goodwill with stakeholders, a meta-analysis by Dalton et al. (1998) reveals that there is little consistency in the relation between board pay and stock performance, thus we expect *Executive Pay* to have no significant effect on risk-adjusted returns.

4.3.4 Product Screens

Rather than using a single dummy (i.e. sin screening) for the Defense/Weapon, Animal Welfare, Gambling and Tobacco industry (Renneboog et al. (2007)), we try to further decompose the individual industry effects. The product screens are concerned with the omission of product categories: *Alcohol, Gambling, Defense/Weapons and Tobacco.* The other screen in this category is concerned with *Animal Welfare.* That is, the consideration of company policies towards animals. This could be shunning firms

[26]However over the past eight years there has been a status quo in the fraction of woman who take place in the board of directors of Fortune 500 companies. http://www.nbcnews.com/business/top-boardrooms-no-go-areas-women-minorities-6C10936005

[27]Again the USSIF lacks consistency in its definition. This screen also includes diversity of the board members, where this is already included in the *Diversity* screen.

that test products using animals, or how companies treat of animals used for food production. Note that this does not include the pollution caused by for example the meat industry as a whole. We will further elaborate on this in the shortcoming chapter. Unfortunately we have to omit the *Defense/Weapon* screen in our analysis. Also this will be discussed in more detail later.

Excluding these industries from the investment horizon could improve returns due to the fact that one avoids litigation costs associated with these firms' operations (Jo and Statman (1993)). Also, these industries possess poor reputations as their operations might not be considered socially useful or even harmful. Therefore, in spirit of Shanely (1990) do not reap the benefits associated with a good reputation and incurring relative higher costs. This could hurt future cash flows and thereby depressing stock returns. On the contrary, Hong and Kascperzyk (2009) find evidence that there exists a societal norm against the capitalization of firms operating in the alcohol, weapon and tobacco industry. Therefore, large institutional investors such as pension funds neglect these assets and thereby increasing their expected returns in line with Derwall et al. (2011). As the net effect is ambiguous, we hypothesize that these net out and therefore we should observe a coefficient of zero.

4.3.5 Others/Qualitative and Shareholder Engagement

Any other social or governance factor not considered are captured in the screen: *Others/Qualitative.* The last screen that is identified is *Shareholder Engagement.* In general *Shareholder Engagement* includes all activities to influence corporate behavior by engaging in dialogue with management, filing shareholders resolutions (i.e. supporting proposals on SR issues) and proxy voting related to any ESG issue. O'Rourke (2003) argues in her paper that activism is costly and effectiveness is ambiguous. Even if engagement proves to be effective, operational changes are only marginal, not radical. Lee and Lounsbury (2011) contrast this as they find that there is a strong positive effect between shareholders resolutions and environmental performance. Moreover, Joly (2010) stresses that only sizable institutional investors such as PGGM and CalPers are able to impact firm policy in a significant manner. Additionally, he concludes that ESG matters are rarely discussed during analyst meetings. As these effects are ambiguous we hypothesize that engagement efforts do not impact risk-adjusted returns.

4.4 Descriptive Analysis

As noted earlier in this chapter, our total sample consists of 45 socially responsible investment funds and 90 similar conventional peers. The fund characteristics for the SRI funds and conventional funds can be found in Table III and Table IV of the Appendix, respectively. The oldest fund in our sample is the Parnassus Fund (NYSE:PARNX) that originated on December 1st, 1984.[28] Therefore this is the first

[28]Since the fund originated December 1st, 1984 the first month of return available was January 1st, 1985. Therefore our dataset starts from January 1st, 1985 until December 31st, 2012.

mutual fund that enters our sample. A fund from the same family, the Parnassus Equity Income Fund (NYSE:PRBLX), has the largest amount of assets under management (henceforth AUM), namely $4021.6 Million. Moreover, it is evident that the two investment companies, Calvert and Parnassus dominate the niche in terms of absolute number of SRI funds. On average, SRI funds use 12.38 screens (max 17), with a standard deviation of 3.73 screens.

Table I

SRI and Conventional funds comparison

This table shows the portfolio characteristics for the sample of SRI funds and the sample of Conventional funds. The dataset ranges from January 1st, 1985 until December 31st , 2012. Sample means and p-values are provided. The SRI statistics are derived from a 45 fund sample, whereas the conventional fund sample consists of 90 funds. Additionally, some conventional funds miss expense and turnover ratio data and therefore are calculated using 74 and 75 conventional funds respectively. The expense ratio is defined as the one reported in the latest fiscal year. Turnover ratio is defined as the aggregate sales and purchases of a fund over the 12 month trailing net asset value. Screening intensity is the number of screens used by SRI funds where the minimum is 1 and maximum is 17. Monthly return, standard deviation, expense ratio and turnover ratios are percentages.

	Sample Mean		
	SRI	CONV	p-value
Panel A. Returns			
Monthly Return	0.52	0.57	0. 56
Monthly Standard deviation	4.61	4.66	0.21
Kurtoisis	5.93	8.188	-
Skewness	-0.62	-0.60	-
Panel B. Portfolio Characterisitcs			
Total Net Assets Under Management	291.59	354.58	0.58
Fund Age	11.54	11.64	0.94
Expense Ratio	1.29	1.32	0.69
Turnover Ratio	48.80	85.62	0.016**
Screening intensity	12.38	-	-

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

Table I above, summarizes both samples in terms of characteristics and additionally reports statistical differences between the two samples. Instantly, the attention is drawn to the fact that the mean returns and standard deviations do not seem to differ significantly. This is a first signal that SRI funds earn at least similar returns to their conventional peers, however these returns are not in excess of the risk free rate and are not risk and style adjusted. The returns of the conventional sample seem to be more peaked than the SRI sample. Both are more peaked than the standard normal and show negative skew. Since we used fund age and total net assets under management as criteria to match funds, it is intuitive that there is no statistical difference between those two variables. This also signals the peer group is properly constructed. The average turnover ratio differs significantly and therefore it is safe to say that conventional funds buy and sell holdings much more often than do SRI funds on a yearly basis. Consequently, this could imply that we should observe higher expenses for conventional funds (i.e.

turnover increases transaction costs), but from the same table we can read that expense ratios for the two samples do not differ significantly. The fact that even though turnover of the conventional group is higher, whilst expenses are similar, suggest that SRI funds may be less cost efficient or incur additional costs for screening procedures. Although, SRI funds seem to be more efficient in terms of turnover.

5. Research Methodology

In order to test how well empirical evidence fares with the theory, this paper conduct various empirical tests in order to review the performance of SRI funds. The empirical study can be subdivided into two tests. During the first time series approach, we test the relative performance of both individual SRI funds and conventional funds to a broad market benchmark. Subsequently, we adjust for style tilts that might influence the relative performance. Secondly, we analyze and compare the equally weighted time calendar portfolios. Thirdly, we study SRI funds in isolation and review the intensity and effectiveness of the screening procedures in the cross-section.

So, first we start by examining the relative fund performance. We start the empirical analysis using the widely employed Jensen's model based on the CAPM. In fact this can be considered a two-step procedure. First, for each type of fund, calendar time portfolios (henceforth CalTime) are constructed. For each period in time we equally weight the prevailing observations. This allows us to directly compare the two types of funds later in the empirical study. We construct these CalTime portfolios in the following manner.

$$y_{i,t} = \frac{1}{N_{j,t}} \sum_{h=1}^{N_t} z_{ht}^{j} y_{ht}$$

We average the monthly excess returns $y_{i,t}$ of all $N_{j,t}$, where h is either SRI or conventional and z_{ht}^{j} a dummy that takes on the value of one if h belongs to fund type j and zero otherwise. We now turn to the second step, where we measure the performance of individual funds and CalTime portfolios using a simple OLS regression analysis. The following regression will be estimated:

$$r_{i,t} - r_{f,t} = \alpha_{J,i} + \beta_{m,i}\left(r_t^m - r_t^f\right) + \varepsilon_{i,t} \quad (1)$$

Where $\alpha_{J,i}$ will be the intercept of the regression and will be referred to as Jensen's alpha (1968). This intercept corresponds to the return above what is predicted by the Capital Asset Pricing Model. Alternatively, it could signal the mispricing of the corresponding model, or simply compensation for an unobserved risk factor. In mutual fund literature the alpha is referred to as stock-picking talent by management. $r_t^m - r_t^f$, is the market risk premium which is proxied by the excess return on an all-share

index. r_t^f, is the return on a one month U.S. T-bill. After these initial estimations we move to a more sophisticated multifactor style analysis to evaluate the risk-adjusted performance of the SRI and conventional funds. We estimate both the Fama-French Three-factor model (1993) and the Carhart Four-factor model (1997), because all funds have follow different styles and should be extracted from the alpha estimate.[29] This correction is important as stressed by Guerard (1997) and Bauer et al. (2005) since ethical funds are tilted towards large cap growth stocks. So, the second part of the study will run the following time-series:

$$r_{i,t} - r_{f,t} = \alpha_{3F,i} + \beta_{m,i}\left(r_t^m - r_t^f\right) + \beta_{smb,i} r_t^{smb} + \beta_{hml,i} r_t^{hml} + \varepsilon_{i,t} \quad (2)$$

$$r_{i,t} - r_{f,t} = \alpha_{4F,i} + \beta_{m,i}\left(r_t^m - r_t^f\right) + \beta_{smb,i} r_t^{smb} + \beta_{hml,i} r_t^{hml} + \beta_{mom,i} r_t^{mom} + \varepsilon_{i,t} \quad (3)$$

Where $\alpha_{3F,i}$ and $\alpha_{4F,i}$ will be the intercept of the regression and will be referred to as the thee-factor and four-factor alpha, respectively. Again, these intercepts resemble the return above and beyond what is predicted by the corresponding model. $r_t^m - r_t^f$, is the market risk premium which is proxied by the excess return on an all-share index. r_t^f, is the return on a one month U.S. T-bill. r_t^{smb}, is the differential between a portfolio that is long small firm and short big firms. Similarly, r_t^{hml}represents the differential between a portfolio that is long high book-to-market companies and short low book-to-market companies. The last factor r_t^{mom} is the difference between the returns of portfolios with high previous period returns and low previous period returns. The corresponding betas can be interpreted as exposures to specific style portfolios and signals the style differences amongst funds. Again, we run these OLS regressions first on individual mutual funds and subsequently on the two CalTime portfolios.

We then continue with a robustness check, where we include an ethical index to check if there is any compensation involved that might compensate the investor for curbing him or herself to the area of ethical investing (Renneboog et al. (2007)). In order to do so we include an ethics index to proxy for this risk. We use the Domini 400 Social Index (now FTSE KLD 400 Index) as a proxy as this is the oldest ethical index available.[30] By adding this proxy, the regression will look as follows:

$$r_{i,t} - r_{f,t} = \alpha_{4F,i} + \beta_{m,i}\left(r_t^m - r_t^f\right) + \beta_{smb,i} r_t^{smb} + \beta_{hml,i} r_t^{hml} + \beta_{mom,i} r_t^{mom} + \beta_{ethic,i} r_t^{ethic} \varepsilon_{i,t} \quad (4)$$

[29]Besides the fact that these funds invest in social responsible investments, they also have their own style. That is they invest in a combination of small, medium and/or large cap firms that have high market-to-book, medium market-to-book and low market-to-book ratios. Since our matching procedure matches based on objective codes, we expect these differences to be small.

[30]Returns are only available from CRSP as of June 1991. Unfortunately, we could not check for robustness using another index, as the second oldest was created in 1999 only, namely the Dow Jones Sustainability Index.

The r_t^{ethic} will be the excess return on a social benchmark (Domini 400 Social Index) over the risk free rate at time is t. We expect the SRI sample to show higher exposure to the ethics factor compared to the conventional sample, if the ethics factor captures risk.

We then turn to the evolution of returns over time. Besides, that it is interesting to study how both samples behaved during times of economic turmoil, it is important to check if the industry went through a learning phase, as it can still be considered a young industry (Bauer et al. (2005)).[31] Similar to Renneboog et al. (2007), we divide our sample into sub-periods of different characteristics. The SRI fund development phase 1984-1990, the pre-bubble period of 1991-1995, the internet bubble-period of 1996-1999, the post-bubble period of 2000-2003, the pre-subprime crisis period of 2003-2007, and the subprime crisis 2007-2012.

After we have studied the performance over time we will continue to investigate if managers of the mutual funds on average show any ability to time the market. Hendriksson and Merton (1981) explain how a manager that possesses superior information make adjustments to the portfolio in anticipation of future market movements.[32] They create a framework that helps us filter market timing ability from stock picking talent, or alpha. In other words, the Hendriksson and Merton (1981) model allows us to analyze how managers of SRI and conventional funds behave in bullish and bearish markets. The framework can be expressed as follows:

$$r_{i,t} - r_{f,t} = \alpha_i + \sum_{j=1}^{K} \beta_j \left(r_{j,t}\right) + \gamma_i D\left(r_t^m - r_t^f\right) + \varepsilon_{i,t} \quad (5)$$

Where D is a dummy variable that takes on the value of 1 if $r_t^m > r_t^f$ (i.e. the market shows positive excess returns). K, is equal to the four factors of the Carhart model (1997) (i.e. market risk premium, SMB, HML, MOM). If a manager tries to time the market we should observe a positive value for gamma, that is, the additional market risk a manager takes on in anticipation of a bull market. We will check if these results corroborate with results using a much older model by Treynor and Mazuy (1966). By simply adding a quadratic term to the market models, they claim that timing ability can be studied. The TM model looks as follows:

$$r_{i,t} - r_{f,t} = \alpha_i + \sum_{j=1}^{K} \beta_j \left(r_{m,t}\right) + \gamma_i \left(r_{m,t}\right)^2 + \varepsilon_{i,t} \quad (6)$$

Where the latter term is different from equation (5). If manager possess timing ability he or she will increase exposure when market returns are high, and will decrease exposure when returns are low.

[31] Bauer et al. (2005) find that older SRI funds perform better than younger ones, thus suggesting a learning effect.
[32] Even though timing tests are substantially more powerful whilst analyzing daily data (Bollen and Busse (2001)) we apply the model to monthly returns to get additional insights in differences between SRI and conventional funds.

Therefore we expect the portfolio returns to be non-linear. Similar to the HM model a positive value for gamma signals that management possesses market timing ability.

