

# **Socially Responsible Funds and Market Crises**

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## **ABSTRACT**

Compared to conventional mutual funds, socially responsible mutual funds outperform during periods of market crisis. This dampening of downside risk comes at the cost of underperforming during non-crisis periods. Investors with Prospect Theory utility functions would value the skewness of these returns. This asymmetric return pattern is driven by the mutual funds that focus on environmental, social, or governance (ESG) attributes and is especially pronounced in ESG funds that use positive screening techniques. Furthermore, the observed patterns are attributed to the socially responsible attributes and not the differences in fund management or the characteristics of the companies in fund portfolios.

*JEL Classification:* G01, G20, M14

*KEYWORDS:* SRI, ESG, socially responsible, prospect theory

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# **Socially Responsible Funds and Market Crises**

## **1. Introduction**

Sustainability requires that organizations strive for financial success while accepting responsibility for their impact on and relationships with a diverse group of stakeholders (AON, 2007). One of the key drivers behind sustainability practices is the increasing investor demand for socially responsible investing (SRI) strategies, which includes ethical investing and green investing. SRI funds historically began by excluding firms producing socially undesirable products (sin stocks) like alcohol, tobacco, weapons, gambling, etc. As this niche of the investment industry developed, money managers began incorporating environment, social, and governance (ESG) factors into their investment analysis, decision-making, and portfolio construction. There is much literature on whether investors pay a price for investing in socially responsible investments funds or obtain superior returns. Proponents of socially responsible investing argue it might potentially limit downside risk. However, Renneboog, Horst, and Zhang (2008a) and others report that investors largely do pay a cost for ethics.

And yet, the SRI industry has grown substantially over time. The USSIF (2010) report finds that professionally managed assets following SRI strategies grew by 380 percent since 1995 to \$3.07 trillion in 2010. In comparison, the broad universe of professionally managed assets grew by 260 percent to \$25.2 trillion in 2010. Even during the financial crisis (2007-2009) the broad universe of professionally managed assets remained roughly flat while assets using SRI strategies enjoyed healthy growth of more than 13 percent. To explain the increasing popularity of SRI when it mostly generates negative abnormal returns, Statman (2004) and Bollen (2007) argue that investors must gain some utility from the externalities of investing in a manner consistent with their beliefs.

We propose another explanation. Although SRI investing may generate negative abnormal returns over time, they hold up better during market crisis periods. That is, the nature of SRI and ESG dampens the downside risk. Companies that consistently exhibit social and environmental responsibility may find themselves suffering from fewer legal prosecutions, fines, and more stable relations with communities and government, including regulators (McGuire, et al., 1988). Also, firms with better corporate governance may be suited to deal with adverse systemic economic shocks. Verwijmeren and Derwall (2010) find that firms with high measures of employee satisfaction measures exhibit lower bankruptcy risk. In a more direct test, Oikonomou, et al. (2012) conclude that socially responsible behavior is weakly negatively related to systematic risk while irresponsible behavior is strongly positively related to systematic risk.

Would investors be willing to give up some return in non-crisis market periods to gain some higher returns during crisis periods? Under Kahneman and Tversky's (1979) Prospect Theory, investors are more negatively impacted by losses than they are positively impacted by a gain of similar magnitude. Thus, they are likely to choose a portfolio with skewed or asymmetric performance because the gain in utility for doing better in falling markets is larger than the loss in utility for underperforming in rising markets.

Using a unique dataset of US domestic equity SRI funds for the period 2000-2011, we investigate the performance of SRI funds during crisis and non-crisis periods to empirically test the hypothesis that SRI funds dampen downside risk for investors during poor economic conditions.

The next section describes the literature and develops our hypotheses. Section 3 details our data and defines our methods. The SRI return alphas are computed for non-crisis and crisis

periods in Section 4 and compared to conventional mutual funds. In Section 5, we break out the different SRI foci, like avoiding unwanted products, environmental activities, social issues and governance standards. We also investigate the role of using positive versus negative screen techniques. One could argue that SRI and conventional funds are managed differently. Or, there may be differences in the characteristics of the companies picked for the portfolios beyond the socially responsible attributes. We explore this possibility in Section 6. The last section summarizes our findings.

## **2. Literature Review and Hypothesis Development**

### **2.1 Literature Review**

Early research suggests that SRI funds either exhibit no performance difference from conventional funds (Hamilton, Jo, and Statman, 1993; Goldreyer, Ahmed, and Diltz, 1999; Statman, 2000; Shank, Manullang, and Hill, 2005) or underperform (Girard, Rahman, and Stone, 2007). More recently, Adler and Kritzman (2008) contend that some cost must be associated with SRI because they exclude some attractive firms from their portfolios. Using Monte Carlo simulation, they estimate the cost of SRI to be giving up somewhere between 0.17 percent and 2.4 percent return per year due to the self-imposed restrictions. Using an international set of SRI mutual funds, Renneboog, Horst, and Zhang (2008a) find that investors largely pay a price for ethics. Specifically, SRI funds in the United States, the United Kingdom, and in many continental European and Asia-Pacific countries underperform their domestic benchmarks by  $-2.2$  to  $-6.5$  percent. However, the risk-adjusted returns of SRI funds are generally not statistically different from the performance of conventional funds.

Another method of examining this issue is to study the SRI firms themselves, rather than SRI mutual fund portfolios or indexes. Different aspects of social responsibility have been

examined. For example, Derwall, Guenster, Bauer, and Koedijk (2005) provide evidence of positive abnormal returns for environmentally clean firms. Other studies find positive, though not statistically significantly, abnormal returns (Kempf and Osthoff, 2007; Statman and Glushkov, 2009) using different measures of environmental performance. Positive abnormal returns have been identified for some types of SRI, specifically for firms with high employee satisfaction (Edmans, 2011; Statman and Glushkov, 2009; Derwall, Koedijk, and Horst, 2011) and good corporate governance (Bebchuk, Cohen, and Ferrell, 2009). On the other hand, positive abnormal returns have been found in some firms that are avoided by SRI investors. Hong and Kacperczyk (2009) empirically analyze sin stocks and find that they earn positive annual abnormal returns of about 3 percent (see also Kim and Venkatachalam, 2011).

How can many of the firms SRI investors buy outperform and yet SRI mutual funds do not? Guenster (2012) describes how SRI portfolios include some positive alpha firms, they also exclude some positive alpha firms like sin stocks, thus ending with normal performance. However, Guenster also notes that positive alphas in SRI favored firms have been disappearing recently. Bebchuk, Cohen, and Wang (2011) documents a learning effect for corporate governance and show that abnormal returns in those firms have diminished over time and recently ceased to exist. Similar declines of abnormal returns have been reported in recent years for the social dimension of SRI favored firms (Derwall et al., 2011).

Our data shows that the total net assets in U.S. domestic SRI equity mutual funds grew 305 percent from 2000 to 2011 while the asset growth rate of U.S. domestic non-SRI equity funds grew 65 percent during the same period. The growth in assets being managed in SRI mutual fund may seem puzzling considering their marginal relative performance. Bollen (2007) resolves this puzzle by suggesting that investors have a multi-attribute utility function that

doesn't just include risk-reward optimization, but also incorporates personal and social values. Renneboog, Horst, and Zhang (2008b) argue that this social value aspect of the utility function reduces the value of financial characteristics to SRI investors. Consistent with this conjecture, Renneboog, Horst, and Zhang (2011) and Benson and Humphrey (2008) find that SRI investors may be more loyal to SRI mutual funds than are conventional investors. They use monthly to annual lead-lag relationships between return and money flow into SRI and conventional funds. They report that SRI flows are significantly less sensitive to past negative returns than are flows to conventional funds. However, Renneboog, Horst, and Zhang (2011) find that not all SRI fund categories are treated alike. Specifically, SRI funds that use either negative screens or screens based on specific sin/ethical issues have a weaker flow sensitivity to negative returns, whereas, social screens induce a weaker flow-return relation if past returns are positive. On the other hand, flows of SRI funds with environmental screens are more sensitive to past returns.

## **2.2 Hypothesis Development**

In addition, SRI portfolios may exhibit unsystematic risk. If investors constrain their opportunity set of available firms to own through various negative or positive screens, they should incur diversification costs (Guenster, 2012). That is, SRI mutual funds run the risk of being under diversified and thus underperforming in the traditional mean-variance optimization framework. In fact, while the debate over whether SRI earns positive, negative, or zero returns is useful from an asset pricing perspective, it may highlight how investors actually value the return distribution and risk. Kahneman and Tversky's (1979) Prospect Theory shows that investors do not value gains and losses with the same magnitude. People are more negatively impacted by losses than they are positively impacted by a gain of similar magnitude. This is because the slope

of the utility function in the loss domain is steeper than the slope of the utility function in the gain domain. Indeed, people may be better described as loss averse rather than risk averse.

Consider two portfolios called (1) efficient portfolio and (2) skewed portfolio. The efficient portfolio is mean-variance optimized. The skewed portfolio underperforms the efficient portfolio during a rising stock market and out performs it during a falling stock market. Overall, the efficient portfolio marginally outperforms the skewed portfolio. Under prospect theory, investors are likely to choose the skewed portfolio over the efficient portfolio because the gain in utility for doing better in falling markets is larger than the loss in utility for underperforming in rising markets.

SRI mutual funds intentionally constrain themselves through investing in a subset of the available stocks through negative and/or positive screens. Thus, they are not likely to be efficient portfolios. Could SRI funds be similar to the skewed portfolio? Proponents of SRI claim that their style of investing reduces the downside risk. Positive screens choose firms with good environmental records, good corporate governance, and good employee relations. These firms are less likely to experience negative outcomes in these social areas. Also, negative screens avoid stocks that may be more likely to have high impact negative news regarding social issues. Thus, SRI portfolios may hold up better during bear markets even at the expense of underperforming during bull markets. This skewed performance (relative to the efficient portfolio), combined with prospect theory preferences would explain this SRI popularity.