For the last part of our empirical analysis, we will study the SRI funds in isolation.[33] To advance SRI fund literature we will study the relative importance of screens, and try to answer the following question: which screen is able to explain risk-adjusted performance of SRI mutual funds. We elaborated earlier in this paper that motivations of socially responsible investors are not homogeneous and therefore demand for different types of screening procedures. We will start by looking at the amount of screens used by SRI mutual funds.[34] Therefore we first regress the yearly risk-adjusted performance (i.e. four-factor alpha (3)) on screening intensity and correct for fund characteristics.[35] We follow in the same vein as Barnett and Salomon (2006) and control for the following fund characteristics. Firstly, we include the age of the fund as control variable. When a fund grows older, and management grows along with it, more knowledge, experience and information is gathered and might therefore be able to make better investment decisions compared to younger firms (Argote (1999)). We include the age denoted in years as at year end. Secondly, size is added. If a fund grows older (assuming it does well) assets under management will show growth as well. The size of a mutual fund can have two effects. On the one hand, economies of scale can lead to lower transaction and/or overhead costs, increase the ability to process larger amounts of information and therefore increase investment returns (Jones and Wermers (2011)). On the other hand, as total assets under management grow, the relative number of investment opportunities diminishes. Additionally, when a fund grows too large there is a possibility that transactions might move the market (i.e. execute a sizable order thereby affecting equity prices (Barnett and Salomon (2006)). Thus, larger funds may not be able to execute orders in the desired quantities. Moreover, larger funds may become less efficient (Chen, Huang and Kubik (2004)). To correct for the size effect we include the natural logarithm of total net assets under management reported at the end of each year. Thirdly, we include the expense ratios of the SRI funds to our model. We lag the aforementioned variables because these could have predictive power concerning next period's return. Lastly, we include a dummy that equals one if the fund also invests internationally and zero if it invests domestically only. This captures any macro-economic effects from investing internationally (Barnett and Salomon (2006)). We will start the screening analysis by running the following model:

[33]To get reliable estimates we drop those funds with extreme alphas as can be seen from Table II in the appendix. We therefore drop the Calvert Global Alternative Energy Fund Class.

[34]In line with Barnett and Salomon (2006), Renneboog, et al. (2007) and Lee et al. (2010), screening intensity is simply measured as the absolute number of screens used.

[35]Lee et al. (2010) use the Modigliani and Modigliani , M-squared measure, because they claim SRI funds are not able to achieve similar diversification benefits as conventional funds, hence idiosyncratic risk should be taken into account. They are contrasted by Renneboog et al. (2007) who use four-factor and conditional four-factor alphas for similar empirical tests. Bello (2005) finds that conventional and SRI funds have similar diversification characteristics, this study uses alpha risk-adjusted returns.

$$\alpha_{4F,i,m} = \gamma_0 + \gamma_1 Screening\ intensity_i + \sum_{j=1}^{K} \beta_j\ Fund\ characteristics_{i,t-1} + Z_y + \varepsilon_{i,t} \quad (7)$$

Where, $\alpha_{4F,i,m}$ is the monthly four-factor adjusted alpha, where we estimate alpha over a 12-month period.[36] $Screening\ intensity_i$ corresponds to the total number of screens employed by fund i and $Fund\ characteristics_{i,t-1}$ a set of lagged fund characteristics as discussed above. Moreover, because $\varepsilon_{i,t}$ might not be independent across time due to macro-economic factors such as government policy and systematic shocks we add a time dummy Z_y that captures the macro-economic factors and therefore should filter for unobserved factors that affects all explanatory variables at the same time (Barnet and Salomon (2006)). The previously defined model concerning screening intensity will be crosschecked with a similar model for robustness purposes. Rather than using the monthly alphas estimated over a 12-month period we use another definition of Risk-Adjusted Performance (henceforth RAP). Barnett and Salomon (2006) define the RAP as returns above and beyond what is expected by the funds' four-factor beta. The monthly RAP is calculated as follows:

$$RAP_{f,t} = \left(r_{f,t} - r_t^f\right) - \beta_i * \left(r_{m,t} - r_t^f\right)$$

Where $r_{f,t} - r_t^f$ is the monthly excess return of the fund over the one month rate of return on a U.S T-bill. β_i, corresponds to the fund specific beta calculated over the full sample period and $r_{m,t} - r_t^f$ the market risk premium which is proxied by the excess return on an all-share index. In other words, the first term represents the actual return achieved by the fund in excess of the risk free rate and the second term represents what the market model expects using a long term estimate of beta. An advantage of using this procedure is that we obtain monthly data points rather than annual data points, which will increase the accuracy of the estimates. As this model closely resembles our model, we should get to similar results.[37]

To conclude the empirical research, we want to study the effect of individual screens on the financial performance of SRI funds. Before we do so, we study screening categories similar to Renneboog et al. (2007). The categories can be found in Table I of the appendix namely, Environment, Social, Governance, Products, Other/Qualitative and Shareholder engagement. Whenever at least one of the main SRI screens is used, the Category dummy equals one. We thus replace Screening intensity in formula (7) by each of these six category dummy variables. The model looks as follows:

$$\alpha_{4F,i,y} = \sum_{i=1}^{K} D_i\ Screening\ Category_i + \sum_{j=1}^{K} \beta_j\ Fund\ characteristics_{i,t-1} + Z_y + \varepsilon_{i,t} \quad (8)$$

[36]The alpha is estimated over a 12-month period, where each fund enters the sample as of January first, so a full year is available in order to get reliable alpha estimates.

[37]Results will not be identical because during the first procedure we estimate alpha on a yearly basis, that is, using 12 month intervals for estimating betas and alphas. During the calculations of RAP we calculate beta over the full sample period. Therefore results should be similar but not identical.

We then decompose the screening categories further and include individual dummy variables for each of the screens. Before doing so we first want to study the correlations amongst the individual screens. From Table VII of the Appendix we observe that some individual screens show high correlations (i.e. Climate/Clean technology and Pollution/Toxic (ρ =0.978)), whereas some inter-categorical screens show very low correlations (i.e. Tobacco and Environment (ρ =-0.009)). High correlations amongst these independent variables and a small sample give way for collinearity problems. To tackle this problem we follow Kennedy (2003). His first suggestion is to compile more data. Unfortunately this is not a possibility for this research as data provided by USSIF is limited. His second suggestion is 'do nothing'. Again, this is not possible as our analysis will automatically omit one of the variables as there are linear combinations between different dummies. Lastly, he suggests to closely evaluate the independent variables and how they relate to the dependent variable and each other. In line with the latter suggestion we want to make sure the explanatory variables do not measure similar variation. We decided to omit the *Sudan* screen because it is concerned with the human rights violations in the country. We argue that this should have been already captured by the *Human rights* screen.[38] Moreover, this screen seems subjective as there are other countries violating human rights but are not considered an individual screen by USSIF. Therefore we exclude this screen from the model. Still, collinearity persists and therefore we decided to omit the *Defense/Weapon* screen. This screen is used by 43 of the 44 funds in the sample. By doing this, we accept that we cannot isolate the individual effect of this screen. Rather we can interpret the intercept as the average SRI fund that employs one screen, namely the *Defense/Weapon* screen.[39] We acknowledge this solution is not elegant and provides room for error. Studying the changes in screening procedures and increasing the sample size could alleviate this problem in future research. Still, we would like to shed first light on the relationship between individual screening and financial performance. To do so we simply regress the individual dummies. We will do this by running the following model:

$$\alpha_{4F,i,m} = \sum_{i=1}^{K} D_i * Screen_{k,i} + \sum_{j=1}^{K} \beta_j \, Fund\ characteristics_{i,t-1} + Z_y + \varepsilon_{i,t} \qquad (9)$$

Where all variables are similar to model (7) except for the first term namely $D_i * Screens_{k,i}$ which corresponds to a dummy variable that equals one if fund i employs screen k. Where k are the individual screens used as described in the former chapter. While acknowledging the consequences related to collinearity (i.e. inflated standard errors (Kennedy (2003)), we will run additional sensitivity analysis to check if our results remain stable.

[38]We acknowledge that the correlation between *Sudan* and *Labor relations* is very low, however due to this definition incongruence caused by the USSIF we rather choose to omit the *Sudan* variable and only take into account the *Human rights* screen. We also omit this screen from model (8) and find that conclusions remain robust.
[39]This statement is not completely true as there is still one fund that does not employ the *Defense/Weapon* screen.

6. Empirical results

A single index model is widely used in mutual fund studies and therefore we consider this model first. Table V of the appendix provides the alpha intercepts of three different models, for each individual socially responsible investment fund. The first column shows the relative performance compared to the broad market index, however not yet adjusted for style differences. Our first finding from this simple index model is that four SRI funds underperformed the market by a significant margin at the five percent confidence interval. This compares to none of the funds in the sample that performed better than the market. The fact that none of the funds outperformed and four underperformed the benchmark provides weak evidence corroborating with overall consensus in the mutual fund literature, that active management, on average, is not able to outperform the market.[40] This signals that markets are at least efficient to some extent.

Let us now turn to more sophisticated multifactor models that allow us to adjust for style tilts. The results of the Fama-French Three-Factor model report one additional fund that underperforms the market namely, the Calvert Aggressive Allocation Fund A. We then add the momentum portfolio to the regression analysis to get to the Carhart model and we observe that, at the five percent level, five funds underperform the market. Noteworthy is the poor performance of the Calvert Global Alternative Energy fund, producing a non-positive alpha of 1.74 percent on a monthly basis, therefore destroying value for its investors compared to a buy and hold index strategy.[41] Alternatively, the Calvert Conservative allocation fund performed best over the sample period, winning 0.14 percent over the benchmark on a monthly basis. The results between the two latter multifactor models differ only by a small margin. Overall, these models provide consistent results. The same consistency is found for the conventional sample. The Carhart four-factor model is expected to generate the most reliable results as the adjusted R-squared is highest. Therefore these results are deemed most important. Table VI of the appendix shows the results for the conventional fund sample. The intercepts of the Carhart model suggest that three funds underperformed the market and another three outperformed, hence we conclude conventional funds perform better than their socially responsible peers as measured by the absolute ratio of under/over performers.

Rather than studying each individual SRI and conventional fund at a standalone basis we want to generalize the results. To do so we construct calendar time portfolios of both types. The results of the models are found in Table II. From this table we conclude that the peer group is appropriately constructed

[40] Whilst interpreting alpha, keep in mind that the alpha could alternatively signal deficiency of the pricing model.
[41] We double checked if this result is correct by manually going through the returns of this fund. We find that it is indeed true that this firm performed extremely poor.

as all the factor loadings except momentum show similar signs and values for both samples.[42] The latter observation is intuitive as the screening process conflicts with a momentum strategy. The screening process used for portfolio compositions can be considered costly. Additionally, some funds try to actively engage in dialogue with firms in order to change policies related to ESG efforts. These strategies conflict with momentum strategies as these can be considered more shortsighted; hence this can explain why we observe a different momentum-loading factor.

Table II

SRI v.s. Conventional funds

The dataset ranges from January 1st, 1985 until December 31st , 2012 and is unbalanced. The SRI sample consists of 45 funds and the Conventional sample consists of 90 funds. This table shows the output of the regressions (1)(2)(3) of the calendar time portfolios for both the SRI and conventional portfolio. The market risk premium is defined as the excess on an all-share index, $r_t^m - r_t^f$. r_t^{smb} represents the differential of a portfolio long small firms and short large firms. Similarly, r_t^{hml}represents the differential between a portfolio that is long high book-to-market companies and short low book-to-market companies. r_t^{mom}, corresponds to the difference between the returns of portfolios with high 12 month trailing returns and low 12 month trailing returns. All returns are monthly and in percentages.

	CAPM		FF3F		CH4F	
Variables	SRI	CONV	SRI	CONV	SRI	CONV
Market Risk Premium	0.959***	0.958***	0.958***	0.938***	0.943***	0.946***
	(56.97)	(51.17)	(55.79)	(50.88)	(54.40)	(50.09)
SMB portfolio			0.121***	0.196***	0.123***	0.195***
			(4.873)	(7.372)	(5.057)	(7.348)
HML portfolio			0.0891***	0.0541*	0.0711***	0.0641**
			(3.371)	(1.904)	(2.689)	(2.226)
Momentum portfolio					-0.0579***	0.0321*
					(-3.660)	(1.865)
Constant	-0.0779	-0.0220	-0.111	-0.0413	-0.0632	-0.0675
	(-1.003)	(-0.254)	(-1.464)	(-0.509)	(-0.840)	(-0.824)
Observations	336	336	336	336	336	336
Adj. R-squared	0.906	0.887	0.913	0.902	0.916	0.903

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

Table II also reports the alpha estimations for the one, three- and four-factor model respectively. The multi index models show higher adjusted R-squares compared to the single index model. This proves that the multi factor models are a better fit, and therefore, are better able to explain average fund returns. Moving to the intercepts, the alphas in all cases show a negative sign however not statistically significant. This indicates that the risk-adjusted returns are below what is expected by the four-factor model, -0.063 and -0.0675 percent on a monthly basis for the SRI and conventional sample respectively.[43] Different from the individual results, the equally weighted portfolios seem to do equally well. The similarity in alpha could signal that SRI and conventional funds perform equally well and therefore there is no additional cost associated with investing in a socially responsible manner. In line with Gregory, Matatko

[42]This should be true as we match funds according to their strategy.
[43]This corresponds to an underperformance of -0.73% and -0.81% per annum.

and Luther (1997), the three- and four-factor model show that size effects are apparent. These effects are filtered from alpha by using these models. The fact that the alphas between the two groups are comparable is a first signal that, on an after cost basis, SRI funds at least make up for the costs incurred (i.e. screening, monitoring etc.). Moreover this result may also signal that the practical costs associated with limited diversification is small. This conclusion is in line with Bello (2005).

The underperformance, although not statistically significant, might be due to an underlying risk factor. In order to proxy the possibility of such risk, the four-factor model is extended by including an ethical index portfolio as described. The results of model (4) are found in Table III.

Table III
The "Ethics" Factor

The dataset ranges from January 1st, 1985 until December 31st , 2012 and is unbalanced. Please note that model (4) "Ethic factor" is estimated using returns ranging from June 1st, 1991 until December 31st 2012, due to the fact that the first ethical index was established in 1991.The SRI sample consists of 45 funds and the conventional sample consists of 90 funds. This table shows the output of the regressions (1)(2)(3)(4) of the calendar time portfolios for both the SRI and Conventional portfolio. The market risk premium is defined as the excess on an all-share index, $r_t^m - r_t^f$. r_t^{smb} represents the differential of a portfolio long small firms and short large firms. Similarly, r_t^{hml}represents the differential between a portfolio that is long high book-to-market companies and short low book-to-market companies. r_t^{mom}, corresponds to the difference between the returns of portfolios with high 12 month trailing returns and low 12 month trailing returns. The SRI index is proxied by the returns in excess of the risk free rate on the Domini Social index (now FTSE KLD 400 Index). All returns are monthly and in percentages.

	CAPM		FF3F		CH4F		Ethic factor	
Variables	SRI	CONV	SRI	CONV	SRI	CONV	SRI	CONV
Market Risk Premium	0.959***	0.958***	0.958***	0.938***	0.943***	0.946***	0.709***	1.114***
	(56.97)	(51.17)	(55.79)	(50.88)	(54.40)	(50.09)	(12.15)	(18.43)
SMB portfolio			0.121***	0.196***	0.123***	0.195***	0.111***	0.189***
			(4.873)	(7.372)	(5.057)	(7.348)	(6.008)	(9.889)
HML portfolio			0.0891***	0.0541*	0.0711***	0.0641**	0.0829***	0.0477***
			(3.371)	(1.904)	(2.689)	(2.226)	(4.754)	(2.646)
Momentum					-0.0579***	0.0321*	-0.0432***	0.0104
					(-3.660)	(1.865)	(-3.987)	(0.930)
SRI index							0.223***	-0.153***
							(3.944)	(-2.623)
Constant	-0.0779	-0.0220	-0.111	-0.0413	-0.0632	-0.0675	-0.0560	-0.0499
	(-1.003)	(-0.254)	(-1.464)	(-0.509)	(-0.840)	(-0.824)	(-1.041)	(-0.896)
Observations	336	336	336	336	336	336	257	257
Adj. R-squared	0.906	0.887	0.913	0.902	0.916	0.903	0.962	0.963

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

First of all, please note that model (4) is estimated using returns ranging from June 1st, 1991 until December 31st, 2012, due to the fact that the first ethical index was established in 1991. We observe that the adjusted R-squared for both samples increased by including the ethics index. In line with expectations, the loading on the social index for the SRI portfolio is positive and significant whereas the loading of the conventional portfolio is negative significant. The market beta of the SRI portfolio decreases from 0.943 to 0.709 when the social index is included, because the SRI portfolio is positively related to the social index. These results show that the market compensates funds for their level of 'ethicalness' (Laurel

(2011)). In the context of performance, the costs associated (inefficiencies, screening costs, limited diversification benefits etc.) seem to be cancelled out because of compensation by the market for the level of 'ethicalness'. Vice versa, the negative social index loading of the conventional portfolio indicates that the conventional funds short ethical companies. These results seem to sharply contrast the claims that SRI and conventional funds are becoming more alike (Mottis and Crifo (2010)). Although the intercepts might seem similar, the loading on the social index show different signs, and therefore it can be concluded that conventional funds are not yet as socially responsible as SRI funds. Overall, the results from the models suggest that SRI funds and conventional funds perform equally well, and therefore investors do not pay for investing in a socially responsible manner.

Table IV

Performance through Time

The dataset ranges from January 1st, 1985 until December 31st , 2012 and is unbalanced. The SRI sample consists of 45 funds and the Conventional sample consists of 90 funds. This table shows the output of the Carhart four-factor model (3) of the sub-period calendar time portfolios for both the SRI and conventional portfolio. The market risk premium is defined as the excess on an all-share index, $r_t^m - r_t^f$. r_t^{smb} represents the differential of a portfolio long small firms and short large firms. Similarly, r_t^{hml}represents the differential between a portfolio that is long high book-to-market companies and short low book-to-market companies. r_t^{mom}, corresponds to the difference between the returns of portfolios with high 12 month trailing returns and low 12 month trailing returns. All returns are monthly and in percentages.

Panel A. SRI Funds						
	1984-1990	1991-1995	1996-1999	2000-2003	2003-2007	2007-2012
α_{4F}	0.062	-0.064	-0.120	0.115	-0.053	-0.143
	(0.189)	(-0.536)	(-0.839)	(0.954)	(-1.022)	(-1.485)
Observations	60	72	48	48	48	60
Adj. R-squared	0.831	0.935	0.962	0.978	0.980	0.985
Panel B. Conventional Funds						
α_{4F}	-0.310	-0.125	-0.007	0.008	0.052	-0.141
	(-0.799)	(-1.201)	(-0.0580)	(0.0535)	(0.725)	(-1.388)
Observations	60	72	48	48	48	60
Adj. R-squared	0.718	0.947	0.972	0.969	0.973	0.983
Panel C. SRI - Conventional						
α_{4F} Differential	0.372	0.061	-0.113	0.107	-0.105	-0.002
	(0.881)	(0.454)	(-0.0689)	(0.711)	(-1.621)	(-0.030)

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

As the industry is relatively young, it is interesting to study how the SRI funds did compared to conventional funds over time. First of all, these results provide additional evidence that during the sub-periods, both conventional funds and SRI funds performed equally well as a buy and hold strategy (i.e. no significant underperformance). However, these results might be biased upwards due to *survivorship.*

There are three main periods of economic turmoil in this sample. The sub-periods are characterized by the following events: Black Monday during 1987, the burst of the dot-com bubble during 2000 and the start of the subprime crisis in 2007. Moskowitz (2000) and Kosowski (2006) argue that active strategies on average outperform during recessions and periods of turmoil. The results in Table IV reveal that this claim may not hold for this sample. The latter argument holds true for SRI funds during

the first two periods, however not for the last period of economic turmoil. Considering conventional funds, the argument only holds for the post dot-com period. We do conclude that SRI funds perform better than conventional ones in the 1984-1990 and 2000-2003 period, but only by sign. Unfortunately, we cannot conclude that by implying screening procedures SRI funds perform better than their conventional equivalents in times of economic turmoil.

Also, not much can be said about a possible learning effect of the SRI funds industry as alphas fluctuate over time, and no trend can be identified. It is interesting to see that during the introduction period SRI funds performed better in term of absolute alpha compared to their conventional peers. Note that until 1990 only five SRI funds existed. This can possibly be a result of the size effect. It may be easier for a smaller/younger investment fund to identify investment opportunities while they are still small, however this effect diminishes as they grow older/larger.

Table V

Market Timing Ability - Hendriksson and Merton (1981)

The dataset ranges from January 1st, 1985 until December 31st , 2012 and is unbalanced. The SRI sample consists of 45 funds and the Conventional sample consists of 90 funds. This table shows the output of the market-timing model (5) of the calendar time portfolios for both the SRI and conventional portfolio. The market risk premium is defined as the excess on an all-share index, $r_t^m - r_t^f$. r_t^{smb} represents the differential of a portfolio long small firms and short large firms. Similarly, r_t^{hml}represents the differential between a portfolio that is long high book-to-market companies and short low book-to-market companies. r_t^{mom}, corresponds to the difference between the returns of portfolios with high 12 month trailing returns and low 12 month trailing returns. The momentum factor is equal to $r_t^m - r_t^f$, when $r_t^m > r_t^f$ and zero otherwise. All returns are monthly and in percentages.

	CAPM		FF3F		CH4F	
Variables	SRI	CONV	SRI	CONV	SRI	CONV
Market Risk Premium	0.989***	1.030***	0.983***	0.965***	0.984***	0.963***
	(33.67)	(31.80)	(31.60)	(33.16)	(31.71)	(33.72)
SMB portfolio			0.189***	0.120***	0.189***	0.120***
			(7.030)	(4.759)	(7.042)	(4.863)
HML portfolio			0.0466	0.0879***	0.0564*	0.0670**
			(1.629)	(3.285)	(1.933)	(2.498)
Momentum portfolio					0.0281	-0.0600***
					(1.615)	(-3.750)
Market Timing factor	-0.0655	-0.159***	-0.101*	-0.0167	-0.0873	-0.0458
	(-1.231)	(-2.704)	(-1.809)	(-0.319)	(-1.550)	(-0.885)
Constant	0.0408	0.266*	0.145	-0.0798	0.0965	0.0229
	(0.330)	(1.945)	(1.106)	(-0.653)	(0.722)	(0.186)
Observations	336	336	336	336	336	336
Adj. R-squared	0.907	0.889	0.903	0.913	0.903	0.916

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

Even though much has been said about the return differential in SRI research, not much light has been shed on the timing ability of SRI fund managers. Table V and VI show the results of the HM (1981) and TM (1966) timing models. The former models suggest that both SRI and conventional fund managers are timing the market in the wrong direction (i.e. we observe negative values), however results are not statistically significant. When we consider the TM (1966) model we observe similar results and

statistically significant at the five and ten percent confidence interval, respectively. These results conclude that both portfolios reduce market exposure during a bull market, therefore poorly timing the market as a whole. More interesting is the fact that the intercepts of the four-factor model is positive. This suggests that managers of SRI and conventional mutual funds seem to possess stock-picking talent, however this is not statistically significant. In addition, the extra return earned by selecting outperforming stocks fades due to the poor timing ability of the same managers. More research in this area remains, however further decomposition goes beyond the scope of this study.

Table VI

Market Timing Ability – Treynor and Mazuy (1966)

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The SRI sample consists of 45 funds and the conventional sample consists of 90 funds. This table shows the output of the Treynor and Mazuy timing model for both calendar time portfolios. The market risk premium is defined as the excess on an all-share index, $r_t^m - r_t^f$. r_t^{smb} represents the differential of a portfolio long small firms and short large firms. Similarly, r_t^{hml}represents the differential between a portfolio that is long high book-to-market companies and short low book-to-market companies. r_t^{mom}, corresponds to the difference between the returns of portfolios with high 12 month trailing returns and low 12 month trailing returns. The timing factor simply corresponds to the risk premium squared. All returns are monthly and in percentages.

	CAPM		FF3F		CH4F	
Variables	SRI	CONV	SRI	CONV	SRI	CONV
Market Risk Premium	0.947***	0.941***	0.950***	0.926***	0.931***	0.934***
	(53.92)	(48.40)	(53.01)	(48.28)	(51.12)	(47.03)
SMB portfolio			0.116***	0.188***	0.116***	0.188***
			(4.615)	(7.024)	(4.729)	(7.034)
HML portfolio			0.0848***	0.0474*	0.0633**	0.0567*
			(3.190)	(1.666)	(2.383)	(1.956)
Momentum portfolio					-0.0630***	0.0273
					(-3.956)	(1.569)
Market Timing factor	-0.00419**	-0.00607***	-0.00268	-0.00410**	-0.00380**	-0.00361*
	(-2.226)	(-2.914)	(-1.454)	(-2.074)	(-2.079)	(-1.811)
Constant	0.0187	0.118	-0.0470	0.0557	0.0309	0.0219
	(0.211)	(1.203)	(-0.540)	(0.597)	(0.353)	(0.230)
Observations	336	336	336	336	336	336
Adj. R-squared	0.908	0.890	0.914	0.903	0.917	0.903

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

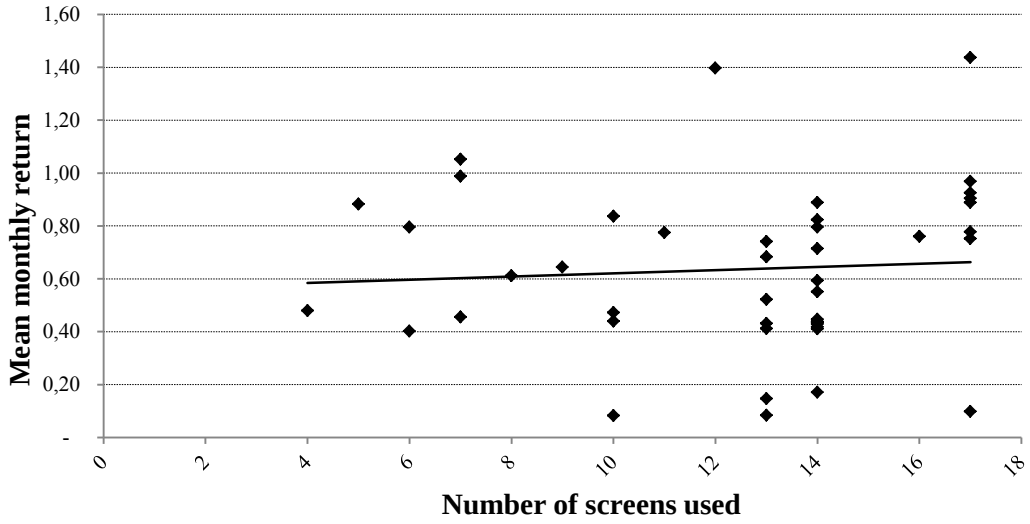
We now move to an alternative approach where we try to decompose the effect between the screening procedure and performance of SRI mutual funds. Whilst interpreting these results please keep in mind that we make the implicit assumption that screening procedures of SRI funds remain constant over time. First of all, we start our analysis by studying the impact of screening intensity. That is, the number of screens used by each of the socially responsible investment funds. According to the literature screening has an ambiguous effect. On the one hand, screening can improve results because you invest in

top social performers that could possibly materialize in above average risk-adjusted performance.[44] On the other hand, using more screens in the investment decision limits the investment horizon. Therefore we add a screening intensity factor to our performance evaluation model. We then extend die analysis by introduction a squared intensity term, because Barnett and Salomon (2006) argue there is a curvilinear relationship.

Before we use OLS models, we simply scatter the gross mean monthly returns of the SRI funds with the number of screens they use. Figure II shows how funds that use more screens tend to show higher mean monthly returns, before adjusting for risk factors. This might be a first signal that screening intensity helps investment returns, however more sophisticated models are needed in order to prove this. For the remainder of the analysis we omitted the Calvert Global Alternative Energy Fund. This fund performed extremely poorly compared to all the other funds in the sample as can be seen from Table V in the appendix.[45] As collinearity problems are vivid it is of the essence that outliers are removed from the sample. These variations could easily but falsely contribute to marginal changes in the screening dummies. Therefore we decided to remove this outlier.

Figure II
Screening intensity

This figure graphically displays the mean monthly return of each SRI investment fund compared to its screening intensity. Where screens can range from 1 to 17. Returns are retrieved through the CRSP database and the screens are retrieved from the Forum of Sustainable and Responsible Investment website. The dataset ranges from January 1st, 1985 until December 31st, 2012. All returns are monthly and in percentages.



[44]Still, one must not mistake a well-run company with a good investment.
[45]For sensitivity purposes we also checked the models while excluding the best and worst performers together. Namely the, Calvert Conservative allocation fund and Calvert Global Alternative Energy fund. Results remained the same.

We will continue to approach the problem using OLS models. In order to do so we run we run model (7). The results of this model can be found in Table VII. The first and third column of the table suggests a positive relationship between screening activities and risk-adjusted returns. Because we want to filter out any macro-economic influences and therefore include time fixed effects. As we believe this increases the reliability of our estimates we will continue discussing the results as provided in column three and four.

Table VII

Screening intensity

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The SRI sample consists of 45 funds. This table shows the output of the OLS model (7). Screening intensity is measured as the absolute number of screens used by each fund. The global dummy signals if part of the fund's assets are invested internationally. Additionally, three characteristics are added namely: Fund age, which is the age measured in years from inception, Expense ratio, which is the total of annual costs associated with investing in the fund expressed as a percentage of the investment, Log size is the natural logarithm of the total assets under management. Screening intensity squared is added in column two and three of this table to check if there is a non-linear relationship. Column three and four include a time fixed effect dummy in the analysis. All returns are monthly and in percentages.