### **3. Data and Methods**

#### **3.1 SRI Mutual Funds**

During the period of 2000 to 2011, we identify 240 US domestic equity mutual funds in the SRI category. The fund level survivor-bias-free US mutual data (mutual fund and ETF) has

been obtained from Centre for Research in Security Prices (CRSP). We look at a sample of only equity funds as the data available to us allows us to link their equity holdings to other databases such as CRSP and Compustat, which provide stock level financial and trading information. From here on we will refer to US domestic equity SRI funds as SRI funds, even though SRI funds could broadly include other asset classes such as global equity or fixed income. Our list of SRI funds has been put together through an extensive search of various databases as SRI funds are not explicitly identified in the CRSP database. We first looked through the Morningstar database in January 2012 to identify active US funds with SRI objectives. However, this list would have survivorship bias as it would exclude funds that got liquidated or merged earlier. Using the sample of SRI funds studied in Statman (2000), we identified some more SRI funds that were in existence during the beginning of our sample period in January 2000, but were subsequently liquidated or merged. We also looked through publicly available lists of SRI funds on the Socialfunds.com and USSIF.org websites to find other missing SRI funds.<sup>1</sup> In addition, we searched the name history of the CRSP US Mutual fund database for certain keywords that commonly appear in SRI fund names and located a few more SRI funds.<sup>2</sup> Table 1 summarizes the 240 SRI funds we located. They are mostly open end mutual funds, but include 12 exchanged traded funds (ETFs). They comprise 135 retail funds. At the end of the 2011, the surviving 184 funds managed a total of nearly \$29 billion. Most of the funds (190) and the assets (\$25 billion in 2011) are actively managed.

<Insert Table 1 about here>

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<sup>1</sup> The list of SRI Funds on the Social Funds website is publicly available at [www.socialfunds.com](http://www.socialfunds.com). The list of SRI Funds on the US Social Investment forum (USSIF, formerly the Social Investment Forum) is publicly available at: <http://ussif.org/>.

<sup>2</sup> We searched for the following words that seem to occur frequently in the name of SRI funds: Social, socially, environment, green, sustainability, sustainable, ethics, ethical, faith, religion, Christian, Islam, Baptist and Lutheran. Thereafter, we looked through the prospectus of the funds and fund websites (if available) to ensure that they were indeed SRI funds.



SRI includes different strategies (positive versus negative screening) and different foci, namely screens based on firm products, environmental impact, social and governance screens. Positive screens over-weight stocks which perform well on certain attributes and place lesser or no weight on those that perform poorly on those attributes. Negative screens only restrict investments in firms that perform poorly on certain attributes. These differences in style might impact fund performance. We have collected data on screening criteria by looking through each fund's prospectus (historical or current) made publicly available on SEC Edgar. For a few funds the information was obtained from company websites. Most funds tend to describe their SRI criteria under the "Principal Investing Strategies" section of their prospectus. See Table 2 for a distribution of our sample's screen criteria. We define product-based screens as those that prohibit or restrict investments in stocks that produce or derive significant revenues from alcohol, tobacco, gambling, defence/weapons, nuclear energy, pornography or contraceptives. Out of 209 funds that employ some kind of firm product screens, the most frequently screened product characteristics are gambling (191 funds), tobacco (160 funds), and alcohol (154 funds).

<Insert Table 2 about here>

Environmental screens consider the firm's impact on climate, adoption of clean technologies, pollution, release of toxic substances, and sustainability. Of the 160 funds with environment screens, 25 use a negative screen approach that avoids polluters. The other 135 fund use a positive screen strategy in which they seek firms that take actions like using green energy and promoting recycling, which positively contribute to the environment.. Social screens consider community development, employee diversity, equal employment opportunities, racial/gender diversity in company boards, human rights, and labor relations. Of the 140 funds using social criteria, 106 are using the positive screen approach to find progressive firms.

Governance screens consider board of director related issues (such as independence of directors), executive compensation, and other general corporate governance provisions. There are 97 funds in our sample that use governance criteria. Of these, 83 funds use positive governance screens, while 14 use negative screens to avoid firms with poor governance policies. A few funds broadly mention employing environment, social or governance screens, but do not define their precise screening criteria/methodology.

The number of SRI mutual fund and the amount of SRI assets under management grew substantially during the time of our sample. The total number of SRI funds grew from 71 in 2000 to 184 in 2011, for a 156 percent growth. SRI mutual fund assets under management grew 305 percent, to \$29 billion. The fastest growing funds in the ESG categories were funds that screen on corporate governance issues. Faith/religious focus funds, which often implement some product based screen (often related to alcohol, tobacco, gambling, pornography or abortion/contraceptives) and sometimes also include a few ESG screens, also witnessed significant growth.

A cursory review of the second table would suggest that SRI firms tend not to specialize in just one screening foci. Indeed, the typical SRI fund uses various product screens and environmental or social screens. Table 3 shows the frequency of fund using combinations of screening topics. Panel A displays the number of funds using combinations of product, environment, social, and governance screens. For example, there are 131 funds that implement both product and environmental screens. We have 128 funds that use both social and environmental screens. Panel B adds the positive and negative screen information to the analysis. For example, there are 106 funds that use product screens and positive environmental screens. One thing that is apparent in the panel is that funds tend to stick to either positive or negative

screen techniques. Of the 135 funds that use a positive environmental screen, only 5 use negative social screens and none use governance negative screens. And of the 25 funds that use negative environmental screens, none use positive social or governance screens.

<Insert Table 3 about here>

The CRSP US Mutual Fund database provides data on mutual fund holdings from January 2003 onwards on a monthly frequency. Unfortunately, data is often missing for some months, especially early in the time period. Given that the data is evenly available only at the quarterly level (which starts in 2000), we choose to investigate differences quarterly fund composition.<sup>3</sup> The mutual fund holdings data uniquely identifies securities in each fund portfolio. This allows us to study stock characteristics of the portfolios by extracting stock level returns and accounting data from the CRSP and Compustat.

### **3.2 Matching Conventional Funds**

In this study, we compare the performance of SRI equity funds to a matched sample of non-SRI conventional equity funds. The matching fund approach has been used in many other studies that investigate SRI fund performance.<sup>4</sup> For each SRI fund, on the earliest date that a SRI fund appears in our sample, we identify three peer conventional funds with similar Lipper fund objectives, years in existence and total net assets. We accomplish this by first identifying conventional funds with same Lipper objective and inception dates within a year of the SRI fund's inception date. Thereafter, the three conventional funds closest in total net assets are

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<sup>3</sup> If the holding at the end of a particular quarter are unavailable, we take the reporting date closest to the end of the quarter as reflective of the quarter end position. Sometimes there could be a potential tie. For example, the statement for 11/30/2008 and 1/31/2009 are considered to be reflective of the quarter ending 12/31/2008 and are a month away from the relevant date. In this situation, we assume that 1/31/2009 is more reflective of 12/31/2008 than an earlier reporting date of 11/30/2008.

<sup>4</sup> For examples, see Goldreyer, Ahmed and Diltz (1999), Statman (2000), Bauer, Koedijk and Otten (2005), Bollen (2007), and Renneboog, Horst, and Zhang (2008).

identified.<sup>5</sup> Also, we ensure that for each SRI fund, the three matched funds come from unique fund families. This is done to ensure that the matched conventional fund performance is not dominated by a few fund families.

### **3.3 Crisis Periods**

Crisis periods are often characterised with a big fall in the stock market. During the period 2000 to 2011, we identify two crisis periods for the stock market based on the peak and trough for the Standard & Poor's 500 Index: March 2000 to October 2002 and October 2007 to March 2009. The first crisis period (March 2000 to October 2002) happened after the technology bubble burst and during this period the S&P 500 fell from a high of 1534.63 on March 27, 2000 to a low of 768.63 on October 10, 2002. The second crisis period (October 2007 to March 2009) revolved around the global financial crisis and saw the S&P 500 fall from a high of 1576.09 on October 11, 2007 to a low of 666.79 on March 6, 2009.

The National Bureau of Economic Research (2012) identifies two recessionary periods during the period 2000-2011. The first recessionary business cycle is from March 2001 to November 2001 (8 months) and the second cycle is from December 2007 to June 2009 (18 months). These NBER recessionary periods broadly coincide with our definition of market crises based on the performance of the stock market, though the first NBER period is shorter than our first market crises period. Using the NBER definition we get results similar to the ones with our market crises definition.

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<sup>5</sup> For very few (3 out of 240) SRI funds, three conventional fund matches were not found due to the one year age criteria being too restrictive. In such cases, we relax the fund inception date criteria to within three years and if we still do not achieve three matched funds we drop the age criteria completely. We also tried an alternate matching procedure using the same matching criteria as above but instead of identifying matched conventional funds just once on the earliest date that a SRI fund appears in the sample, we conducted a separate matching routine for each SR fund each month. This meant that the same fund could have potentially different matched conventional funds each month. Even with this alternate methodology our results remained unchanged.

### 3.4 Alpha using Factor Models

We use three different factor models to calculate risk adjusted abnormal return performance of SRI funds relative to conventional funds. The first alpha measure is calculated from the CAPM. The second model used is the Fama-French 3-factor model (Fama and French, 1993), which supplements the CAPM with the size (SMB) and value (HML) investment style factors. The last alpha measure is calculated using the Carhart (1997) 4-factor model, which supplements the Fama-French 3-factor model with a momentum (WML) factor. We implement the above models for an equally weighted portfolio of mutual funds over a monthly time-series.

While several studies in the past have investigated the performance of SRI funds and conventional funds over different time horizons, we estimate separate non-crisis and crisis period alpha model parameters using the entire monthly time-series of the average mutual fund return for the twelve year period (2000-2011). We estimate the non-crisis (NC) and crisis (C) period alphas for the CAPM using the following specification:

$$R_t - R_{f,t} = \alpha_{NC}D_{NC,t} + \alpha_C D_{C,t} + \beta_1(R_{m,t} - R_{f,t}),$$

where  $R_t$  is the equally weighted average monthly fund returns belonging to a specific fund category (SRI, Conventional or SRI-Conventional) at time  $t$ ,  $\alpha_{NC}$  is the non-crisis period monthly alpha,  $\alpha_C$  is the crisis period monthly alpha,  $D_{NC,t}$  is a dummy variable that takes the value of 1 if time  $t$  is defined as non-crisis period and 0 otherwise,  $D_{C,t}$  is a dummy variable that takes the value of 1 if time  $t$  is defined as a crisis period and 0 otherwise,  $R_{m,t}$  is the market return,  $R_{f,t}$  is the risk free rate (30 day T-bill rate), and  $\beta_1$  measures systematic risk. The Fama-French 3-factor with crisis and non-crisis alphas extends the CAPM above with the following specification:

$$R_t - R_{f,t} = \alpha_{NC}D_{NC,t} + \alpha_C D_{C,t} + \beta_1(R_{m,t} - R_{f,t}) + \beta_2SMB_t + \beta_3HML_t,$$

where  $\beta_2$  and  $\beta_3$ , are the loadings on the size (SMB) and value (HML) factor, respectively. Finally, we consider the Carhart 4-factor model for measuring crisis and non-crisis alphas:

$$R_t - R_{f,t} = \alpha_{NC}D_{NC,t} + \alpha_C D_{C,t} + \beta_1(R_{m,t} - R_{f,t}) + \beta_2SMB_t + \beta_3HML_t + \beta_4WML_t,$$

where  $\beta_4$  is the loading on the momentum (WML) factor and the remaining terms have been defined above. The monthly alphas are annualized for presentation in our tables. To account for any possible time-series correlation of regressions residuals, we estimate standard errors for the regression coefficients using the Newey-West procedure (Newey and West, 1987). The data for  $R_{f,t}$  (30-day Treasury bill rate),  $SMB$ ,  $HML$ , and  $WML$  were obtained from Kenneth French's (2012) online data library.