Variables	Monthly alpha	Monthly alpha	Monthly alpha	Monthly alpha
Screening intensity	0.0152	-0.0563	0.0146	-0.0742
	(1.471)	(-0.843)	(1.513)	(-1.179)
Screening intensity_SQRT		0.00312		0.00388
		(1.084)		(1.428)
Global dummy	-0.293***	-0.276***	-0.254***	-0.234**
	(-2.892)	(-2.698)	(-2.596)	(-2.378)
Lagged_fund_age_year	0.0157*	0.0150*	0.0179**	0.0167*
	(1.864)	(1.778)	(2.053)	(1.917)
Lagged_exp_ratio	-0.114	-0.101	-0.136	-0.125
	(-1.278)	(-1.125)	(-1.479)	(-1.357)
Lagged_log_size	-0.0497*	-0.0492*	-0.0521*	-0.0521*
	(-1.810)	(-1.791)	(-1.865)	(-1.866)
Constant	0.00530	0.356	-0.452	-0.0619
	(0.0256)	(0.926)	(-0.641)	(-0.0819)
Observations	454	454	454	454
Adj. R-squared	0.035	0.0354	0.172	0.174
Time effect	No	No	Yes	Yes

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

From the screening intensity coefficient in column three we can conclude that implementing additional screens to the procedure on average leads to a .0146 percent higher monthly risk-adjusted return, which corresponds to 0.18 percent per annum. Given the fact that the average fund employs 12.38 screens, the procedure adds 1.78 percent per annum to the risk-adjusted performance of the average SRI fund.[46] Moreover, funds that employ 3.73 more screens (i.e. one standard deviation) can expect to earn

[46]The average SRI funds uses 12.38 screens. Each screen adds 0.012 percent to the risk-adjusted return. So on average screening leads to 1.78 percent annual return, $((1 + 0.000146)^{12}) - 1) * 12.38 * 100$=2.17 percent.

about 0.65 percent per annum.[47] Unfortunately, the aforementioned results are not statistically significant at the five percent interval. Since we observe net returns, we conclude that on an after cost basis screening is not able to generate additional risk-adjusted returns for the retail investor. This corroborates with results found by Renneboog et al. (2007) who find that adding screens to the investment process does not push returns. More importantly, we can conclude that adding screens to the investment decision does not confine the investment horizon in such a way that it hurts risk-adjusted returns.

Barnett and Salomon (2006) conclude that the relationship between the number of screens and the financial performance of funds is non-linear. In order to see if this holds true for our sample we add another term to the model namely, the screening intensity squared. First of all, the explanatory power of the model increases from 17.2 percent to 17.4 percent. The results of the second model, although not significant, tell us that screening practices at first hurt performance, but by adding more screens to the process it helps the risk-adjusted returns. Barnett and Salomon (2006) conclude similar effects. To crosscheck our results, we use equivalent procedures as the previously mentioned scholars. The results can be found in Table VIII of the appendix and support the findings of Barnett and Salomon (2006). So this backs the idea that when many screens are used, funds effectively filter underperforming stocks and increase the risk-adjusted returns of the portfolio. Similarly, if only few screens are used funds are still able to benefit from proper diversification benefits. Funds that are "stuck in the middle" do not reap either benefit and therefore underperform.

Still, if we look at the overall results of model (7) we conclude that these are in line with findings by Laurel (2011). Her empirical work concludes no significant relation between intensity and financial performance. This finding corroborates with the claim that the costs and benefits of screening cancel out one another regardless and is independent from the absolute amount of screens used.

From the table we also read that size hurts risk-adjusted performance in line with Chen et al. (2004). We also find supporting evidence for the age effect in line with Argote (1999). Older firms indeed earn higher risk-adjusted returns. Both conclusions are significant at the ten percent interval.

Before we will continue with studying individual screening procedures we first introduce categories similar to those of Renneboog et al. (2007). The results can be found in Table VIII. The first message from these results is that the screening intensity terms are comparable to our previous models. This strengthens the earlier results. Second, the signs of the coefficients are in line with results from Renneboog et al. (2007), except for the *Shareholder Engagement* screen. We should note that the latter scholars study SRI funds from different geographical regions rather than United States domiciled funds only. It seems that funds trying to influence corporate policy trough engagement efforts are able to earn

[47]The standard deviation of screening intensity is 3.73, therefore one standard deviation yields 0.0.65 excess return per annum. $((1 + 0.000146)^{12}) - 1) * 3.73 * 100$=0.65.

0.602 percent of risk-adjusted return per month.[48] Another coefficient reveals that the *Other/Qualitative* screen seems to negatively impact risk-adjusted performance, thus destroying value by as much as 0.424 percent per month. Causality for the latter remains weak as we cannot pinpoint the specific efforts of these firms.

Table VIII

Screening intensity

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The SRI sample consists of 45 funds. This table shows the output of the OLS model (8). Screening intensity is measured as the absolute number of screens used by each fund. Categories are assigned a dummy of 1, if any of the screens in the category is used. The global dummy signals if part of the fund's assets are invested internationally. Additionally, three characteristics are added namely: Fund age, which is the age measured in years from inception, Expense ratio, which is the total of annual costs associated with investing in the fund expressed as a percentage of the investment, Log size is the natural logarithm of the total assets under management. Screening intensity (squared) is added in column two to check if results remain stable. All returns are monthly and in percentages.

Variables	Monthly alpha	Monthly alpha
Screening intensity		-0.0677
		(-0.437)
Screening intensity_SQRT		0.00269
		(0.364)
Environment screens	0.989	1.108
	(1.425)	(1.555)
Social screens	-0.178	-0.109
	(-0.640)	(-0.374)
Governance screens	-0.122	-0.107
	(-1.000)	(-0.602)
Sin screens	-0.187	-0.0186
	(-0.626)	(-0.046)
Shareholder Engagement	0.607***	0.602**
	(3.441)	(2.505)
Other/Qualitative	-0.406**	-0.424**
	(-2.388)	(-2.269)
Global dummy	-0.221**	-0.214**
	(-2.236)	(-2.144)
Lagged_fund_age_year	0.0232***	0.0235***
	(2.597)	(2.616)
Lagged_exp_ratio	-0.101	-0.0993
	(-1.080)	(-1.062)
Lagged_log_size	-0.0732**	-0.0806**
	(-2.474)	(-2.530)
Constant	-0.908	-0.879
	(-0.826)	(-0.728)
Observations	454	454
Adj. R-squared	0.189	0.186
Time effect	Yes	Yes

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

[48]We will elaborate on this effect in the next model as results remain robust.

The results of the fund characteristics again corroborate with earlier returns from Chen et al. (2004) and Argote (1999). The coefficients now prove to be significant at the five percent confidence interval. Because we would like to isolate relationships between individual screens rather than categories we will further decompose the categories in order to draw even more detailed conclusions regarding the screening process of SRI mutual funds.

The results of the concluding analysis can be found in Table IV. Before we continue please note that we were forced to exclude some dummies due to collinearity issues. As discussed the *Sudan* and *Defense/Weapon* screen are excluded from the model.[49] From the table we can see that only two screens show significant results namely *Alcohol* and *Shareholder Engagement*. Noteworthy is the fact that our model including time effects seems to do a pretty good job explaining the monthly alphas as the adjusted R-squared is equal to 0.195. Note that the adjusted R-squared before introducing time effects is only 0.0474. It can be concluded from Table IV that a SRI fund that only employs the *Defense/Weapon* screen underperforms the benchmark, although this is not statistically significant.[50]

We are interested in the screens that push the financial performance of SRI funds. Let us consider the environment category first. It becomes evident that none of the constituents in this category seem to affect financial performance in a significant manner in contrast to our hypothesis. We do observe a coefficient of 1.101 and 1.10 percent for the *Environment/Other,* unfortunately not significant at the five percent interval. Moreover, we observe that all coefficients are positive in the second column. This suggests a positive impacts on financial performance (Hart (1997) and Porter and van der Linde (1995)).

The screens in the social category also seem to lack statistical significance. First, we observe that the diversity screen shows a negative coefficient. This screen is used to filter companies that take into consideration diversity and equal employment opportunity policies. On the one hand it is argued that diversity could obstruct the decision making process (Dobbin and Jung (2010)). But on the other hand, it might be that diversity helps international execution of strategies and helps alleviating groupthink (Robinson and Dechant (1997) and (Zahra and Pearce (1989)). The coefficient suggests that these effects cancel out and do not seem to explain variations in risk-adjusted returns of SRI mutual funds. Even though there are strong reasons to believe that the *Labor Relations* screen could explain some of the variation in risk-adjusted performance, we draw similar conclusions to those of the previous screen. The benefits of good employee relationships seems to be offset by the costs incurred by these firms.

The next category relates to governance. Little can be said as both screens do not seem to affect risk-adjusted returns. This is in contrast to our hypothesis regarding *Board Issues*. It was expected that

[49]For robustness purposes we run the same model omitting different screens namely *Tobacco* and *Labor Relations*. These are used by 42 and 43 funds respectively. Coefficients remain stable.
[50]Note that this statement is not completely accurate. This statement assumes that all SRI funds use the *Defense/Weapon* screen, but there is one fund that does not.

firms with outstanding governance would lead to excess returns, however this hypothesis is rejected by our data and therefore contrasts the findings of Core et al. (1999).

Whereas Renneboog et al. (2007) find no relationship between omitting the sin category (similar to our previous model), we try to decompose the effect for the different industries. First, we conclude that there are no costs associated with excluding the gambling and tobacco industry from the investment horizon, as none of these coefficients are statistically significant. This is good news for investors who want to shun these industries. Likewise, by considering animal welfare investors do not have to give up risk-adjusted returns. Second, there are costs associated with omitting the alcohol industry. Shunning this industry hurts risk-adjusted returns of a SRI fund by as much as 0.52 percent.[51] This result is in line with the argument that there exists a societal norm against funding these industries, therefore depressing prices while simultaneously increasing expected returns (Hong and Kascperzyk (2009) and Derwall et al. (2011)). Note that there seems to be a stronger societal norm against funding the alcohol industry than the gambling and tobacco industry. This proves to be an interesting topic for future research.

The last category constitutes *Shareholder Engagement*. Our results show that managers of SRI funds engaging in dialogue, resolutions and proxy voting positively affect the risk-adjusted performance of their fund. These findings are in line with Lee and Lounsbury (2011). So even if these efforts are more costly (O'Rourke (2003), these costs are outweighed by the benefits (i.e. additional alpha). These results support the hypothesis that engagement can have significant impact, not only for sizable institutions but also when employed by mutual funds in contrast to claims by Joly (2010). These efforts could contribute 0.47 percent to the outperformance on a monthly basis. This corresponds to 5.79 percent per annum. Therefore, retail investors should try to single out SRI funds that engage in these efforts.

Due to the fact that we use many dummy variables and the high correlations amongst these, our estimators may experience some of the consequences of collinearity (i.e. inflated standard errors). We therefore want to run sensitivity analysis to see if our estimators remain stable. First, we run the same model using only half our observations. Secondly, we add each variable into the model one by one and in a different order as suggested by Barnett and Salomon (2006). Both methods do not produce big shifts in coefficients and therefore we conclude our results are stable.

So, two screens seem to affect financial performance of SRI mutual funds, namely *Alcohol* and *Shareholders Engagement.* Weak evidence suggests that there is a cost associated with shunning the alcohol industry, while on the other hand investors can earn additional risk-adjusted returns by investing in those funds that actively engage in dialogue with management about their social performance. The results remain robust when including time fixed effects. Additionally, Table IX tells us that the size and age effect are significant at the one percent level. Overall, it is safe to say that all other screens except

[51] This corresponds to $((1 + 0.00052)^{12}) - 1) * 100 = 6.42$ percent per annum.

Alcohol and *Shareholder Engagement* neither destroy nor create value for the retail investor on an after cost basis, which is an important conclusion for the industry.

Table IV

Screening – Decomposed

The dataset ranges from January 1st, 1985 until December 31st , 2012 and is unbalanced. The SRI sample consists of 45 funds. This table shows the output of the OLS model (9). Screens are assigned a dummy of 1 if employed by a SRI fund. The global dummy signals if part of the fund's assets are invested internationally. Additionally, three characteristics are added namely: Fund age, which is the age measured in years from inception, Expense ratio, which is the total of annual costs associated with investing in the fund expressed as a percentage of the investment, Log size is the natural logarithm of the total assets under management. The full output including the former characteristics can be found in Table IX of the Appendix. Note that this analysis excludes the *Sudan* and *Defense/Weapon* screen. All returns are monthly and in percentages.

Variables	Monthly alpha	Monthly alpha
Climate Cleantech	-0.234	0.0798
	(-0.415)	(0.152)
Pollution/Toxics	0.404	0.287
	(1.030)	(0.794)
Environment/Other	1.101	1.100
	(1.467)	(1.559)
Community Development	-0.162	-0.0794
	(-0.781)	(-0.415)
Diversity	-0.240	-0.108
	(-0.453)	(-0.219)
Human Rights	0.172	0.0353
	(0.172)	(0.0381)
Labor Relations	0.0031	-0.031
	(-0.004)	(-0.048)
Board Issues	-0.0286	-0.255
	(-0.0671)	(-0.642)
Executive Pay	-0.130	-0.123
	(-0.601)	(-0.617)
Alcohol	-0.520**	-0.534**
	(-2.127)	(-2.350)
Animal Welfare	0.145	0.161
	(1.037)	(1.248)
Gambling	0.0854	0.0461
	(0.418)	(0.235)
Tobacco	0.603	0.426
	(0.750)	(0.569)
Other/Qualitative	-0.252	-0.245
	(-0.971)	(-1.009)
Shareholder Engagement	0.471*	0.474*
	(1.724)	(1.868)
Constant	-1.063	-1.437
	(-1.040)	(-1.210)
Observations	454	454
Adj. R-squared	0.0474	0.195
Fund characteristics	Yes	Yes
Time effects	No	Yes

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

7. Limitations

Unfortunately, the results presented in this paper may be subject to limitations. First and foremost, the sample used in this paper suffers from one of the biggest plagues in economic research namely, *survivorship bias*. This bias originates when poor performing mutual funds cease to exist or simply merge with another fund. When we exclude these funds from the sample, the results may be biased upwards. As mentioned earlier in this paper, Renneboog et al. (2007) find that only few firms cease to exist in the SRI fund industry. This finding is indorsed by Gregory and Whittaker (2007) although it should be noted that these scholars study a UK sample. The bias might be modest, nevertheless problematic and should be kept in mind whilst interpreting and generalizing results found in this paper.

The calendar time portfolios constructed in the first part of the empirical study also affect our results. As argued by Hoechle, Schmid and Zimmerman (2009), calendar time portfolios tend to underweight observations where the cross section is large (i.e. 2012 when there were 45 fund in the sample) and overweight those with a narrow cross-section (i.e. 1989 when there were only 15 funds in the sample). This implies that returns earned by older funds weigh more heavily in earlier years of our sample than they do in more recent years.

In addition, our tests inherently assumes that beta is constant over time which is unsatisfactory according to Kon and Jen (1978). They argue that fund managers actively buy and sell positions which alter the funds' beta. So beta is variable over time rather than static. The second part of our model does take into account time varying betas as we estimate beta every 12 months.

Another shortcoming is related to our primary data source. The sample is constructed using information from the United States Forum of Sustainable and Responsible Investment. Bollen (2007) claims that the USSIF has a low hurdle for labeling funds as socially responsible. If this were indeed true, the results would be biased towards our null hypothesis (i.e. there is no differential between conventional and SRI funds due to the fact that there is little difference because of the low hurdle). Furthermore, we retrieve recent data of the funds' screening procedures while simultaneously cross-linking these to historical time series. This is also known as the *look-ahead bias* and can possibly alter results. This, however, should be nuanced as fund mandates are difficult to change. For example, the largest fund in our sample, portfolio21, provides an extensive and detailed overview of the principal investment strategy that the managers should follow at all time.[52] Any material change in the screening procedure and mandate should be corresponded to the investors. Moreover, mutual funds may be reluctant to change teams, strategies and procedures as this could impact mutual funds flows. Geczy et al. (2005) use the same dataset as used in this paper and found that five funds identified by the Social Investment Forum added or

[52]The prospectus can be found using the following link: http://portfolio21.com/wp-content/uploads/downloads/2013/02/P21-GEF-Summary-Prospectus-2-12-13.pdf

altered screening practices, unfortunately these scholars did not report the changes nor the funds. This alteration in screening practices might lead to different results. This may be the biggest shortcoming in the paper and provides plenty room for future research.

Definitions by the USSIF also proved to be problematic. For example the *Sudan* screen can be considered subjective as there are other sovereigns that also violate human rights. Furthermore, definitions provide room for error. Consider the following example. A SRI mutual fund that use the *Animal welfare* screen but not the *Environmental Screen* can invest freely in meat producers as long as one chooses to invest in a producer that treats the raised animals well. Since the fund now uses one of the screening procedures it can be considered a socially responsible mutual fund. This is problematic as the meat industry in itself is very polluting. These definition incongruences are not only problematic for academic research but also for the retail investor.

We already discussed the collinearity issue in detail in the methodology chapter. Our results may lack accuracy due to this problem, however do shed a first light on the relation between screening procedures and risk-adjusted performance. Due to this issue we could not isolate the effect of the *Defense/Weapon* screen. More data would be able to eliminate this problem.

Also, we cannot determine the direction of the relationships between individual screens and financial performance with certainty. For example, it could be that by improving environmental performance a firm increases its reputation. This could eventually benefit the cash flows due to easier access to capital (Fombrun and Shanely (1990)). The direction could also be reversed. For example a firm that performs well can attract capital more easily and at lower cost, benefitting financial performance. Resources could then be used to increase the firms environmental performance. It should be noted that this does not hold true for all screens per se. The direction for *Shareholder Engagement* may be more intuitive A SRI mutual fund always decides if it wants to engage in these efforts (i.e. *Shareholder Engagement* leads to an increase in risk-adjusted performance).

Lastly, there might be factors that modify the relationship between screening and financial performance. First, size could modify relationships. Larger firms receive relatively more public attention and therefore the effects may be amplified. We already took into account size when estimating alpha using the Carhart model. Still this factor could modify the relationship. Second, fund mandates are important. A SRI fund that primarily invests in tech companies (i.e. low pollution) will not be influenced by omitting the tobacco industry (Hoepner, Pei-Shan & Furguson (2010)). Third, the state of the economy could be considered a moderator. Employees of firms that maintain poor relationships are much faster inclined to go on a strike. So investing in firms with good relationships could prove to be more profitable during times of economic turmoil than in economic booms (insurance like).

The sum of these limitations restrict our ability to draw strong generalizable conclusions from this paper, however still contributes to the socially responsible investment debate and shed a first light on the individual screen contribution to risk-adjusted performance.

8. Conclusion

The primary objective of this paper is to provide a comprehensive overview of the quickly developing socially responsible asset management industry and move beyond aggregate financial comparisons between SRI and conventional mutual funds. In order to do so we study 45 socially responsible mutual funds and 90 conventional funds that are carefully matched based on age, objective and size. The sample is unbalanced starting January 1st, 1985 and ranges till December 31st, 2012. Although much effort has been directed towards studying the financial performance of SR investments, evidence remains inconclusive. Hereafter, we tried to deal with the problematic issue of uniformity amongst screening procedures, which proves to be problematic not only for the retail investor but also for academic research. Subsequently, we shed light on the motivation to invest in a socially responsible manner.

When studying the stand-alone fund performance, we conclude that there are four SRI funds that significantly underperform the benchmark. This compares to three underperforming funds in the conventional sample, while simultaneously three funds did significantly better than the benchmark. The calendar time portfolios seem to do equally well, and both did not deviate significantly from the benchmark, which is good news for mutual fund management and retail investors. These results may be suffer from *survivorship bias*. Subsequently, we include an ethical index to check if there are risks and rewards involved with socially responsible investing, and if so, if SRI funds show a positive exposure to this index. In line with expectations we find that SRI mutual funds are exposed to the ethical benchmark, whereas conventional funds seem to have a negative exposure to SRI investments. In effect, the markets thus reward funds for their level of "ethicalness" and this reward cancels out the costs associated with screening practices. Also, this paper reviewed the market timing abilities of SRI fund management using the TM (1966) and HM (1981) market timing models. The results are disappointing, since both SRI and conventional fund managers seem to time the market in the wrong direction.

The key feature of this paper involves an empirical analysis of screening intensity and the decomposition of the screening process. First of all, our results show similar signs as the results of Barnett and Salomon (2006), although they are not significant. These results are in line with Laurell (2011). Subsequently, we crosscheck results using the same methodology as Barnett and Salomon (2006). The estimates turn significant at the five percent interval. This implies there is a curvilinear relationship and retail investors should invest in SRI funds that employ only few, or very much screens. The results from the model in this paper suggests there are neither costs, nor rewards to be gained when considering the

number of screens used. The explanatory analysis is then extended to include the categorical screens used by SRI funds. The most important assumption made in this study is that the screens used by these funds remain constant over time. The screening coefficients remain robust while running this new model. *Shareholder Engagement* and *Other/Qualitative* seem to explain variation in the risk-adjusted returns. Lastly, we replace the categories by dummies that correspond to each individual screen. This procedure caused collinearity issues and had to be solved in an inelegant manner. The results from the last model show that firms have to give up risk-adjusted returns to avoid the *Alcohol* industry. They also show that firms entering into dialogue with management about ESG related issues (i.e. *Shareholder Engagement*) leads to positive excess returns. Unfortunately, these tests are not able to establish the direction of these relationships.

The area of socially responsible investment studies leaves much room for further ellaboration. To begin with, more light can be shed on the disentanglement of investor types. One should distinguish between those who want to do good and those who want to do well by doing good. Second, to my knowledge, most studies use equally weighted portfolios for comparing financial performance amongst conventional and SRI funds. Future research could focus on NAV weighted portfolios rather than equally weighted time calendar portfolios in order to draw even more accurate conclusions. Third, future research could distinguish between the effect of best-in-class approaches and exclusion approaches (or a combination) and their effect on portfolio diversification. Future research should also focus on the *Shareholder Engagement* screen as this involves dialogue, shareholders resolutions and proxy voting. Effort could be contributed towards isolating these individual effects. Lastly, as described in the previous chapter, scholars should try to study variables moderating the screening effects.

Besides academic relevance, the rapid proliferation of socially responsible investment funds that caters the segment needs to be better understood by the retail investor. Especially the screening procedures used by these funds. Informing retail investors of the financial performance and screening methods is important to move beyond the prejudice that taking into account social considerations is costly. This paper shows that including SRI mutual funds in the asset allocation process does not hurt financial performance and can even be rewarding when picking funds wisely (i.e. funds that use the most rewarding screens). These conclusions should spur the growth of socially responsible investment management. From the perspective of a fund manager, the most important implication is that market forces do not penalize socially responsible efforts and evidence suggests that they can even add value by engaging in them. This is an important conclusion for the supply side in the asset management business.

The crux of this paper is to provide deeper insight into the rapidly expanding socially responsible investment industry. SRI funds seem to provide risk-adjusted returns similar to those of their conventional peers, while managers show similar, but poor, market timing abilities. Evidence suggests that markets

reward SRI funds for their level of "ethicalness" as coefficients showed to be positive significant. In line with these findings we also argue that conventional funds do not show signs of investing in a more ethical manner. Weak evidence is found regarding the relationship between screening intensity and financial performance. Finally, we answer the overarching question by disaggregating the screening procedures and conclude that excluding the *Alcohol* industry hurts excess risk-adjusted returns. Similarly, *Shareholder Engagement* by management of an SRI mutual fund can add significant value on a risk-adjusted basis for the socially responsible investor.

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Links

EuroSIF SRI 2012 Report
http://www.eurosif.org/research/eurosif-sri-study/sri-study-2012
Kenneth R. French Data Library
http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html
KPMG European Socially Responsible Investment Report 2010
http://www.kpmg.com/LU/en/IssuesAndInsights/Articlespublications/Documents/European-Responsible-Investing-Fund-Survey.pdf
Socially responsible funds by the United States Social Investment forum and Bloomberg
http://charts.ussif.org/mfpc/

Appendix

Table I
Screening & Advocacy (USSIF)

This table shows the screens as listed on The Forum of Sustainable and Responsible Investment (FSRI) website and is retrieved through Bloomberg's Environmental, Social and Governance (ESG) Data service. USSIF provides an overview of screening methods of all SRI funds domiciled in the United States based on these screens and criteria. For each sub-criterion, the USSIF reports if the fund uses a positive screen (*best-in-class approach*), negative screens (excluding investments that engage in these activities), a combination of both or no screening at all. The full detailed list can be retrieved from http://charts.ussif.org/mfpc/.

Screens	**Criteria**
Environment	Climate/Clean technology Pollution/Toxics Environment/Other
Social	Community Development Diversity Human Rights Labor Relations Sudan
Governance	Board Issues Executive Pay
Products	Alcohol Animal Welfare Defense/Weapons Gambling Tobacco
Other/Qualitative measures	-
Shareholder Engagement	-

Table II
Screening & Advocacy (EuroSIF)

This table shows the screens as listed in the European SRI Study 2012. The table provides an overview of the classification of the screening processes of all funds domiciled in Europe and van be retrieved through the following link: http://www.eurosif.org/research/eurosif-sri-study/sri-study-2012.

Screens	**Criteria**
Best-in-Class Investment selection Sustainability themed investment	Leading or best-performing investments within a universe, category, or class are selected or weighted based on ESG criteria. Thematic funds focus on specific or multiple issues related to ESG
Best-in-Class Investment selection	Leading or best-performing investments within a universe, category, or class are selected or weighted based on ESG criteria.
Norms-Based screening	Screening of investments according to compliance with international standards and norms.
Exclusion of holdings from Investment Universe	Excluding specific investment/classes from the universe such as companies, sectors or countries.
Integration of ESG factors in Financial Analysis	Explicit inclusion by asset managers of ESG risk and opportunities into traditional financial analysis and investment decisions based on a systematic process and appropriate research sources.
Engagement and voting on Sustainability Matters	Engagement activities and active ownership through voting of shares and engagement with companies on ESG matters. This is a long-term process, seeking to influence behavior or increase disclosure.
Impact Investment	Impact investments are investments made into companies, organizations and funds with the intention to generate social and environmental impact alongside a financial return. Impact investments can be made in both emerging and developed markets, and target a range of returns from below market-to-market rate, depending on the circumstances.

Table III
Summary Statistics – SRI Mutual Funds

This table shows the summary statistics for the equity SRI funds as identified by The Forum of Sustainable and Responsible Investment website and is retrieved through Bloomberg's Environmental, Social and Governance (ESG) Data service. The FSRI provides an overview of screening methods of all SRI funds domiciled in the United States based on criteria listed in Table I. The full screen can be retrieved from http://charts.ussif.org/mfpc/. The dataset ranges from January 1st, 1985 until December 31st , 2012. To avoid double counting, only class-A shares are considered. This elimination process caused the dataset to include 45 SRI funds. This table provides the average net monthly return, standard deviation, minimum, maximum, number of months in the dataset, screens used, age and total assets under management. The bottom of this table provides the summary statistics for the market risk premium, SMB, HML and MOM portfolios. These are retrieved through the Kenneth R. French data library: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. All returns are monthly and in percentages.