#### 4. Fund Performance in Crisis and non-Crisis Periods

Average returns and alpha estimates for various factor models are reported in Panel A of Table 4 for our time period. The estimates shown are annualized measures. The SRI funds average 2.56 percent, which is not significantly different than the 2.60 percent of the matching conventional funds. The alpha estimates for the SRI funds in the three factor models are all small, negative, and not significantly different from zero. This is also true for the matching conventional funds. The alphas for the SRI funds are not significantly different than the matching conventional fund alphas, which is consistent with Statman (2000), Shank, et al. (2005), and Renneboog, et al. (2008a). Of course, the firm perspective of stock returns is that they may represent the cost of equity capital. El Ghouli, et al. (2011) study firms' cost of capital and report that some SRI foci experience lower equity costs.

<Insert Table 4 about here>

The alpha estimates in crisis and non-crisis periods are reported in Panel B. For average returns, SRI funds earn an annualized 15.8 percent during non-crisis periods and -18.7 percent

during crisis periods. This is a slight insignificant underperformance compared to conventional funds during the non-crisis periods. During the crisis periods, the SRI funds outperformed the conventional funds by an annualized 1.18 percent, which is nearly significant at the 10 percent level with a  $t$ -statistic of 1.65. Note that the non-crisis period alphas are significantly negative for both types of firms. SRI funds underperform conventional funds during the non-crisis periods by  $-0.67$  to  $-0.95$  percent, depending on the asset pricing model, and these negative alphas are significant at the 10 percent level. For the crisis periods, the alpha estimates are positive, though not statistically significant. SRI alphas are economically and statistically significantly higher than the matching conventional funds (range of 1.61 to 1.70 percent) during the crises. Thus, we find that SRI mutual funds do hold up slightly better during crisis periods compared to conventional funds. As a balance, they give up a small amount of return during non-crisis periods. Investors who face prospect theory utility functions will be willing to give up some upside in the non-crisis periods to attenuate the downside during the crisis periods. This is because the utility function in the loss domain is steeper than the function in the gain domain.

The risk of SRI is also of interest. At the company level (not the mutual fund level), Oikonomou, et al. (2012) examine the relationship between Corporate Social Performance (CSP) measures as indicated by KLD and systematic risk using S&P 500 firms for the period 1992 to 2009. Using a one factor market model, they find that social strength components of firms are insignificantly negatively associated with systematic risk while social concern components are significantly positively associated with systematic risk. Luo and Bhattacharya (2009) also find that CSP and idiosyncratic risk are negatively related. However, Galema, et al. (2008) argues that SRI may impact a firm's book-to-market ratio and thus confound signal factor measures of systematic risk. To examine risk, we use the Carhart 4-factor model and with separate intercept

estimates for non-crisis and crisis periods. The results for SRI and conventional funds are shown in Table 5. In general, SRI funds when compared to conventional funds load a little more on the market risk and the book-to-market valuation (HML) factors, and a little less on size (SMB) and return momentum (WML) factors. Although there are a few statistically significant differences between the loading of SRI and conventional funds, their magnitudes appear economically small.

<Insert Table 5 about here>

## **5. Screening Techniques in Crisis and non-Crisis Periods**

Our performance analysis so far investigates the SRI funds as a homogeneous group. However, the different foci categories of the SRI funds may have different impacts during market crises. For example, a portfolio consisting of firms that use good corporate governance practices seems well suited to perform better during dynamic times like a market crisis. On the other hand, we do not see that a portfolio selected on faith based philosophies would be either better or worse suited to navigating such dynamic periods. Thus, we investigate the performance of SRI mutual funds using different foci and screening techniques. Again, we are interested in Crisis and non-Crisis periods. We begin by estimating annualized alphas computed from the Carhart (1997) 4-Factor Model for the different SRI foci categories. The performance of funds is potentially confounded by various combinations of screening criteria employed. Most funds often screen for either product related criteria (62 funds) or for ESG attributes with a few product screens (149 funds). Few funds screen only for ESG attributes (29 funds), while ignoring any product screens. In order to study the impact of popular product screens without the confounding impact of ESG screens, we look at the performance of funds that employ only product screens. The results for the funds that screen only (i.e., no other product or ESG screens) on alcohol, tobacco, and gambling (ATG) are shown in Table 6. The ATG funds significantly underperform



by  $-1.29$  percent during non-Crisis periods and have insignificant performance during Crisis periods. In addition, the ATG fund performance is not significantly different from conventional funds. Thus, it appears that avoiding sin stocks does not produce the crisis support seen in the general SRI sample. Increasing the subsample to include all funds that screen only for product related screens (i.e., no ESG screens) beyond just alcohol, tobacco and gambling results in similar conclusions.

<Insert Table 6 about here>

The environmental, social, and governance categories perform much better during crisis periods. As a group, these ESG funds underperform conventional funds by  $-1.03$  percent during non-crisis periods and outperform them in crisis periods by  $2.18$  percent. Both estimates are significant at the 5 percent level. In separating environmental, social, and governance categories, we find that all three significantly outperform conventional funds by  $2.21$ ,  $1.91$ , and  $2.99$  percent, respectively. The performance of the funds focusing on governance issues show a particularly strong crisis period alpha. They have the only significantly positive abnormal return ( $2.54$  percent) during crisis of all the SRI fund categories. The 34 funds that are active in shareholder advocacy also significantly outperform conventional funds in crisis periods. Interestingly, advocacy sample of firms appears to perform very similar to the funds with social screens.

Lastly, the faith/religious based funds seem to perform very similar to funds that implement only product screens. The religious funds outperform conventional funds in the non-crisis periods by  $0.56$  percent (significant at the 10 percent level) and underperform during the crisis periods. This is expected given that faith/religious funds are mostly (40 out of 65) purely product screening funds. Based on faith/religious tenants these funds often exclude firms that

produce or derive significant revenues from products related to alcohol, tobacco, gambling, pornography or abortion/contraceptives.

We also examine the performance by positive versus negative screening techniques. We ask, is it better to avoid firms with poor ESG characteristics or seek firms with good ESG characteristics? The results are shown in Table 7. A quick examination of both the full period SRI fund alphas and their alphas from the comparison with conventional funds show that none are significantly different from zero. Thus, neither positive nor negative screen techniques do better overall. However, the results in the non-Crisis and Crisis periods show large differences. The alphas for all the samples that use positive screens are significantly negative during non-crisis periods and significantly positive in crisis periods. None of the alphas for the funds using negative screens are significant. The pattern is the same in comparison with the conventional funds. Positive screen funds underperform conventional funds during non-crisis periods and outperform during crisis periods. Thus, our general finding that SRI funds hold up better during crisis periods, at a cost during the non-crisis periods, appears to mainly come from ESG funds with positive screen techniques.

<Insert Table 7 about here>

The opposite of using an SRI strategy would be to specifically buy stocks that SRI investors avoid. For example, Hong and Kacperczyk (2009) find that one type of sin stocks, tobacco, earns high risk adjusted returns. We are aware of one mutual fund that derives a significant portion of its portfolio from sin stocks. Hoepner and Zeume (2009) find that this Vice Fund does not earn abnormal returns. We compare the performance of the Vice Fund to the performance of SRI funds that intentionally excludes sin stocks. The results are reported in Table 8. The SRI vice screened funds' earns a significant  $-1.7$  percent alpha during the full time

period. Most of the negative performance comes from an annualized  $-2.26$  percent alpha during non-crisis periods, which is moderated somewhat by a positive, but insignificant crisis period alpha. The Vice Fund has a full time period alpha of  $2.01$  percent, but it is not statistically significant. Interesting, the Vice Fund shows the opposite performance pattern in the non-crisis and crisis periods compared to SRI funds. The Vice Fund earns a large  $5.81$  percent alpha during non-crisis periods and an  $-14.36$  percent alpha during the crisis periods. Comparing the vice screened funds to the Vice Fund show that the screened funds significantly underperform during non-crisis periods and outperform during crisis periods.

<Insert Table 8 about here>

## **6. Firm characteristics versus social responsibility**

We show that SRI mutual funds earn an asymmetric return performance. They perform better during market crisis periods, but at a cost of performing worse during non-crisis periods. This asymmetry might be valued by investors with a prospect theory utility function. However, our finding might not result from the SRI aspect of the firms in the portfolio, but rather by other characteristics of those firms. For example, one could conjecture that SRI funds invest in well-established firms with stable cash flows, which could provide downside protection during periods of market turmoil. Thus, it could be argued that non-SRI stock fundamentals characteristics induce the performance asymmetry rather than the SRI aspects. Also, there could be differences in fund management between SRI and conventional funds that drive our results. Thus, in this section we investigate whether it is the SRI aspects of these funds or the firm or fund characteristics that are important for the performance pattern.

## 6.1 Description of variables for firm and fund characteristics

We introduce the following firm characteristic variables: *Age*, *BM*, *Cap*, *Leverage*, *Turnover*, *Illiquidity*, *Div Yield*, *Ret Volt*, *CF Volt* and *ROA*. Each variable is calculated as the value-weighted averages of individual stocks in a mutual fund's portfolio.<sup>6</sup> *Age* refers to the number of years since the stock first appeared in the CRSP database. *BM* is the book value of equity divided by the market capitalization. Similar to Fama and French (1993), we calculate book value at the end of the previous fiscal year as the sum of common stockholder's equity, deferred taxes and investment credits. *Cap* is calculated as the market capitalization (in billions) of the stock at the end of the quarter. *Leverage* refers to the debt-to-equity ratio. *Turnover* and *Illiquidity* for each stock-quarter is calculated as the average daily turnover over the last calendar year. Daily turnover (see Datar, Naik and Radcliff, 1998) is calculated as volume divided by shares outstanding. A higher turnover potentially indicates greater liquidity. Similar to Amihud (2002), we calculate *Illiquidity* on a daily basis [ $|\text{Return}| \div (\text{Price} * 1000 * \text{Volume})$ ], which reflects the price change induced by a thousand dollar volume of trades. A higher value for the Illiquidity measure indicates low liquidity. *Div Yield* refers to the annual percentage dividend yield calculated for each stock as the annual dividends (split adjusted) divided by price (split adjusted). *Ret Volt* standard deviation of daily excess returns (excess over CRSP value-weighted index) over the last calendar year. Similar to Zhang (2006) we calculated *CF Volt* as standard deviation of the net cash flow from operating activities over the previous five financial years (minimum of three years), scaled by the average total assets. *ROA* is the net income divided by average total assets.

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<sup>6</sup> Data for *BM*, *Leverage*, *CF Volatility* and *ROA* for each stock each quarter is extracted from the previous fiscal year data made available on Compustat. In contrast, *Age*, *Cap*, *Turnover*, *Div Yield* and *Ret Volatility* are extracted from the most recently available data on CRSP at the end of a particular quarter.

We also compute three fund level characteristics: *Fund Turnover*, *Fund # Stocks* and *Fund Defensive Alloc*. *Fund turnover* for each fund-quarter observation is calculated as the minimum of the aggregate purchases and sales during the quarter divided by the average of the beginning and end of quarter total portfolio value. The turnover rate is thereafter annualized for presentation. In the absence of transaction level data, we use quarterly holdings data to determine the total sales and purchases of stocks in the underlying portfolio. To determine a sale or purchase we look at how the split adjusted number of stocks at the end of each quarter changes. The dollar value of a stock purchase (or sale) is determined by multiplying the adjusted change in holdings for a stock multiplied by its average daily split adjusted price for the stock each quarter. *Fund # Stocks* is calculated as the total number of stocks held in a fund's portfolio in a particular quarter. *Fund Defensive Alloc* is calculated as the total percentage of fund's portfolio in a particular quarter that is invested in Consumer Non-Durable, Utility and Healthcare industries, which are sometimes referred to as defensive industries. We use the Fama-French ten industry SIC classification available on Kenneth French's (2012) online data library.

We report these fund and firm characteristics in Table 9. Panel A shows the three fund level measures. Since a mutual fund may behave differently in a bull versus a bear stock market, we report the average characteristics in the non-crisis and crisis periods for SRI fund and for the matching conventional funds. The conventional funds appear to be more active traders compared to the SRI funds as they have significantly more turnover. In fact, conventional funds trade about 35 percent more. For the number of the stocks in the portfolios, the SRI funds hold more stocks during the non-crisis periods (198 versus 162) while the conventional funds hold more during the crisis periods (181 versus 166). If the number of stocks in a portfolio is indicative of the level of diversification, then SRI funds are more diversified during non-crisis periods and conventional

funds are better diversified during crisis periods. Some mutual funds adapt to a market downturn by rotating into so called defensive stocks. SRI funds do not appear to rotate in this manner. They hold 18.6 percent of their portfolio in the defensive industries regardless of whether it is a market crisis or not. On the other hand, conventional funds rotate from a 14.8 percent allocation during the non-crisis periods to an 18.8 percent allocation in crisis periods. These three portfolio measures suggest that SRI funds are managed differently than conventional funds.

<Insert Table 9 about here>

The comparison of the firm level characteristics of the companies in the portfolios is shown in Panel B. The first two rows shows that SRI funds prefer to own firms that are slightly younger and smaller in size. Although there are some significant differences between the dividend yields and book-to-market ratios of the firms in the portfolios between SRI and conventional funds, the differences seem economically small. SRI funds hold firms with higher ROA and lower leverage compared to conventional portfolios in both non-crisis and crisis periods. The underlying trading of the firms owned by SRI funds shows lower turnover and lower return volatility than the firms owned by the matching conventional funds.

Are these differences in fund and firm characteristics causing our asymmetric performance patterns between SRI funds and conventional funds? Or, are the SRI foci and screen techniques driving our result? We test these hypotheses in the next section.

## **6.2 Comparing the cross-section of mutual funds**

The cross-sectional difference in mutual fund performance could be attributed to its underlying portfolio or fund investing characteristics. Though our factor models are an efficient tool for a time-series performance attribution of the average mutual fund, they do not allow for

studying or controlling the impact of cross-sectional fund variables. In this section, we analyze a panel data of quarterly stock returns using the following regression specification:

$$\begin{aligned}
R_{j,t} - R_{f,t} = & \alpha_1 + \alpha_2 SRI_j + \alpha_3 SRI_j * Crisis_t \\
& + \beta_1 (R_{m,t} - R_{f,t}) + \delta_1 Age_{j,t} + \delta_2 BM_{j,t} + \delta_3 Cap_{j,t} + \delta_4 Leverage_{j,t} \\
& + \delta_5 Turnover_{j,t} + \delta_6 Div Yield_{j,t} + \delta_7 Ret Vol_{j,t} + \delta_8 CF Vol_{j,t} + \delta_9 ROA_{j,t} \\
& + \delta_{10} Fund \# Stks_{j,t} + \delta_{11} Fund Defensive Alloc_{j,t} + \delta_{12} Fund Turnover_{j,t} ,
\end{aligned}$$

where  $R_{j,t}$  is the quarterly fund return for fund  $j$  at time  $t$ ,  $SRI_j$  is a dummy variable that takes the value 1 if fund  $j$  is a SRI fund and 0 otherwise,  $Crisis_t$  is a dummy variable that takes the value 1 if time  $t$  is defined as a crisis period and 0 otherwise,  $R_{m,t}$  is the market (CRSP value-weighted) return,  $R_{f,t}$  is the risk free rate (30 day T-bill rate), and  $\beta_1$  measures systematic risk. The other dependent variables *Age*, *BM*, *Cap*, *Leverage*, *Turnover*, *Div Yield*, *Ret Vol*, *CF Vol*, *ROA*, *Fund # Stocks*, *Fund Defensive Allocation* and *Fund Turnover* have been defined in the previous section.<sup>7</sup> To control for regression residuals being correlated across time and fund, consistent with the finding of Peterson (2009), we generate double clustered (time and fund clusters) robust standard errors. The coefficient  $\alpha_2$  measures additional quarterly return (if any) earned by SRI funds. The coefficient  $\alpha_3$  measures the additional quarterly return earned by SRI funds in times of crises.

SRI funds are not alike and different screening foci are likely to produce different results. To study the difference in impact of screening foci, we implement the following regression specification:

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<sup>7</sup> Since both Turnover and Illiquidity are related to liquidity, we present results with only one of them. Our unreported results with the Illiquidity variable instead of the Turnover variable are similar and therefore have not been presented to conserve space.

$$R_{j,t} - R_{f,t} = \alpha_1 + \alpha_2 ESG_j + \alpha_3 ESG_j * Crisis_t + \alpha_4 PROD ONLY_j + \alpha_5 PROD ONLY_j * Crisis_t + \beta_1 (R_{m,t} - R_{f,t}) + \sum \delta_i Controls_{i,j,t} ,$$

where  $ESG_j$  is a dummy variable that takes the value 1 if fund  $j$  implements an ESG (Environment, Social or Governance) screen and 0 otherwise,  $PROD ONLY_j$  is a dummy variable that takes the value 1 if fund  $j$  implements *only* (no other screening criteria) pure product related (Alcohol, Tobacco, Gambling, Weapons, Animal Testing, Nuclear, Pornography or Contraceptives) exclusionary screens and 0 otherwise,  $Crisis_t$  is a dummy variable that takes the value 1 if time  $t$  is defined as a crisis period and 0 otherwise, and the remaining terms are defined in the earlier regression specification. The coefficients  $\alpha_2$ ,  $\alpha_3$ ,  $\alpha_4$ , and  $\alpha_5$  measure the differential quarterly return impact of ESG screens in general, ESG screens during crises periods, product screens in general, and product screens during crises periods, respectively. Beyond testing for the impact of any ESG screens in general (ESG=Any), we also separately test for Environment (ESG=Env), Social (ESG=Social) and Governance (ESG=Govern).<sup>8</sup>

The regression estimates are reported in Table 10. The first regression (shown as [1]) examines the impact of SRI in general, while controlling for firm and fund characteristics. The SRI coefficient of -0.273 percent (significant at the 10 percent level) should be interpreted as a quarterly alpha for SRI funds. In general, the SRI funds underperform. However, they do perform better during the crisis periods. The SRI\*CRISIS interaction coefficient is a significant 0.781 percent. Therefore, even though there are differences in fund management and firm

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<sup>8</sup> We do not place three separate dummy variables for Environment, Social and Governance criteria in the same regression as most fund screen for multiple ESG attributes, leading to strong multi-collinearity and uninterruptable coefficient. For example, out of 161 funds that screen for Environment, we find that a majority also screen for other criteria like social (130 funds) and governance criteria (85 funds). Refer to table 3 for more details for combination of screens implemented.



characteristics of companies held between SRI and conventional funds, it is the socially responsible attribute that drives the performance asymmetry.

<Insert Table 10 about here>

Our earlier results suggest that most of the performance asymmetry comes from the environmental, social, and governance categories of SRI. In regression [2], we show the results for the ESG focused funds and their matched conventional funds. The ESG coefficient reported is a significant  $-0.33$  percent and the crisis interaction coefficient is large  $0.90$  percent per quarter. The product screen only coefficients are not significant. Therefore, it still appears that the ESG categories are driving the overall results. Regressions [3] to [5] separately test for the impact of each of the three ESG criteria namely, environmental, social, and governance.<sup>9</sup> The results for the environmentally screened funds are very similar to the general ESG analysis. The social and governance screened fund analysis shows that the overall alpha estimates are still negative, but smaller in magnitude and no longer significant. The crisis alphas are still positive, larger in magnitude (over 1 percent per quarter), and significant at the 5 percent level. We interpret these results as indicating that all three SRI categories of environmental, social, and governance, contribute to the return performance asymmetry.

In our last analysis, we examine the role of positive and negative screen techniques while controlling for the fund and firm characteristics. The following regression specification explores the differences in alpha (abnormal returns), if any, for positive and negative ESG screening strategies:

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<sup>9</sup> These categories may not be independent as many funds might screen for multiple ESG criteria.

$$\begin{aligned}
R_{j,t} - R_{f,t} = & \alpha_1 + \alpha_2 POSITIVE ESG_j + \alpha_3 POSITIVE ESG_j * Crisis_t \\
& + \alpha_4 NEGATIVE ESG_j + \alpha_5 NEGATIVE ESG_j * Crisis_t \\
& + \alpha_6 PROD ONLY_j + \alpha_7 PROD ONLY_j * Crisis_t \\
& + \beta_1 (R_{m,t} - R_{f,t}) + \sum \delta_i Controls_{i,j,t} ,
\end{aligned}$$

where *POSITIVE ESG<sub>j</sub>* is a dummy variable that takes the value 1 if fund *j* implements a positive ESG (Environment, Social or Governance) screen and 0 otherwise, *NEGATIVE ESG<sub>j</sub>* is a dummy variable that takes the value 1 if fund *j* implements a negative ESG (Environment, Social or Governance) screen and 0 otherwise, and the remaining terms are defined in the earlier regression specification. The coefficients  $\alpha_2$ ,  $\alpha_3$ ,  $\alpha_4$ ,  $\alpha_5$ ,  $\alpha_6$ , and  $\alpha_7$  measure the differential impact of positive ESG screens in general, positive ESG screens in general during crises periods, negative ESG screens in general, negative ESG screens in general during crises periods, product screens in general, and product screens during crises periods, respectively.