Fund names	Mean	SD	Min	Max	N	Screens	Age	AUM
Ariel Fund	1.05	5.57	-26.69	31.31	318	7	27.0	1478.4
Ariel Appreciation Fund	0.99	5.11	-25.01	24.48	279	7	23.1	1239.2
Ariel Focus Fund	0.45	5.38	-19.40	17.36	93	7	7.5	32.5
Azzad Ethical Mid Cap Fund	0.48	5.26	-18.16	15.88	147	4	12.0	28.2
CNI Charter Socially Responsible Equity Fund	0.40	4.85	-19.37	16.22	91	6	7.4	27.7
Calvert Social Index A	0.17	5.04	-18.68	11.89	153	14	12.5	101.8
Calvert Equity Portfolio A	0.71	4.41	-18.19	12.46	307	14	25.4	1461.3
Calvert Aggressive Allocation Fund A	0.43	4.60	-18.82	10.97	93	14	7.5	60.5
Calvert Conservative Allocation Fund A	0.45	1.78	-9.16	4.18	95	14	7.7	57.6
Calvert Moderate Allocation Fund A	0.43	3.32	-14.43	7.95	95	14	7.7	120.2
Calvert Enhanced Equity Portfolio A	0.41	4.68	-18.49	10.70	179	14	14.7	42.8
Calvert Small Cap Fund A	0.55	5.52	-19.65	16.51	101	14	8.3	93.2
Calvert International Equity Fund A	0.41	4.91	-25.21	12.67	249	13	21.0	190.5
Calvert Capital Accumulation A	0.80	5.75	-20.26	17.50	221	14	19.0	160.5
Calvert International Opportunities Fund A	0.15	6.45	-24.61	12.94	70	13	5.6	29.9
Sentinel Sustainable Mid Cap Opportunities Fund (A Shares)	0.82	6.14	-20.54	25.34	229	14	18.9	105.6
Sentinel Sustainable Core Opportunities Fund (A Shares)	0.68	5.49	-17.77	18.04	201	13	16.6	182.9
Domini International Social Equity Fund -- A shares	0.10	6.51	-22.89	13.32	75	17	6.0	8
Domini Social Equity Fund -- Investor shares	0.75	4.49	-17.79	12.73	265	17	23.0	535.1
The Utilities & Infrastructure Fund	0.74	4.44	-19.19	10.02	213	13	17.5	30.3
Green Century Equity	0.64	4.68	-15.48	10.46	210	9	17.3	53.4
Neuberger Berman Socially Resp Inv	0.84	4.52	-19.08	11.39	228	10	11.7	13.9
Parnassus Fund	0.97	6.31	-32.47	19.79	339	17	28.0	469.1
Parnassus Workplace Fund	0.93	5.40	-17.71	20.64	95	17	7.7	280.4
Parnassus Small-Cap Fund	0.90	6.43	-22.76	25.82	95	17	7.7	680.5
Parnassus Mid-Cap Fund	0.78	4.80	-18.22	13.38	95	17	7.7	127.9
Parnassus Equity Income Fund	0.89	3.61	-15.41	12.24	246	17	20.3	4021.6
Pax World Growth Fund - Individual Investor	0.42	5.31	-21.27	13.57	189	14	15.6	123.8
Portfolio 21	0.52	5.05	-17.71	11.38	162	13	13.3	256.2
Pax World Womens Equality Fund - Individual Investor	0.59	4.44	-20.01	12.52	233	14	19.3	33.9
TIAA-CREF Social Choice Eq Retire	0.76	4.42	-18.04	11.97	125	16	10.3	317

Table III (Continued)
Summary Statistics – SRI Mutual Funds

This table shows the summary statistics for the equity SRI funds as identified by The Forum of Sustainable and Responsible Investment website and is retrieved through Bloomberg's Environmental, Social and Governance (ESG) Data service. The FSRI provides an overview of screening methods of all SRI funds domiciled in the United States based on criteria listed in Table I. The full screen can be retrieved from http://charts.ussif.org/mfpc/. The dataset ranges from January 1st, 1985 until December 31st, 2012. To avoid double counting, only class-A shares are considered. This elimination process caused the dataset to include 45 SRI funds. This table provides the average net monthly return, standard deviation, minimum, maximum, number of months in the dataset, screens used, age and total assets under management. The bottom of this table provides the summary statistics for the market risk premium, SMB, HML and MOM portfolios. These are retrieved through the Kenneth R. French data library: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. All returns are monthly and in percentages.

Fund names	Mean	SD	Min	Max	N	Screens	Age	AUM
Appleseed Fund	0.77	4.69	-14.39	12.89	75	11	6.1	203.1
Walden Social Equity Fund	0.43	4.05	-16.02	10.75	165	13	13.5	114
Calvert Global Alternative Energy Fund C	-0.94	9.36	-36.88	15.91	68	4	5.4	13.8
Pax World Small Cap Fund - Individual Investor	0.89	6.46	-23.17	13.15	60	14	4.8	15.4
Pax World Global Green Fund - Individual Investor	0.44	6.75	-25.80	16.00	60	14	4.8	46.2
Pax World International Fund - Individual Investor	0.08	6.60	-21.46	14.49	60	13	4.8	34.7
Calvert Global Water Fund A	0.88	5.97	-20.00	14.07	54	5	4.3	70.1
Walden Small Cap Innovations Fund	1.40	5.72	-10.42	16.10	53	12	4.2	86.8
Praxis Growth Index Fund A	0.44	5.05	-17.37	10.55	70	10	5.7	43
Praxis Small Cap Fund A	0.47	6.12	-20.27	13.39	70	10	5.7	5.7
Gabelli SRI Green Fund Inc A	0.61	6.35	-15.48	14.04	69	8	5.6	21.7
Neuberger Berman Socially Responsive A	1.44	4.43	-9.24	9.92	45	17	3.6	79.6
Praxis International Index A	0.08	5.31	-12.38	10.84	26	10	2.0	18.2
Ariel Discovery Fund	0.80	5.09	-10.14	11.54	25	6	1.9	5.2
Market Risk Premium	0.65	4.57	-23.24	12.46	340			
Small-minus-Big portfolio	0.09	3.19	-16.39	22.00	340			
High-minus-Low portfolio	0.25	3.05	-12.60	13.84	340			
Risk Free rate	0.32	0.20	-	0.79	340			
Momentum portfolio	0.59	4.76	-34.74	18.39	340			

Table IV
Summary Statistics – Conventional Mutual Funds

This table shows the summary statistics for the equity conventional funds as identified by the matching procedure that matches SRI funds to conventional peers based on total net assets under management, fund objective and fund age. For each SRI fund, two conventional peers are identified. The dataset ranges from January 1st, 1985 until December 31st , 2012. To avoid double counting, only class-A shares are considered. This elimination process caused the dataset to include 45 SRI funds, therefore we identified 90 peers. This table provides the average net monthly return, standard deviation, minimum, maximum, number of months in the dataset, age and total assets under management. All returns are monthly and in percentages.

Fund names	Mean	SD	Min	Max	N	Age	AUM
AIM International Mutual Funds: Invesco International Gro Fd; Cl A Shs	0.75	4.77	-19.39	17.32	251	20.7	2216.1
AIM Variable Insurance Funds: Invesco VI Utilities Fund; Series I Shares	0.72	3.64	-11.88	7.34	54	18.0	64.2
AST Neuberger Berman Mid-Cap Growth Portfolio	0.97	5.52	-18.71	12.15	54	18.2	677.1
Baron International Growth Fund; Retail Shares	1.45	5.47	-11.82	11.04	50	4.0	15.6
BlackRock Large Cap Core Fund; Investor Shares	0.39	5.02	-16.98	13.21	159	13.0	30
BlackRock Large Cap Growth Fund; Service Shares	0.32	5.69	-19.76	15.81	159	6.3	11
Brown Capital Management International Equity Fund; Investor Shares	0.42	5.43	-22.60	13.74	166	13.6	5.9
Calamos Growth Fund; Class A Shares	1.24	6.44	-21.22	41.49	270	22.3	2922.9
CAN SLIM Select Growth Fund	0.45	4.44	-12.71	13.53	90	7.3	57.2
Columbia Funds Variable Series Trust II: Columbia Wanger US Shares	1.77	5.91	-11.79	15.72	33	2.7	712.1
Columbia Funds Variable Series Trust II: Partners Small Cap Growth Fund	1.67	5.52	-10.04	15.68	33	2.7	510.7
Columbia Select Large Cap Growth Fund; Class A Shares	0.59	6.63	-20.80	14.10	66	5.3	1063.6
Columbia Variable Portfolio-Select Large Cap Growth Fund; Class 1 Shs	1.17	6.53	-20.54	14.43	54	4.3	34.4
CornerCap Small Cap Value Fund	0.61	5.51	-31.11	25.04	320	26.5	26.4
CRM All Cap Value Fund; Investor Shares	0.43	5.57	-17.26	11.56	77	6.2	27.4
CRM International Opportunity Fund; Investor Shares	1.55	6.36	-15.32	15.18	50	4.0	7.7
Davis Opportunity Fund; Class A Shares	0.98	5.67	-23.59	17.69	219	18.1	219.9
DFA International Value ex Tobacco Portfolio	0.34	8.00	-24.37	18.18	55	4.5	63
Dreyfus Tax Managed Growth Fund; Class A Shares	0.48	4.04	-14.02	9.39	184	15.2	136
DWS Capital Growth VIP; Class A Shares	0.77	5.35	-16.28	12.12	54	27.5	701.7
Federated MDT Small Cap Growth Fund; Class A Shares	0.61	6.23	-18.77	17.62	90	7.3	25.6
Fidelity Advisor Diversified International Fund; Class A Shares	0.67	5.26	-18.27	14.22	171	14.0	774.5
Fidelity Advisor Global Commodity Stock Fund; Class A Shares	1.14	7.11	-18.80	17.56	48	3.8	99
Fidelity Advisor International Value Fund; Class A Shares	0.20	6.75	-24.65	15.24	82	6.6	5
Fidelity Advisor Large Cap Fund; Class A Shares	0.65	5.26	-20.14	17.45	204	16.3	126.5
Fidelity Global Commodity Stock Fund	1.16	7.12	-18.78	17.66	48	3.8	366.1
Financial Investors Trust: ALPS/WMC Disciplined Value Fund; Class A	0.87	4.71	-24.07	15.73	339	28.8	45.8
FMI Focus Fund	1.43	6.39	-20.13	19.16	195	16.1	600
FPA International Value Fund	1.78	3.05	-6.95	5.36	15	1.1	41.4
Franklin MidCap Value Fund; Advisor Class	0.50	5.15	-21.22	14.93	92	7.5	2.5
Gabelli Equity Income Fund; Class AAA Shares	0.88	3.59	-16.72	10.58	254	21.0	1547.4
Hancock Horizon Value Fund; Class A Shares	0.67	4.25	-17.59	11.98	154	12.6	60.3
HighMark Cognitive Value Fund; Class A Shares	0.58	5.64	-18.78	15.60	142	6.8	0.7
HighMark International Opportunities Fund; Class A Shares	0.20	6.59	-71.51	13.29	339	6.8	4.4
HighMark Tactical Capital Growth Allocation Fund; Class A Shares	0.52	4.49	-17.33	11.21	101	8.2	23.1

Table IV (Continued)
Summary Statistics – Conventional Mutual Funds

This table shows the summary statistics for the equity conventional funds as identified by the matching procedure that matches SRI funds to conventional peers based on total net assets under management, fund objective and fund age. For each SRI fund, two conventional peers are identified. The dataset ranges from January 1st, 1985 until December 31st, 2012. To avoid double counting, only class-A shares are considered. This elimination process caused the dataset to include 45 SRI funds, therefore we identified 90 peers. This table provides the average net monthly return, standard deviation, minimum, maximum, number of months in the dataset, age and total assets under management. All returns are monthly and in percentages.

Fund names	Mean	SD	Min	Max	N	Age	AUM
Huntington VA Macro 100 Fund	0.60	5.34	-16.14	10.78	53	8.7	7.6
ING Diversified International Fund; Class A Shares	0.37	6.10	-22.75	14.69	87	7.0	43.8
International Growth & Income Fund; Class 2 Shares	1.24	5.32	-10.22	11.97	52	4.1	225
International Growth Fund; Class A Shares	0.43	5.28	-16.50	11.23	81	6.6	65.5
JNL/Franklin Templeton Global Growth Fund; Class A Shares	0.73	6.30	-19.12	11.21	54	6.0	658.1
John Hancock Funds II: All Cap Value Fund; Class 1 Shares	0.68	4.79	-16.68	14.40	89	7.2	96.7
John Hancock Funds III: Rainier Growth Fund; Class A Shares	0.13	5.74	-19.61	13.44	153	12.6	340.9
John Hancock Variable Insurance Trust: Capital Appreciation Trust;	0.96	5.38	-15.84	11.32	54	10.9	70.9
John Hancock Variable Insurance Trust: Fundamental Large Cap Value Trust;	0.92	5.73	-17.33	11.14	54	8.7	67.7
Johnson Disciplined Mid-Cap Fund	0.83	5.86	-25.54	22.08	226	18.6	32
JPMorgan International Value SMA Fund	0.08	6.85	-17.18	12.00	67	5.4	202.2
JPMorgan Intrepid Multi Cap Fund; Class A Shares	0.50	4.95	-18.58	12.16	97	7.9	8.1
Kinetics Mutual Funds, Inc: The Water Infrastructure Fund	-0.03	4.53	-14.96	9.89	69	5.5	4.7
Large Cap Value Fund; Class A Shares	0.21	5.06	-19.34	10.63	166	13.7	4
Legg Mason ClearBridge Equity Income Builder Fund; Class A Shares	0.70	3.19	-16.31	8.65	244	20.2	2333.8
LVIP T Rowe Price Structured Mid-Cap Growth Fund; Standard Cl Shs	1.20	6.55	-22.11	14.92	54	18.9	206.4
MainStay Epoch Global Equity Yield Fund; Class A Shares	0.53	4.15	-13.87	8.53	79	6.4	431.8
Massachusetts Investors Growth Stock Fund; Class 529B Shares	0.59	4.37	-17.96	11.61	128	10.4	0.5
MassMutual Premier Value Fund; Class A Shares	0.59	4.66	-20.41	14.03	212	8.2	8.2
MFS Global Equity Fund; Class A Shares	0.79	4.28	-16.21	11.64	234	19.3	374.8
Neuberger Berman Small Cap Growth Fund; Class A Shares	1.35	5.29	-9.76	12.51	45	3.6	1.5
Northwestern Mutual Series Fund, Inc: Mid Cap Growth Stock Portfolio	0.85	6.04	-16.48	13.90	54	22.1	829.1
Nuveen Mid Cap Select Fund; Class A Shares	0.96	9.82	-36.45	33.15	227	18.8	10.9
Ohio National Fund, Inc: US Equity Portfolio	0.49	6.71	-20.21	13.99	54	8.7	15.6
Oppenheimer Discovery Fund; Class A Shares	1.04	6.72	-22.94	35.27	318	26.3	1111.5
Oppenheimer Small- & Mid- Cap Value Fund; Class A Shares	0.91	5.02	-25.52	15.26	290	24.0	919.4
Pacific Dynamix - Growth Portfolio	1.14	3.71	-7.20	8.89	45	3.7	264.2
PIMCO Funds: Small Cap StocksPLUS TR Fund; Class A Shares	1.05	6.71	-21.44	17.26	84	6.4	99.8
Pioneer Global Equity Fund; Class A Shares	0.43	5.12	-17.93	11.79	87	7.0	59.4
Principal Capital Appreciation Fund; Class A Shares	1.13	5.51	-25.92	15.08	316	26.1	597.7
Prudential Jennison Blend Fund, Inc; Class A Shares	0.81	4.57	-18.74	13.55	278	23.0	903.9
Putnam Multi-Cap Value Fund; Class A Shares	0.91	5.67	-21.33	19.09	160	13.2	237.6
RS International Growth VIP Series	0.79	7.28	-22.58	13.50	54	21.9	221
Rydex Variable Trust: S&P MidCap 400 Pure Growth Fund	1.49	6.80	-19.89	19.35	54	8.7	31.8
Saratoga Advantage Trust: Small Capitalization Portfolio; Class A Shares	0.56	5.32	-15.98	14.86	85	6.9	7.6

Table IV (Continued)
Summary Statistics – Conventional Mutual Funds

This table shows the summary statistics for the equity conventional funds as identified by the matching procedure that matches SRI funds to conventional peers based on total net assets under management, fund objective and fund age. For each SRI fund, two conventional peers are identified. The dataset ranges from January 1st, 1985 until December 31st, 2012. To avoid double counting, only class-A shares are considered. This elimination process caused the dataset to include 45 SRI funds, therefore we identified 90 peers. This table provides the average net monthly return, standard deviation, minimum, maximum, number of months in the dataset, age and total assets under management. All returns are monthly and in percentages.