Table 11 reports the results for samples of SRI funds using any ESG foci, or each of the three separately and their matching conventional funds. All four of the regressions show the same results. The funds using positive screens earn a significant negative alpha in general, and a significantly positive and larger in magnitude alpha for the crisis periods. None of the estimates for negative ESG screens and product screens are significant. Thus, after controlling for fund characteristics and the characteristics of the firms in the portfolios, positively screened ESG attributes hold up better in crisis periods.

<Insert Table 11 about here>

## 7. Summary

The number and assets under management of socially responsible mutual funds have dramatically grown over the past couple of decades. And yet, much of the literature reports that investors pay a cost for limiting their portfolios to SRI attributes. If so, then why have SRI funds become more popular? We postulate that the positive socially responsible attributes of companies make them less risky in market crisis periods. For example, firms with good governance standards are more likely to navigate the dynamic challenges of crisis periods. In addition, investors with Prospect Theory utility will value the gain in utility for doing better in falling markets more than the loss in utility for underperforming in rising markets. This is because people are more negatively impacted by losses than they are positively impacted by a gain of similar magnitude.

Using a sample of SRI mutual funds and matching conventional funds during the period 2000 to 2011, we compute the return alphas in non-Crisis and Crisis periods. Overall, the alphas for SRI and conventional funds are insignificantly negative and not different from each other. However, in non-crisis periods, conventional funds outperform SRI funds by an annualized 0.67 to 0.95 percent, depending on the factor model used. But in crisis periods, SRI funds outperform by 1.61 to 1.70 percent. Further analysis shows that the outperformance in crisis periods is driven by the mutual funds that focus on shareholder advocacy, environmental, social, and governance issues. In addition, it is the ESG funds that use a positive screen technique rather than negative screens have this asymmetric return pattern. SRI funds that focus on sin stocks or other product screens and funds that focus on faith or religious principles do not outperform in crisis periods. It is worth noting that these product screens are also in their nature negative screen. Thus, it is fair

to conclude that it is positive screening in general that leads to positive alphas during periods of market turmoil.

We also compare several fund management measures between SRI and conventional funds. While there are differences in the fund turnover, the number of stocks held in the portfolio, and the allocation to defensive stocks, these differences do not drive the asymmetric return findings. Our analysis of the characteristics of the companies held in the portfolios also shows differences between the funds. SRI funds, on average, hold younger and smaller firms, more profitable firms, and firms with lower return volatility. After controlling for these firm characteristic differences, we find that it is still the socially responsible attributes that are associated with the outperformance in crisis periods.

We conclude that SRI attributes, especially ESG, drive an asymmetric return pattern in which SRI funds outperform conventional funds in market crisis periods, but underperform in non-crisis periods. This pattern could be valued by investors with Prospect Theory utility functions.

## References

- Adler, Timothy, and Mark Kritzman. 2008. "The Cost of Socially Responsible Investing." *Journal of Portfolio Management* 35:1, 52–56.
- Amihud, Y., 2002. Illiquidity and stock returns: cross-section and time series effects. *Journal of Financial Markets* 5, 31-56.
- AON. 2007. Industry Update: "Sustainability – Beyond Enterprise Risk Management." Retrieved 2/25/2012 from, [http://www.aon.com/about-aon/intellectual-capital/attachments/risk-services/sustainability\\_beyond\\_enterprise\\_risk\\_management.pdf](http://www.aon.com/about-aon/intellectual-capital/attachments/risk-services/sustainability_beyond_enterprise_risk_management.pdf)
- Bauer, R., Koedijk, K., Otten, R., 2005. International evidence on ethical mutual fund performance and investment style. *Journal of Banking and Finance* 29, 1751–1767.
- Benson, Karen L., and Jacquelyn E. Humphrey. 2008. "Socially Responsible Investment Funds: Investor Reaction to Current and Past Returns." *Journal of Banking and Finance* 32:12, 1850-1859.
- Bebchuk, Lucian A., Alma Cohen, and Allan Ferrell. 2009. "What Matters in Corporate Governance?" *Review of Financial Studies* 22:2, 783–827.
- Bebchuk, Lucian A., Alma Cohen, and Charles C. Y. Wang. 2011. "Learning and the Disappearing Association between Governance and Returns." *Journal of Financial Economics*, forthcoming.
- Bollen, Nicolas. 2007. "Mutual Fund Attributes and Investor Behavior." *Journal of Financial and Quantitative Analysis* 42:3, 683–708.
- Carhart, Mark M. 1997. "On persistence of mutual fund performance," *Journal of Finance* 52, 57-82.
- Datar, Vinay T., Narayan Y. Naik and Robert Radcliffe. 1998. "Liquidity and stock returns: An alternative test," *Journal of Financial Markets* 1, 205-219.
- Derwall, Jeroen, Nadja Guenster, Rob Bauer, and Kees Koedijk, 2005. "The Eco Efficiency Premium Puzzle." *Financial Analysts Journal* 61:2, 51–63.
- Derwall, Jeroen, Kees Koedijk, and Jenke ter Horst. 2011. "A Tale of Value-seeking versus Profit-driven Investors." *Journal of Banking and Finance* 35:8, 2137–2147.
- Edmans, Alex. 2011. "Does the Stock Market Fully Value Intangibles? Employee Satisfaction and Equity Prices." *Journal of Financial Economics* 101:3, 621–640.
- El Ghoul, Sadok, Omrane Guedhami, Chuck C. Y. Kwok, and Dev R. Mishra. 2011. "Does corporate social responsibility affect the cost of capital?" *Journal of Banking and Finance* 35:9, 2388-2406.
- Fama, Eugene F., and Kenneth R. French. 1993. "Common factor in the returns of stocks and bonds," *Journal of Financial Economics* 33, 3-56.
- French, Kenneth R., 2005. Retrieved from: [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)
- Galema, Rients, Auke Plantinga, and Bert Scholtens. 2008. "The stocks at stake: Return and risk in socially responsible investment." *Journal of Banking and Finance* 32, 2646-2654.
- Girard, Eric, Hamid Rahman, and Brett Stone. 2007. "Socially Responsible Investments: Goody-Two-Shoes or Bad to the Bone?" *Journal of Investing* 16:1, 96–110.
- Goldreyer, Elizabeth F., Parvez Ahmed, and J. David Diltz. 1999. "The Performance of Socially Responsible Mutual Funds: Incorporating Sociopolitical Information in Portfolio Selection." *Managerial Finance* 25:1, 23–36.

- Guenster, Nadja. 2012. "Performance Implications of SR Investing: Past versus Future," in *Socially Responsible Finance and Investing*, Kent Baker and John R. Nofsinger, Editors. John Wiley & Sons, Inc., forthcoming.
- Hamilton, Sally, Hoje Jo, and Meir Statman. 1993. "Doing Well While Doing Good? The Investment Performance of Socially Responsible Mutual Funds." *Financial Analysts Journal* 49:6, 62–67.
- Hoepner, Andreas G. F., and Stephan Zeume. 2009. "The Dark Enemy of Responsible Mutual Funds: Does the Vice Fund Offer More Financial Virtue?" Working paper, available at SSRN: <http://ssrn.com/abstract=1485846>.
- Hong, Harrison, and Marcin Kacperczyk. 2009. "The Price of Sin: The Effects of Social Norms on Markets." *Journal of Financial Economics* 93:1, 15–36.
- Kahneman, Daniel, and Amos Tversky. 1979. "Prospect Theory: An Analysis of Decision under Risk." *Econometrica* 46, 171-185.
- Kempf, Alexander, and Peer Osthoff. 2007. "The Effect of Socially Responsible Investing on Portfolio Performance." *European Financial Management* 13:5, 908–922.
- Kim, Irene, and Mohan Venkatachalam. 2011. "Are Sin Stocks Paying the Price for Their Accounting Sins?" *Journal of Accounting, Auditing and Finance* 26:2, 415–442.
- Luo, Xueming, and C.B. Bhattacharya. 2009. "The debate over doing good: corporate social performance, strategic marketing levers, and firm-idiosyncratic risk." *Journal of Marketing* 73, 198-213.
- McGuire, Jean, Alison Sundgren, and Thomas Schneeweis. 1988. "Corporate Social Responsibility and Firm Financial Performance." *Academy of Management Journal* 31:4, 854-872.
- National Bureau of Economic Research (NBER), 2012. Business Cycles Data. Retrieved from: <http://www.nber.org/cycles.html>
- Newey, W., and West, K., 1987. A Simple, Positive Semi-Definite, Heteroscedastic and Autocorrelation Consistent Covariance Matrix. *Econometrica* 55, 703-708.
- Oikonomou, Ioannis, Chris Brooks, and Stephen Pavelin. 2012. "The Impact of Corporate Social Performance on Financial Risk and Utility: A Longitudinal Analysis." *Financial Management* 41:2, 483-515.
- Petersen, M.A, 2009. "Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches." *Review of Financial Studies* 22:1, 435-480.
- Renneboog, Luc, Jenke Ter Horst, and Chendi Zhang. 2008a. "The Price of Ethics and Stakeholder Governance: The Performance of Socially Responsible Mutual Funds." *Journal of Corporate Finance* 14:3, 302–328.
- Renneboog, Luc, Jenke Ter Horst, and Chendi Zhang. 2008b. "Socially Responsible Investments: Institutional Aspects, Performance, and Investor Behavior." *Journal of Banking and Finance* 32:12, 1723–1742.
- Renneboog, Luc, Jenke Ter Horst, and Chendi Zhang. 2011. "Is Ethical Money Financially Smart? Nonfinancial Attributes and Money Flows of Socially Responsible Investment Funds." *Journal of Financial Intermediation* 20:4, 562–588.
- Shank, Todd, Daryl Manullang, and Ron Hill. 2005. "Doing Well While Doing Good Revisited: A Study of Socially Responsible Firms' Short-Term versus Long-term Performance." *Managerial Finance* 31:8, 33–46.
- Statman, Meir. 2000. "Socially Responsible Mutual Funds." *Financial Analyst Journal* 56:3, 30–39.

- Statman, Meir, 2004. What do investors want? *Journal of Portfolio Management* 30<sup>th</sup> Anniversary Issue, 153-161.
- Statman, Meir, and Denys Glushkov. 2009. "The Wages of Social Responsibility." *Financial Analysts Journal* 65:4, 33–46.
- USSIF. 2010. Trends in Socially Responsible Investing Retrieved 2/26/2012 from, <http://ussif.org/resources/research/documents/2010TrendsES.pdf>
- Verwijmeren, Patrick, and Jeroen Derwall. 2010. "Employee well-being, firm leverage, and bankruptcy risk." *Journal of Banking and Finance* 34, 956-964.
- Zhang, X. F., 2006. "Information Uncertainty and Stock Returns." *Journal of Finance* 61, 105–137.

**Table 1: Summary of SRI Funds**

The table below summarizes information for the 240 Socially Responsible Investing (SRI) US domestic equity funds in our sample. *Full Period* refers to statistics for the entire 12 year period (2000-2012). The time periods *Jan 2000*, *Jan 2006* and *Dec 2011* denote approximately the beginning, middle and end of our sample period. *TNA* refers to total net assets. A *Unique Fund Manager* is identified based on the fund manager managing the fund. *Fund Type* refers to classification of funds as indexed and non-indexed funds. *Non-Indexed Funds* do not try to replicate any particular stock index. *Index Based* funds utilize indices as primary filters to buy and sell securities. *Non-ETF Pure Index* funds are open ended mutual funds that aim to match the total investment performance of a publicly recognized securities market index by replicating its components and their respective portfolio weights. *ETF Pure Index* funds are exchange traded funds that aim to match the total investment performance of a publicly recognized securities market index by replicating its components and their respective portfolio weights. *Enhanced Index* funds are mutual funds that aim to exceed the total investment performance of a publicly recognized securities market.

SRI Fund Summary Items	Full Period	Jan 2000	Jan 2006	Dec 2011
# of All Funds	240	76	113	184
TNA of All Funds (\$ in millions)		7,158.10	23,139.00	28,992.70
# of Retail Funds	135	60	75	98
TNA of Retail Funds (\$ in millions)		6,639.40	16,493.20	15,001.60
# of Unique Fund Managers	68	29	34	52
TNA of Median Unique Fund Managers (\$ in millions)		51.00	188.05	179.90
Fund Type ( # of funds):				
Non-Indexed	190	65	86	152
Index Based	17	6	7	9
Non-ETF Pure Index	18	2	15	13
ETF Pure Index	12	0	2	7
Enhanced Index	3	3	3	3
Fund Type (TNA \$ in millions):				
Non-Indexed		6,838.90	21,175.30	25,185.90
Index Based		242.10	376.40	1,367.00
Non-ETF Pure Index		52.40	1,059.70	1,154.30
ETF Pure Index		0.00	457.00	1,242.20
Enhanced Index		24.70	70.60	43.30
Median Expense Ratio		1.41%	1.38%	1.20%
Median Fund Age (in years)		3	6	7



**Table 2: Summary of Fund Screens**

The table below summarizes SRI Funds based on screening foci (Product, Environment, Social and Governance) and also by screening strategies (positive and negative). *TNA* refers to the total net assets. The column headings 2000 and 2011 represent the January 2000 (beginning of sample) and December 2011 (end of sample), respectively. *Product-Related Screens* restrict investment in firms that produce certain products related to Alcohol, Tobacco, Gambling, Weapons, Nuclear Technology, Pornography, Abortion or Animal Testing. *Alcohol, Tobacco & Gambling* refers to funds that screen for all the three product features together. *Environment Screens* consider impact on climate, adoption of clean technologies, pollution, release of toxic substances, and sustainability. *Social Screens* consider community development, employee diversity, equal employment opportunities, racial/gender diversity in company boards, human rights and labor relations. *Governance Screens* consider board of director related issues (such as independence of directors), executive compensation and other general corporate governance provisions. *Positive Screens* over-weight stocks which perform well on certain attributes and place lesser or no weight on those that perform poorly on those attributes. *Negative Screens* only restrict investments in firms that perform poorly on certain attributes. *Shareholder Advocacy* refers to funds that play an actively exercise their voting rights in firms to advance the interest of shareholders. *Faith/Religion based* funds are those that have certain faith (religion) based criteria to satisfy and this often included the product or social screens.

Screening Criteria	Overall Sample		# of Funds			TNA (\$ in millions)		
	# Funds	% of Funds	2000	2011	% Change	2000	2011	% Change
Socially Responsible (All)	240	100	71	184	156	7,158	28,993	305
Product Related Screens:								
Any Product Related	209	87	67	160	135	7,092	27,149	283
Alcohol	154	64	46	116	152	4,882	21,504	340
Tobacco	160	67	48	120	150	4,970	21,576	334
Gambling	191	80	64	149	133	7,080	26,503	274
Alcohol, Tobacco & Gambling	156	65	46	118	157	4,882	21,538	341
Weapon	137	57	49	103	110	5,352	18,732	250
Nuclear	68	28	26	44	69	3,341	11,795	253
Pornography	61	25	9	47	422	344	7,334	2032
Abortion	61	25	10	47	370	227	6,661	2834
Animal Testing	39	16	20	27	29	1,373	3,008	119
Environment Screens:								
All (Positive or Negative)	160	67	52	123	137	5,839	19,923	241
Positive	135	56	41	107	161	5,582	18,441	230
Negative	25	10	11	16	45	257	1,482	477
Social Screens:								
All (Positive or Negative)	140	58	47	110	134	5,661	19,539	245
Positive	106	44	36	83	131	5,246	17,317	230
Negative	34	14	11	27	145	415	2,222	435
Governance Screens:								
All (Positive or Negative)	97	40	28	74	164	3,343	13,548	305
Positive	83	35	24	65	171	3,308	13,362	304
Negative	14	6	4	9	125	35	187	434
Shareholder Advocacy	51	21	22	41	86	2,186	3,950	81
Faith/Religion Based	65	27	15	44	193	1,229	7,288	493

**Table 3: Combination of Socially Responsible Screens**

The table below summarizes the various combinations (# of funds) of SRI screens used by the 240 SRI US Equity funds in our sample. Panel A presents combinations based on screening foci (product, environment, social and governance). Panel B presents combinations based on both, screening foci and strategies (positive and negative). *PROD\_Any* refers to product screens, which restrict investment in firms that produce certain products related to Alcohol, Tobacco, Gambling, Weapons, Nuclear Technology, Pornography, Abortion or Animal Testing. *ENV* refers to environment screens, which consider impact on climate, adoption of clean technologies, pollution, release of toxic substances, and sustainability. *SOC* refers to social screens, which consider community development, employee diversity, equal employment opportunities, racial/gender diversity in company boards, human rights and labor relations. *GOV* refers to governance screens, which consider board of director related issues (such as independence of directors), executive compensation and other general corporate governance provisions. Positive Screens (*POS*) over-weight stocks which perform well on certain attributes and place lesser or no weight on those that perform poorly on those attributes. Negative (*NEG*) Screens only restrict investments in firms that perform poorly on certain attributes. *ENV\_POS*, *ENV\_NEG*, *SOC\_POS*, *SOC\_NEG*, *GOV\_POS* and *GOV\_NEG* refer to environment positive, environment negative, social positive, social negative, governance positive and governance negative screens, respectively.

Panel A: Screening Foci Combinations				
Combination	PROD_Any	ENV	SOC	GOV
PROD_Any	209			
ENV	131	160		
SOC	126	128	140	
GOV	83	86	91	97

Panel B: Positive & Negative Screen Combinations							
Combination	PROD_Any	ENV_POS	ENV_NEG	SOC_POS	SOC_NEG	GOV_POS	GOV_NEG
PROD_Any	209						
ENV_POS	106	135					
ENV_NEG	25	0	25				
SOC_POS	92	106	0	106			
SOC_NEG	34	5	17	0	34		
GOV_POS	69	83	0	83	0	82	
GOV_NEG	14	0	3	0	8	0	14

**Table 4: Fund Performance**

This table presents statistics on SRI fund performance versus matched-conventional funds. Our performance measures use a monthly time-series of an equally-weighted portfolio of funds (SRI or Conventional or SRI-Conventional) for the period 2000-2012. *SRI* funds refer to US domestic equity funds with social responsibility screens. *Conventional* funds refer to non-SRI US equity funds that are matched to SRI funds using their investment objective, age and fund size (i.e. total net assets). For every SRI fund in our sample we locate a sample of three matched conventional funds for comparison. The performance measures (alphas) are annualized for presentation. Panel A presents performance measures for the entire period, whereas Panel B measures for *Non-Crisis* and *Crisis* periods. The *CAPM Alpha* is calculated using the CAPM model. The *FF3 Alpha* is the alpha calculated based on to the Fama and French (1993) 3-Factor model, which supplements the CAPM with the size and value factors. The *Carhart 4-Factor Alpha* is calculated using the Carhart (1997) 4-Factor model, which supplements the Fama and French (1993) 3-Factor model with a momentum factor. During the period 2000-2011, we identify two *Crisis* periods for the stock market based on the peak and trough for the S&P 500 index: March 2000 to October 2002 and October 2007 to March 2009. The remaining months are classified as *Non-crisis* periods. The standard errors are corrected for auto-correlation using the Newey-West (1987) procedure. The t-statistics are presented in brackets. The p-values for significance at the 1%, 5% and 10% levels are indicated using the \*\*\*, \*\* and \* asterisks notation, respectively.