Fund names	Mean	SD	Min	Max	N	Age	AUM
SBL Fund: Series Y (Large Cap Concentrated Growth Series)	0.78	5.43	-14.11	12.48	54	13.7	36.2
Seasons Series Trust: Large Cap Growth Portfolio; Class 1 Shares	0.91	5.56	-18.08	11.39	54	13.9	30.3
Snow Capital Small Cap Value Fund; Class A Shares	1.47	6.41	-14.15	15.19	27	2.1	14.6
SunAmerica Focused Alpha Large-Cap Fund; Class A Shares	1.59	3.77	-7.20	6.71	14	7.0	241
TCM Small Cap Growth Fund	0.84	5.95	-21.77	13.42	101	8.3	211.9
Telecom Utility Portfolio; Class 1 Shares	0.96	4.63	-14.43	9.25	54	16.6	21.8
Thrivent Large Cap Stock Fund; Class A Shares	0.69	4.32	-19.23	12.52	308	25.5	1366.9
Touchstone International Value Fund; Class A Shares	0.43	4.78	-21.72	12.39	223	18.4	112.77
Touchstone Strategic Trust: Large Cap Growth Fund; Class A Shares	0.77	6.33	-24.64	28.44	183	15.0	274.7
Touchstone Strategic Trust: Mid Cap Growth Fund; Class A Shares	1.08	5.63	-20.20	21.34	222	19.0	279.5
Undiscovered Managers Behavioral Value Fund; Class A Shares	0.87	6.68	-22.61	23.95	105	8.6	42.3
Valued Advisers Trust: Green Owl Intrinsic Value Fund	1.77	2.59	-4.81	5.00	14	1.0	27
Vanguard Capital Opportunity Fund; Investor Shares	1.12	6.29	-18.63	22.25	211	17.4	2384
Virtus Quality Small-Cap Fund; Class A Shares	0.65	5.56	-17.75	16.38	81	6.5	107
Washington Mutual Investors Fund; Class 529-C Shares	0.62	3.85	-16.26	12.12	254	10.9	351.5
Wells Fargo Advantage Emerging Growth Fund; Class A Shares	0.93	6.43	-17.51	14.91	60	4.8	117
Wells Fargo Advantage Growth Fund; Class A Shares	0.97	6.28	-16.91	30.45	231	12.9	2306.4
Wells Fargo Advantage Intrinsic Value Fund; Class A Shares	0.62	5.08	-15.43	12.24	79	6.4	84
WisdomTree SmallCap Dividend Fund	0.67	6.59	-19.32	24.17	81	6.5	402.1
WorldCommodity Fund	0.32	6.64	-21.29	16.81	77	6.2	2.4

Table V
SRI Fund Performance

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The intercept alpha for each of the three OLS regressions (1)(2)(3) is displayed together with the corresponding t-statistic. All returns are monthly and in percentages.

	CAPM		FF3F		CH4F	
Fund name	α_J	t-stat	α_{3F}	t-stat	α_{4F}	t-stat
Ariel Fund	0.165	(0.834)	-0.081	(-0.538)	0.011	(0.0682)
Ariel Appreciation Fund	0.171	(0.952)	-0.039	(-0.271)	0.081	(0.553)
Ariel Focus Fund	-0.235	(-1.344)	-0.212	(-1.299)	-0.213	(-1.456)
Azzad Ethical Mid Cap Fund	0.038	(0.180)	0.044	(0.216)	0.040	(0.195)
CNI Charter Socially Responsible Equity Fund	-0.197	(-1.400)	-0.188	(-1.439)	-0.192	(-1.539)
Calvert Social Index A	-0.207***	(-3.100)	-0.157**	(-2.308)	-0.150**	(-2.287)
Calvert Equity Portfolio A	-0.046	(-0.502)	-0.052	(-0.582)	-0.007	(-0.0742)
Calvert Aggressive Allocation Fund A	-0.160*	(-1.824)	-0.172**	(-2.046)	-0.172**	(-2.032)
Calvert Conservative Allocation Fund A	0.130	(1.511)	0.143*	(1.714)	0.145*	(1.757)
Calvert Moderate Allocation Fund A	-0.058	(-0.789)	-0.059	(-0.822)	-0.058	(-0.810)
Calvert Enhanced Equity Portfolio A	-0.083	(-1.241)	-0.074	(-1.268)	-0.071	(-1.207)
Calvert Small Cap Fund A	-0.184	(-0.894)	-0.257*	(-1.709)	-0.259*	(-1.687)
Calvert International Equity Fund A	-0.368**	(-2.153)	-0.431**	(-2.493)	-0.417**	(-2.376)
Calvert Capital Accumulation A	-0.076	(-0.404)	-0.081	(-0.448)	-0.044	(-0.241)
Calvert International Opportunities Fund A	-0.208	(-0.650)	-0.232	(-0.739)	-0.246	(-0.781)
Sentinel Sustainable Mid Cap Opportunities Fund	-0.060	(-0.278)	0.037	(0.203)	-0.075	(-0.413)
Sentinel Sustainable Core Opportunities Fund	-0.041	(-0.242)	-0.066	(-0.381)	0.079	(0.480)
Domini International Social Equity Fund -- A shares	-0.413	(-1.350)	-0.375	(-1.238)	-0.391	(-1.316)
Domini Social Equity Fund -- Investor shares	-0.079	(-1.093)	-0.067	(-0.971)	-0.044	(-0.606)
The Utilities & Infrastructure Fund	0.092	(0.443)	0.019	(0.0952)	-0.023	(-0.115)
Green Century Equity	-0.097	(-1.338)	-0.068	(-1.086)	-0.049	(-0.789)
Praxis Value Index A	-0.231**	(-2.102)	-0.248***	(-2.802)	-0.226***	(-2.733)
Parnassus Fund	-0.083	(-0.436)	-0.091	(-0.518)	0.055	(0.306)
Parnassus Workplace Fund	0.265	(1.426)	0.253	(1.379)	0.261	(1.615)
Parnassus Small-Cap Fund	0.218	(0.740)	0.100	(0.414)	0.107	(0.453)
Parnassus Mid-Cap Fund	0.147	(0.867)	0.116	(0.703)	0.121	(0.785)
Parnassus Equity Income Fund	0.211*	(1.967)	0.161	(1.491)	0.186*	(1.669)
Pax World Growth Fund - Individual Investor	-0.174	(-0.972)	-0.208	(-1.243)	-0.269	(-1.616)
Portfolio 21	0.088	(0.592)	0.056	(0.357)	0.078	(0.511)
Pax World Womens Equality Fund - Individual Investor	-0.133	(-1.135)	-0.159	(-1.480)	-0.161	(-1.500)
TIAA-CREF Social Choice Eq Retail	-0.044	(-1.208)	-0.052	(-1.436)	-0.051	(-1.417)

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

Table V (Continued)
SRI Fund Performance

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The intercept alpha for each of the three OLS regressions (1)(2)(3) is displayed together with the corresponding t-statistic. All returns are monthly and in percentages.

	CAPM		FF3F		CH4F	
Fund name	α_J	t-stat	α_{3F}	t-stat	α_{4F}	t-stat
Appleseed Fund	0.355	(1.252)	0.358	(1.226)	0.326	(1.206)
Walden Social Equity Fund	0.059	(0.548)	0.055	(0.625)	0.052	(0.602)
Calvert Global Alternative Energy Fund Class	-1.591**	(-2.353)	-1.722**	(-2.646)	-1.736**	(-2.630)
Pax World Small Cap Fund - Individual Investor	0.165	(0.453)	-0.103	(-0.343)	-0.093	(-0.309)
Pax World Global Green Fund - Individual Investor	-0.258	(-0.661)	-0.422	(-1.162)	-0.470	(-1.304)
Pax World International Fund - Individual Investor	-0.549	(-1.462)	-0.504	(-1.394)	-0.579*	(-1.712)
Calvert Global Water Fund A	-0.037	(-0.147)	-0.110	(-0.418)	-0.177	(-0.702)
Walden Small Cap Innovations Fund	0.073	(0.275)	0.034	(0.207)	0.026	(0.165)
Praxis Growth Index Fund A	0.079	(0.627)	0.010	(0.112)	0.015	(0.171)
Praxis Small Cap Fund A	0.090	(0.347)	-0.097	(-0.558)	-0.094	(-0.534)
Gabelli SRI Green Fund Inc A	0.211	(0.580)	0.151	(0.406)	0.132	(0.362)
Neuberger Berman Socially Responsive A	-0.094	(-0.505)	-0.067	(-0.389)	-0.074	(-0.418)
Praxis International Index A	-0.854*	(-1.921)	-0.818	(-1.710)	-0.626	(-1.530)
Ariel Discovery Fund	-0.262	(-0.434)	0.154	(0.307)	0.040	(0.0850)

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively

Table VI
Conventional Fund Performance

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The intercept alpha for each of the three OLS regressions (1)(2)(3) is displayed together with the corresponding t-statistic. All returns are monthly and in percentages.

	CAPM		FF3F		CH4F	
Fund name	α_J	t-stat	α_{3F}	t-stat	α_{4F}	t-stat
Financial Investors Trust: ALPS/WMC Disciplined Value Fund	-0.055	(-0.518)	-0.158*	(-1.687)	-0.125	(-1.349)
AIM International Mutual Funds: Invesco International Gro Fd; Cl A	0.022	(0.124)	0.025	(0.142)	-0.059	(-0.338)
BlackRock Large Cap Core Fund; Investor Shares	0.045	(0.297)	-0.029	(-0.180)	-0.044	(-0.293)
BlackRock Large Cap Growth Fund; Service Shares	-0.017	(-0.0851)	0.044	(0.227)	0.031	(0.163)
CRM All Cap Value Fund; Investor Shares	-0.102	(-0.607)	-0.168	(-1.097)	-0.164	(-1.071)
Calamos Growth Fund; Class A Shares	0.262	(1.091)	0.309	(1.611)	0.085	(0.473)
CornerCap Small Cap Value Fund	-0.242	(-1.201)	-0.501***	(-3.124)	-0.384**	(-2.423)
Davis Opportunity Fund; Class A Shares	0.079	(0.449)	0.068	(0.401)	0.073	(0.432)
Dreyfus Tax Managed Growth Fund; Class A Shares	-0.008	(-0.0713)	0.062	(0.713)	0.058	(0.649)
Wells Fargo Advantage Intrinsic Value Fund; Class A Shares	0.051	(0.503)	0.071	(0.688)	0.065	(0.655)
FMI Focus Fund	0.672***	(3.056)	0.496***	(2.896)	0.505***	(2.878)
Federated MDT Small Cap Growth Fund; Class A Shares	-0.062	(-0.218)	-0.183	(-0.902)	-0.163	(-0.910)
Fidelity Advisor Large Cap Fund; Class A Shares	-0.079	(-0.889)	-0.084	(-0.954)	-0.076	(-0.780)
Fidelity Advisor International Value Fund; Class A Shares	-0.420	(-1.362)	-0.376	(-1.299)	-0.389	(-1.363)
Fidelity Advisor Diversified International Fund; Class A Shares	0.255	(1.212)	0.135	(0.657)	0.103	(0.502)
Touchstone International Value Fund; Class A Shares	-0.263	(-1.375)	-0.344*	(-1.837)	-0.365*	(-1.909)
Nuveen Mid Cap Select Fund; Class A Shares	-0.258	(-0.641)	0.039	(0.156)	0.064	(0.247)
Franklin MidCap Value Fund; Advisor Class	-0.100	(-0.667)	-0.128	(-0.919)	-0.129	(-0.931)
Gabelli Equity Income Fund; Class AAA Shares	0.218**	(1.997)	0.052	(0.736)	0.087	(1.180)
Hancock Horizon Value Fund; Class A Shares	0.302*	(1.737)	0.114	(0.793)	0.081	(0.615)
HighMark Cognitive Value Fund; Class A Shares	0.063	(0.272)	-0.239	(-1.431)	-0.257	(-1.538)
HighMark International Opportunities Fund; Class A Shares	-0.653**	(-2.005)	-0.697**	(-2.206)	-0.740**	(-2.209)
HighMark Tactical Capital Growth Allocation Fund; Class A	-0.091	(-1.587)	-0.0971*	(-1.733)	-0.0953*	(-1.688)
ING Diversified International Fund; Class A Shares	-0.197	(-0.729)	-0.179	(-0.676)	-0.186	(-0.713)
Prudential Jennison Blend Fund, Inc; Class A Shares	-0.005	(-0.0442)	-0.086	(-0.732)	0.010	(0.0847)
International Growth Fund; Class A Shares	-0.099	(-0.363)	-0.117	(-0.459)	-0.109	(-0.433)
John Hancock Funds II: All Cap Value Fund; Class 1 Shares	0.040	(0.326)	0.020	(0.166)	0.021	(0.174)
Johnson Disciplined Mid-Cap Fund	-0.100	(-0.601)	-0.216	(-1.393)	-0.214	(-1.275)
JPMorgan Intrepid Multi Cap Fund; Class A Shares	-0.120	(-1.096)	-0.127	(-1.182)	-0.129	(-1.250)
Legg Mason ClearBridge Equity Income Builder Fund; Class A	0.082	(0.835)	0.026	(0.274)	0.067	(0.682)
MFS Global Equity Fund; Class A Shares	0.071	(0.632)	0.022	(0.203)	0.014	(0.128)

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

Table VI (Continued)
Conventional Fund Performance

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The intercept alpha for each of the three OLS regressions (1)(2)(3) is displayed together with the corresponding t-statistic. All returns are monthly and in percentages.