Panel A: Returns for SRI & Conventional Funds						
Estimate	SRI		Conventional		SRI - Conventional	
Average Return	2.56		2.60		-0.04	
	[0.47]		[0.47]		[-0.13]	
CAPM Alpha	-0.37		-0.31		-0.06	
	[-0.49]		[-0.45]		[-0.16]	
FF3 Alpha	-0.76		-0.85		0.09	
	[-1.06]		[-1.34]		[0.23]	
Carhart 4-Factor Alpha	-0.75		-0.86		0.11	
	[-1.05]		[-1.35]		[0.31]	
Panel B: Returns for SRI & Conventional Funds in Non-Crisis and Crisis Periods						
Estimate	SRI		Conventional		SRI - Conventional	
	Non-Crisis	Crisis	Non-Crisis	Crisis	Non-Crisis	Crisis
Average Return	15.82***	-18.69**	16.61***	-19.65***	-0.69	1.18
	[3.66]	[-2.42]	[4.02]	[-2.63]	[-1.19]	[1.65]
CAPM Alpha	-1.93***	2.57	-0.99*	0.95	-0.95*	1.61**
	[-3.76]	[1.59]	[-1.96]	[0.77]	[-1.69]	[2.03]
FF3 Alpha	-2.07***	1.81	-1.35***	0.11	-0.73*	1.70**
	[-3.58]	[1.34]	[-2.62]	[0.09]	[-1.83]	[2.38]
Carhart 4-Factor Alpha	-2.04***	1.79	-1.37***	0.13	-0.67*	1.66**
	[-3.51]	[1.32]	[-2.71]	[0.11]	[-1.93]	[2.32]

**Table 5: Factor Loadings for Carhart 4-Factor Model**

The table below presents the coefficients estimates for the Carhart (1997) 4-Factor Model (refer Table 4, Panel B) with separate alphas for the Non-Crisis (NC) and Crisis (C) periods. The alpha estimates are annualized for presentation. The coefficients  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ , and  $\beta_4$  represent loadings on the excess market return (MKT), size factor (SML), value factor (HML) and momentum factor (WML), respectively. The standard errors are corrected for auto-correlation using the Newey-West (1987) procedure. The t-statistics are presented in brackets. The p-values for significance at the 1%, 5% and 10% levels are indicated using the \*\*\*, \*\* and \* asterisks notation, respectively.

Fund Portfolio	Alpha		MKT	SMB	HML	WML	R-sq
	$\alpha$ (NC)	$\alpha$ ( C )	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	(Adj)
SRI	-2.04*** [-3.51]	1.79 [1.32]	0.98*** [60.05]	-0.00 [-0.02]	0.06*** [2.63]	-0.02 [-1.44]	0.98
Conventional	-1.37*** [-2.71]	0.13 [0.11]	0.97*** [67.77]	0.04** [2.13]	0.04 [1.56]	0.01 [1.24]	0.99
SRI – Conventional	-0.67* [-1.93]	1.66** [2.32]	0.01 [0.98]	-0.04** [-2.01]	0.02 [1.65]	-0.03*** [-2.81]	0.33

**Table 6: Fund Performance & Screening Foci**

The table below presents estimates of the annualized alphas calculated by estimating the Carhart (1997) 4-Factor Model over a monthly return time-series of equally-weighted fund portfolios (SRI or SRI-Conventional) for the period 2000-2012. The alphas presented are for the entire period and are also estimated for Non-crisis (NC) and Crisis (C) sub-periods. *Conventional* funds refer to non-SRI US equity funds that are matched to SRI funds using their investment objective, age and fund size (i.e. total net assets). For every SRI fund in our sample we locate a sample of three matched conventional funds for comparison. *Average # of Funds* and *Average TNA* (Total Net Assets) are calculated as the monthly averages for each SRI fund category. *ATG* refers to SRI funds implement screens only for Alcohol, Tobacco or Gambling related products (i.e. no ESG- environment, social or governance screens). *PROD\_ONLY* refers to SRI funds that implement screens only (i.e. no ESG) for any product screens (namely products related to Alcohol, Tobacco, Gambling, Weapons, Nuclear Technology, Pornography, Abortion or Animal Testing). *PROD\_ONLY* is a wider classification of pure product related SRI screening funds in comparison to *ATG*. *ESG* refers to SRI funds screen that screen for at least one of the following three screens: (1) Environment (ENV), (2) Social (SOC) or (3) Governance (GOV). ESG can include funds that screen for product attributes as well (see Table 3). The ENV, SOC & GOV screens are described in detail in the Table 3. Shareholder Advocacy (*SHR\_ADV*) refers to SRI funds that play an active monitoring role by exercising their voting rights in firms to advance the interest of shareholders. Faith/Religion based (*REL*) SRI funds are those that have certain faith (religion) based criteria to satisfy and this often included the product or social screens. The standard errors are corrected for auto-correlation using the Newey-West (1987) procedure. The t-statistics are presented in brackets. The p-values for significance at the 1%, 5% and 10% levels are indicated using the \*\*\*, \*\* and \* asterisks notation, respectively.

Fund Type	Average # Funds	Average TNA (\$ in Millions)	SRI			SRI - Conventional		
			Full Period $\alpha$	Non- Crisis $\alpha$ (NC)	Crisis $\alpha$ (C)	Full Period $\alpha$	Non- Crisis $\alpha$ (NC)	Crisis $\alpha$ (C)
Only ATG Screens [ATG_ONLY]	28	3430	-0.83	-1.29**	0.06	-0.01	0.26	-0.54
			[-1.40]	[-2.12]	[0.06]	[-0.04]	[0.93]	[-0.64]
Only Product Screens [PROD_ONLY]	30	3692	-0.67	-1.11*	0.17	0.15	0.41	-0.35
			[-1.13]	[-1.86]	[0.16]	[0.47]	[1.43]	[-0.42]
Any ESG Screens [ESG]	89	13662	-0.80	-2.36***	2.23	0.06	-1.03**	2.18**
			[-1.02]	[-3.96]	[1.49]	[0.13]	[-2.39]	[2.50]
Environmental Screens [ENV]	82	13409	-0.89	-2.51***	2.26	-0.04	-1.20***	2.21**
			[-1.10]	[-4.24]	[1.49]	[-0.08]	[-2.83]	[2.33]
Social Screens [SOC]	75	12740	-0.70	-2.15***	2.10	0.14	-0.78	1.91**
			[-0.83]	[-3.05]	[1.42]	[0.28]	[-1.54]	[2.01]
Governance Screens [GOV]	52	6838	-0.47	-2.02***	2.54*	0.72	-0.44	2.99***
			[-0.57]	[-2.77]	[1.93]	[1.11]	[-0.76]	[2.77]
Shareholder Advocacy [SHR_ADV]	34	3076	-0.98	-2.55***	2.06	0.09	-0.86	1.94**
			[-1.07]	[-2.77]	[1.53]	[0.16]	[-1.45]	[2.07]
Faith/Religion Based [REL]	32	3559	-0.72	-1.04	-0.11	0.19	0.56*	-0.54
			[-1.21]	[-1.49]	[-0.12]	[0.58]	[1.73]	[-0.88]

**Table 7: Fund Performance & Screening Strategies**

Similar to the methodology outline in Table 6, this table presents estimates of the annualized Carhart (1997) 4-Factor alphas. This table investigates the differences between positive and negative screening strategies used by SRI funds. Positive Screens (*POS*) over-weight stocks which perform well on certain attributes and place lesser or no weight on those that perform poorly on those attributes. Negative (*NEG*) Screens only restrict investments in firms that perform poorly on certain attributes. *ESG* refers to SRI funds screen that screen for at least one of the following three screens: (1) Environment (*ENV*), (2) Social (*SOC*) or (3) Governance (*GOV*).*ESG* can include funds that screen for product attributes as well (see Table 3). The *ENV*, *SOC* & *GOV* screens are described in detail in the Table 3. *ESG\_POS*, *ESG\_NEG*, *ENV\_POS*, *ENV\_NEG*, *SOC\_POS*, *SOC\_NEG*, *GOV\_POS* and *GOV\_NEG* refer to *ESG* positive, *ESG* negative, environment positive, environment negative, social positive, social negative, governance positive and governance negative screens, respectively. The standard errors are corrected for auto-correlation using the Newey-West (1987) procedure. The t-statistics are presented in brackets. The p-values for significance at the 1%, 5% and 10% levels are indicated using the \*\*\*, \*\* and \* asterisks notation, respectively.

Fund Type	Average # Funds	Average Assets (\$ in Millions)	SRI			SRI – Conventional		
			Full Period A	Non- Crisis $\alpha$ (NC)	Crisis $\alpha$ (C)	Full Period $\alpha$	Non- Crisis $\alpha$ (NC)	Crisis $\alpha$ (C)
Any ESG Positive Screening [ESG_POS]	69	12545	-0.77	-2.78***	3.11**	-0.03	-1.49***	2.80**
	69	12545	[-0.89]	[-4.77]	[1.99]	[-0.05]	[-2.98]	[2.58]
Any ESG Negative Screening [ESG_NEG]	21	1117	-0.60	-0.88	-0.06	0.58	0.59	0.57
	21	1117	[-0.70]	[-1.09]	[-0.03]	[1.12]	[1.00]	[0.61]
Environmental Positive Screen [ENV_POS]	72	12806	-0.83	-2.65***	2.70*	-0.11	-1.33***	2.25**
	72	12806	[-0.95]	[-4.74]	[1.67]	[-0.21]	[-3.03]	[2.14]
Environmental Negative Screen [ENV_NEG]	10	604	-1.10	-1.54	-0.25	0.34	-0.15	1.29
	10	604	[-1.06]	[-1.15]	[-0.16]	[0.35]	[-0.12]	[0.96]
Social Positive Screen [SOC_POS]	60	11728	-0.72	-2.49***	2.72*	0.29	-1.00*	2.79**
	60	11728	[-0.84]	[-3.59]	[1.81]	[0.50]	[-1.84]	[2.50]
Social Negative Screen [SOC_NEG]	16	1012	-0.56	-0.80	-0.09	-0.25	0.15	-1.02
	16	1012	[-0.52]	[-0.93]	[-0.04]	[-0.46]	[0.25]	[-1.18]
Governance Positive Screen [GOV_POS]	47	6738	-0.47	-2.24***	2.96**	0.81	-0.62	3.57***
	47	6738	[-0.53]	[-3.17]	[2.15]	[1.11]	[-1.13]	[3.00]
Governance Positive Screen [GOV_NEG]	5	99	-0.21	-0.07	-0.47	0.26	1.12	-1.39
	5	99	[-0.22]	[-0.06]	[-0.29]	[0.30]	[1.02]	[-0.85]

**Table 8: Vice vs. Non-Vice Funds**

Similar to the methodology outline in Table 6, this table presents estimates of the annualized Carhart (1997) 4-Factor alphas. This table compares the performance of funds that intentionally exclude vice stocks (*NO\_VICE*) to a fund that invests only in vice stocks (*VICEX*). Vices here specifically refer to only to common sin attributes that are alcohol, tobacco, gambling or weapons. Since the *VICEX* fund came into inception only August 2002, in this table we analyze returns starting in September 2002 till the end of sample period (i.e. December 2011). *Average # of Funds* and *Average TNA* (Total Net Assets) are calculated as the monthly averages for each SRI fund category. The standard errors are corrected for auto-correlation using the Newey-West (1987) procedure. The t-statistics are presented in brackets. The p-values for significance at the 1%, 5% and 10% levels are indicated using the \*\*\*, \*\* and \* asterisks notation, respectively.