	CAPM		FF3F		CH4F	
Fund name	α_J	t-stat	α_{3F}	t-stat	α_{4F}	t-stat
Massachusetts Investors Growth Stock Fund; Class 529B Shares	-0.120	(-1.148)	-0.110	(-1.248)	-0.109	(-1.228)
MassMutual Premier Value Fund; Class A Shares	-0.082	(-0.442)	-0.230	(-1.583)	-0.175	(-1.192)
Brown Capital Management International Equity Fund; Investor	-0.010	(-0.0510)	-0.120	(-0.574)	-0.090	(-0.432)
Oppenheimer Small- & Mid- Cap Value Fund; Class A Shares	0.064	(0.374)	-0.089	(-0.600)	-0.013	(-0.0850)
Oppenheimer Discovery Fund; Class A Shares	0.040	(0.183)	0.162	(1.103)	-0.021	(-0.150)
Large Cap Value Fund; Class A Shares	-0.219	(-1.139)	-0.162	(-0.869)	-0.165	(-0.880)
Virtus Quality Small-Cap Fund; Class A Shares	0.050	(0.190)	-0.004	(-0.0202)	-0.013	(-0.0628)
PIMCO Funds: Small Cap StocksPLUS TR Fund; Class A Shares	0.398*	(1.704)	0.384***	(2.681)	0.376***	(2.734)
Pioneer Global Equity Fund; Class A Shares	-0.146	(-0.807)	-0.116	(-0.687)	-0.113	(-0.670)
Principal Capital Appreciation Fund; Class A Shares	0.200	(1.506)	0.217**	(2.038)	0.251**	(2.397)
CAN SLIM Select Growth Fund	-0.034	(-0.0959)	-0.129	(-0.408)	-0.098	(-0.363)
TCM Small Cap Growth Fund	0.081	(0.320)	0.017	(0.0897)	-0.008	(-0.0488)
Putnam Multi-Cap Value Fund; Class A Shares	0.509**	(2.169)	0.222	(1.316)	0.246	(1.512)
John Hancock Funds III: Rainier Growth Fund; Class A Shares	-0.246	(-1.498)	0.001	(0.00560)	-0.011	(-0.102)
Saratoga Advantage Trust: Small Capitalization Portfolio; Class A	-0.036	(-0.182)	-0.060	(-0.453)	-0.059	(-0.443)
Thrivent Large Cap Stock Fund; Class A Shares	-0.079	(-1.124)	-0.091	(-1.619)	-0.101*	(-1.725)
Touchstone Strategic Trust: Large Cap Growth Fund; Class A Shares	0.198	(0.712)	0.280	(1.273)	0.130	(0.673)
Touchstone Strategic Trust: Mid Cap Growth Fund; Class A Shares	0.217	(1.144)	0.153	(1.062)	0.073	(0.485)
Undiscovered Managers Behavioral Value Fund; Class A Shares	0.088	(0.358)	0.008	(0.0449)	0.042	(0.267)
Vanguard Capital Opportunity Fund; Investor Shares	0.256	(1.182)	0.277	(1.531)	0.304*	(1.705)
Washington Mutual Investors Fund; Class 529-C Shares	-0.048	(-0.374)	-0.176**	(-2.165)	-0.127	(-1.627)
Wells Fargo Advantage Growth Fund; Class A Shares	0.119	(0.510)	0.239	(1.330)	0.090	(0.532)
WisdomTree SmallCap Dividend Fund	-0.009	(-0.0237)	0.064	(0.267)	0.033	(0.159)
MainStay Epoch Global Equity Yield Fund; Class A Shares	0.066	(0.376)	0.079	(0.515)	0.082	(0.536)
WorldCommodity Fund	-0.042	(-0.0680)	-0.060	(-0.0919)	-0.066	(-0.101)
Kinetics Mutual Funds, Inc: The Water Infrastructure Fund	-0.305	(-1.259)	-0.354	(-1.477)	-0.356	(-1.469)
JPMorgan International Value SMA Fund	-0.358	(-0.971)	-0.342	(-0.943)	-0.350	(-0.962)
Columbia Select Large Cap Growth Fund; Class A Shares	0.133	(0.407)	-0.003	(-0.0109)	-0.021	(-0.0796)
Wells Fargo Advantage Emerging Growth Fund; Class A Shares	0.201	(0.553)	-0.097	(-0.342)	-0.061	(-0.213)
DWS Capital Growth VIP; Class A Shares	-0.085	(-0.459)	-0.261**	(-2.069)	-0.240*	(-1.999)
Northwestern Mutual Series Fund, Inc: Mid Cap Growth	-0.119	(-0.505)	-0.244	(-1.368)	-0.248	(-1.378)

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

Table VI (Continued)
Conventional Fund Performance

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The intercept alpha for each of the three OLS regressions (1)(2)(3) is displayed together with the corresponding t-statistic. All returns are monthly and in percentages.

	CAPM		FF3F		CH4F	
Fund name	α_J	t-stat	α_{3F}	t-stat	α_{4F}	t-stat
RS International Growth VIP Series	-0.197	(-0.511)	-0.286	(-0.746)	-0.385	(-1.094)
LVIP T Rowe Price Structured Mid-Cap Growth Fund; Standard Cl Shs	0.167	(0.657)	0.001	(0.00428)	-0.054	(-0.307)
AST Neuberger Berman Mid-Cap Growth Portfolio	0.106	(0.440)	-0.038	(-0.185)	-0.014	(-0.0652)
AIM Variable Insurance Funds: Invesco VI Utilities Fund; Series I Shares	0.203	(0.520)	0.272	(0.776)	0.332	(0.953)
Telecom Utility Portfolio; Class 1 Shares	0.256	(0.796)	0.230	(0.760)	0.235	(0.786)
SBL Fund: Series Y (Large Cap Concentrated Growth Series)	-0.049	(-0.235)	-0.166	(-0.862)	-0.149	(-0.782)
Seasons Series Trust: Large Cap Growth Portfolio; Class 1 Shares	0.048	(0.257)	-0.085	(-0.680)	-0.130	(-1.079)
John Hancock Variable Insurance Trust: Capital Appreciation Trust;	0.160	(0.605)	-0.072	(-0.399)	-0.091	(-0.508)
Huntington VA Macro 100 Fund	0.333	(0.411)	0.656	(0.872)	0.636	(0.839)
Rydex Variable Trust: S&P MidCap 400 Pure Growth Fund	0.488	(1.492)	0.362	(1.303)	0.262	(1.007)
John Hancock: Fundamental Large Cap Value Trust;	-0.009	(-0.0552)	0.033	(0.182)	0.017	(0.0970)
Ohio National Fund, Inc: US Equity Portfolio	-0.588***	(-2.746)	-0.522***	(-2.800)	-0.569***	(-3.355)
JNL/Franklin Templeton Global Growth Fund; Class A Shares	-0.205	(-0.824)	-0.213	(-0.829)	-0.267	(-1.055)
DFA International Value ex Tobacco Portfolio	-0.459	(-1.109)	-0.375	(-0.915)	-0.531	(-1.452)
Columbia Variable Portfolio-Select Large Cap Growth Fund; Class 1 Shs	0.172	(0.469)	-0.118	(-0.421)	-0.174	(-0.630)
CRM International Opportunity Fund; Investor Shares	-0.219	(-0.435)	-0.291	(-0.604)	-0.346	(-0.744)
Baron International Growth Fund; Retail Shares	-0.047	(-0.108)	-0.108	(-0.259)	-0.152	(-0.379)
Fidelity Global Commodity Stock Fund	-0.935	(-1.592)	-0.987*	(-1.734)	-1.010*	(-1.787)
Fidelity Advisor Global Commodity Stock Fund; Class A Shares	-0.953	(-1.624)	-1.005*	(-1.767)	-1.028*	(-1.820)
Pacific Dynamix - Growth Portfolio	-0.074	(-0.884)	-0.075	(-0.873)	-0.065	(-0.804)
Neuberger Berman Small Cap Growth Fund; Class A Shares	-0.293	(-0.819)	-0.222	(-0.856)	-0.242	(-0.942)
International Growth & Income Fund; Class 2 Shares	-0.075	(-0.203)	-0.109	(-0.320)	-0.210	(-0.652)
Columbia Funds - Partners Small Cap Growth Funds	-0.272	(-0.813)	-0.071	(-0.211)	0.017	(0.0571)
Columbia Funds - Columbia Wanger US Equities Fund;	-0.249	(-0.775)	0.023	(0.0988)	0.182	(0.833)
Snow Capital Small Cap Value Fund; Class A Shares	-0.076	(-0.163)	0.320	(0.760)	0.326	(0.832)
FPA International Value Fund	0.572	(0.978)	0.094	(0.233)	0.654	(1.745)
SunAmerica Focused Alpha Large-Cap Fund; Class A Shares	-0.300	(-0.892)	-0.154	(-0.384)	-0.294	(-0.436)
Valued Advisers Trust: Green Owl Intrinsic Value Fund	0.501*	(1.929)	0.253	(0.897)	-0.194	(-0.303)

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively

Table VII
Screen Correlations

This table provides an overview of the correlations between each individual screen used in the analysis as identified by Bloomberg's Environmental, Social and Governance (ESG) Data service and is retrieved through the Forum of Sustainable and Responsible Investment website, http://charts.ussif.org/mfpc. All correlation above .500 are in bold.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Climate/Clean technology	1																
2	Pollution/Toxics	**0.978**	1															
3	Environment/Other	0.083	0.081	1														
4	Community Development	0.290	0.280	-0.017	1													
5	Diversity	0.177	0.170	-0.013	**0.618**	1												
6	Human Rights	**0.665**	**0.650**	0.113	0.056	0.156	1											
7	Labor Relations	**0.605**	**0.590**	0.105	0.182	0.325	**0.930**	1										
8	Sudan	-0.158	-0.143	-0.060	0.285	0.208	-0.387	-0.331	1									
9	Board Issues	**0.509**	0.494	-0.019	**0.627**	**0.648**	0.020	0.133	0.322	1								
10	Executive Pay	**0.830**	**0.808**	0.069	0.387	0.435	**0.610**	**0.656**	-0.029	**0.671**	1							
11	Alcohol	**0.587**	**0.571**	0.096	0.133	0.269	**0.670**	**0.744**	-0.266	0.084	**0.567**	1						
12	Animal Welfare	**0.590**	**0.571**	0.068	0.380	0.429	**0.601**	**0.646**	-0.245	0.354	**0.617**	**0.558**	1					
13	Defense/Weapons	0.201	0.195	-0.008	0.471	**0.643**	-0.071	0.081	0.134	0.417	0.280	0.391	0.276	1				
14	Gambling	**0.527**	**0.512**	0.089	0.104	0.239	**0.615**	**0.683**	-0.209	0.054	**0.502**	**0.756**	0.492	0.362	1			
15	Tobacco	0.159	0.153	-0.009	**0.528**	**0.722**	-0.080	0.168	0.151	0.468	0.314	0.439	0.310	**0.891**	0.406	1		
16	Other/Qualitative measures	0.015	0.028	0.031	-0.241	-0.180	0.123	0.151	**0.578**	-0.165	0.075	0.197	-0.147	-0.141	0.229	-0.099	1	
17	Shareholder Engagement	0.313	0.320	0.026	0.224	0.077	0.230	0.247	**0.739**	0.191	0.327	0.270	0.085	0.105	0.291	0.118	**0.795**	1

Table VIII

Screening intensity - Robustness

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The SRI sample consists of 45 funds. This table shows the output of the following model: $RAP_{f,t} = \gamma_0 + \gamma_1 Screening\ intensity_i + \sum_{j=1}^{K} \beta_j\ Fund\ characteristics_{i,t-1} + Z_y + \varepsilon_{i,t}$, where $RAP_{f,t}$ is the monthly risk-adjusted performance. The second column adds a quadratic screening intensity term to check for non-linear relationships. The global dummy signals if part of the fund's assets are invested internationally. Additionally, three characteristics are added namely: Fund age, which is the age measured in years from inception, Expense ratio, which is the total of annual costs associated with investing in the fund expressed as a percentage of the investment, Log size is the natural logarithm of the total assets under management. Each model includes a time fixed effect dummy. All returns are per monthly and in percentages.

Variables	Monthly RAP	Monthly RAP
Screening intensity	0.000434	-0.134**
	(0.0451)	(-2.189)
Screening intensity_SQRT		0.00589**
		(2.224)
Global dummy	-0.207**	-0.182*
	(-2.117)	(-1.850)
Lagged_fund_age_year	0.0110	0.00900
	(1.280)	(1.045)
Lagged_exp_ratio	-0.0223	0.00115
	(-0.222)	(0.0114)
Lagged_log_size	-0.0374	-0.0353
	(-1.277)	(-1.206)
Constant	0.800*	1.424***
	(1.833)	(2.745)
Observations	4,968	4,968
Adj. R-squared	0.027	0.028
Time effect	Yes	Yes

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

Table IX

Screening – Decomposed incl. characteristics

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The SRI sample consists of 45 funds. This table shows the output of the OLS model (8). Each screen is assigned a dummy variable 1 if used and zero otherwise. Fund characteristics as described are included. All returns are per month and in percentages. The *Defense/Weapon* screen is omitted.

Variables	Monthly alpha	Monthly alpha
Climate Cleantech	-0.234	0.0798
	(-0.415)	(0.152)
Pollution/Toxics	0.404	0.287
	(1.030)	(0.794)
Environment/Other	1.101	1.100
	(1.467)	(1.559)
Community Development	-0.162	-0.0794
	(-0.781)	(-0.415)
Diversity	-0.240	-0.108
	(-0.453)	(-0.219)
Human Rights	0.172	0.0353
	(0.172)	(0.0381)
Labor Relations	0.0031	-0.031
	-0.0045	(-0.048)
Board Issues	-0.0286	-0.255
	(-0.0671)	(-0.642)
Executive Pay	-0.130	-0.123
	(-0.601)	(-0.617)
Alcohol	-0.520**	-0.534**
	(-2.127)	(-2.350)
Animal Welfare	0.145	0.161
	(1.037)	(1.248)
Gambling	0.0854	0.0461
	(0.418)	(0.235)
Tobacco	0.603	0.426
	(0.750)	(0.569)
Other/qualitative	-0.252	-0.245
	(-0.971)	(-1.009)
Shareholder Engagement	0.471*	0.474*
	(1.724)	(1.868)

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.

Table IX (Continued)

Screening – Decomposed incl. characteristics

The dataset ranges from January 1st, 1985 until December 31st, 2012 and is unbalanced. The SRI sample consists of 45 funds. This table shows the output of the OLS model (8). Each screen is assigned a dummy variable 1 if used and zero otherwise. Fund characteristics as described are included. All returns are per month and in percentages. The *Defense/Weapon* screen is omitted.

Variables	Monthly alpha	Monthly alpha
Global dummy	-0.320**	-0.311**
	(-2.127)	(-2.151)
lagged_fund_age_year	0.0210**	0.0259***
	(2.377)	(2.852)
lagged_exp_ratio	-0.0455	-0.0903
	(-0.469)	(-0.924)
lagged_log_size	-0.0803**	-0.0935***
	(-2.455)	(-2.788)
Constant	-1.063	-1.437
	(-1.040)	(-1.210)
Observations	454	454
Adj. R-squared	0.0474	0.195
Time effect	No	Yes
Random effects	No	No

*, **, and ***, show that variables are significant at the 10, 5, and 1 percent level, respectively.