Fund Type	Average # of Funds	Average TNA (\$ in millions)	Full Period $\alpha$	Non- Crisis $\alpha$ (NC)	Crisis $\alpha$ (C)
Vice Screened Funds [NO_VICE]	60	8604	-1.70***	-2.26***	0.54
	60	8604	[-3.70]	[-3.89]	[0.44]
Vice Investor Fund [VICEX]	1	65	2.01	5.81***	-14.36***
	1	65	[0.75]	[2.84]	[-4.21]
NO_VICE – VICEX			-3.74	-8.06***	14.88***
			[-1.28]	[-3.64]	[3.62]

**Table 9: Fund Holding Characteristics**

This table presents a summary of mutual funds stock holdings. The statistics presented are averages across a quarterly time-series of a portfolio of equally-weighted mutual fund category (SRI, Conventional or SRI-Conventional) during crisis and non-crisis periods. *Conventional* funds refer to non-SRI US equity funds that are matched to SRI funds using their investment objective, age and fund size (i.e. total net assets). Panel A presents fund level portfolio characteristics. *Fund Turnover* for each fund is calculated as the minimum of the aggregate purchases and sales during the quarter divided by the average of the beginning and end of quarter total portfolio value. The Fund turnover is the annualized (quarterly figure multiplied by four) for presentation below. *Fund # Stocks* is calculated as the total number of stocks held in a fund's portfolio in a particular quarter. Fund Defensive Alloc is calculated as the total percentage of fund's portfolio in a particular quarter that is invested in Consumer Non-Durable, Utility and Healthcare industries, which are sometimes referred to as defensive industries. Panel B presents the value-weighted fundamentals for the stock holding in each mutual fund. *Age* refers to the numbers of years since the stock first appeared in the CRSP database *BM* is the book value of equity divided by the market capitalization. Similar to Fama and French (1993), we calculate book value at the end of the previous fiscal year as the sum of common stockholder's equity, deferred taxes and investment credits. *Cap* is calculated as the market capitalization (in billions) of the stock at the end of the quarter. *Leverage* refers to the debt-to-equity ratio. *Turnover* and *Illiquidity* for each stock-quarter are calculated as the average daily turnover over the last calendar year. Daily turnover is calculated as the volume divided by shares outstanding. Illiquidity is also calculated daily [(Return)-(Price\*1000\*Volume)] and reflects the price change induced by a thousand dollar volume. *Div Yield* refers to the annual percentage dividend yield calculated for each stock as the annual dividends (split adjusted) divided by price (split adjusted). *Ret Volt* is the standard deviation of daily excess returns (excess over CRSP value-weighted index) over the last calendar year. *CF Volt* is the normalized standard deviation of the net cash flow from operating activities over the previous five financial years (minimum of three years), scaled by average total assets. *ROA* is the net income divided by average total assets. The standard errors are corrected for auto-correlation using the Newey-West (1987) procedure. The t-statistics are presented in brackets. The p-values for significance at the 1%, 5% and 10% levels are indicated using the \*\*\*, \*\* and \* asterisks notation, respectively.

Panel A: Fund Characteristics						
Variable	SRI		Conventional		SRI – Conventional	
	Non-Crisis	Crisis	Non-Crisis	Crisis	Non-Crisis	Crisis
Fund Turnover	46.90	49.69	62.76	67.66	-16.50*** (-9.49)	-17.79*** (-14.07)
Fund # Stks	197.95	166.42	162.37	181.10	35.58* (1.71)	-14.68*** (-3.00)
Fund Defensive Alloc	18.61	18.63	14.83	18.80	3.78 (1.47)	-0.16*** (-3.15)
Panel B: Fund-Stock Characteristics						
Variable	SRI		Conventional		SRI – Conventional	
	Non-Crisis	Crisis	Non-Crisis	Crisis	Non-Crisis	Crisis
Age	28.95	29.55	29.20	30.33	-0.26 (-1.48)	-0.79*** (-10.18)
Cap	41.96	36.69	47.14	43.70	-5.19*** (-3.50)	-7.01*** (-10.85)
Div Yield	1.37	1.94	1.43	1.92	-0.06*** (-4.07)	0.01 (0.70)
BM	0.55	0.57	0.59	0.55	-0.04 (-1.30)	0.02*** (2.87)
ROA	12.27	13.50	11.49	13.27	0.78*** (3.02)	0.24* (1.78)



Leverage	1.05	0.81	1.87	0.99	-0.82 (-1.46)	-0.18* (-1.83)
Turnover	0.96	1.27	1.04	1.36	-0.08*** (-5.34)	-0.09*** (-5.84)
Illiquidity	0.72	0.52	0.58	0.43	0.14 (0.55)	0.09 (1.12)
Ret Volt	1.69	2.16	1.73	2.20	-0.04*** (-4.39)	-0.04*** (-8.97)
CF Volt	0.04	0.04	0.04	0.04	-0.00 (-1.46)	-0.00*** (-12.18)

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**Table 10: Fund Performance, Screening Foci & Portfolio Characteristics**

The table below presents coefficient estimates for a panel data of quarterly mutual fund observations. The mutual funds include SRI funds and matched conventional funds. The dependent variable is the excess quarterly return for each fund.  $R_M - R_F$  refer to the excess market returns. Excess return refers to the return in excess of the risk free rate (quarterly return for 30 day T-bill). *SRI* is a dummy variable that takes the value 1 if fund SRI fund and 0 otherwise. *Crisis* is a dummy variable that takes the value 1 for a crisis period and 0 otherwise. *PROD\_ONLY* is a dummy variable that takes the value 1 if the SRI fund implements only (no other environment, social or governance screening criteria) pure product related (Alcohol, Tobacco, Gambling, Weapons, Animal Testing, Nuclear, Pornography or Contraceptives) exclusionary screens and 0 otherwise. *ESG* is a dummy variable related to SRI funds that screen for environment, social or governance screens and has ESG has four definitions namely, Any, Env, Social, Govern. *Any* refers to fund screens for any environment, social or governance criteria. *Env* refers to environment screens. *Social* refers to social screens. *Govern* refers to governance screen. Other control variable for fund holding characteristics such as *Age*, *BM*, *Cap*, *Leverage*, *Turnover*, *Div Yield*, *Ret Volt*, *CF Volt*, *ROA*, *Fund No Stocks*, *Fund Defensive* and *Fund Turnover* are described in Table 9. To control for regression residuals being correlated across time and fund, we present double clustered (time and fund clusters) robust standard errors. The t-statistics are presented in brackets. The p-values for significance at the 1%, 5% and 10% levels are indicated using the \*\*\*, \*\* and \* asterisks notation, respectively.

Independent Variables	[1] SRI	[2] ESG= Any	[3] ESG= Env	[4] ESG= Social	[5] ESG= Govern
SRI	-0.273* [-1.78]				
SRI * CRISIS	0.781* [1.78]				
ESG		-0.325* [-1.76]	-0.380* [-1.89]	-0.274 [-1.48]	-0.267 [-1.60]
ESG * CRISIS		0.900** [1.98]	0.895** [1.99]	1.037** [2.05]	1.124** [2.29]
PROD_ONLY		-0.137 [-0.96]	-0.146 [-1.02]	-0.115 [-0.78]	-0.100 [-0.70]
PROD_ONLY * CRISIS		0.480 [0.85]	0.472 [0.84]	0.478 [0.83]	0.456 [0.80]
$R_M - R_F$	1.005*** [53.61]	1.005*** [53.68]	1.004*** [53.65]	1.004*** [52.93]	1.004*** [53.62]
Age	0.028 [1.04]	0.027 [1.02]	0.027 [1.03]	0.027 [1.01]	0.027 [1.02]
BM	0.212** [2.24]	0.213** [2.31]	0.213** [2.30]	0.211** [2.27]	0.211** [2.25]
Cap	-0.011 [-1.43]	-0.011 [-1.42]	-0.011 [-1.43]	-0.011 [-1.39]	-0.011 [-1.40]
Leverage	0.002** [2.58]	0.002*** [2.58]	0.002** [2.55]	0.002*** [2.58]	0.002*** [2.60]
Turnover	0.257 [1.14]	0.257 [1.14]	0.257 [1.14]	0.261 [1.17]	0.264 [1.17]
Div Yield	-0.222 [-0.79]	-0.220 [-0.79]	-0.221 [-0.79]	-0.221 [-0.80]	-0.216 [-0.78]
Ret Volt	0.112 [0.49]	0.113 [0.49]	0.115 [0.50]	0.112 [0.48]	0.123 [0.54]

CF Volt	1.893	1.883	1.899	1.874	1.893
	[0.85]	[0.85]	[0.85]	[0.83]	[0.85]
ROA	0.015	0.015	0.016	0.015	0.015
	[0.29]	[0.28]	[0.30]	[0.28]	[0.28]
Fund No Stks	0.000	0.000	0.000	0.000	0.000
	[1.52]	[1.50]	[1.46]	[1.52]	[1.53]
Fund Defensive	-0.004	-0.004	-0.004	-0.004	-0.004
	[-0.19]	[-0.18]	[-0.18]	[-0.19]	[-0.20]
Fund Turnover	-0.011**	-0.011**	-0.011***	-0.010**	-0.010**
	[-2.56]	[-2.56]	[-2.61]	[-2.48]	[-2.40]
Constant	-0.917	-0.914	-0.919	-0.939	-0.982
	[-0.76]	[-0.76]	[-0.76]	[-0.76]	[-0.80]
Observations	11,638	11,638	11,638	11,638	11,638
R-squared	0.87	0.87	0.87	0.87	0.87

**Table 11: Fund Performance, Screening Strategies & Portfolio Characteristics**

Similar to the Table 10, this table coefficient estimates for a panel data of quarterly mutual fund observations. The mutual funds include SRI funds and matched conventional funds. The dependent variable is the excess quarterly return for each fund.  $R_M - R_F$  refer to the excess market returns. *Crisis* is a dummy variable that takes the value 1 for a crisis period and 0 otherwise. *PROD\_ONLY* is a dummy variable that takes the value 1 if the SRI fund implements only (no other environment, social or governance screening criteria) pure product related (Alcohol, Tobacco, Gambling, Weapons, Animal Testing, Nuclear, Pornography or Contraceptives) exclusionary screens and 0 otherwise. *POSITIVE\_ESG* is a dummy variable related to SRI funds that have positive screening strategies for environment, social or governance foci (ESG). Positive Screens over-weight stocks which perform well on certain attributes and place lesser or no weight on those that perform poorly on those attributes. *NEGATIVE\_ESG* is a dummy variable related to SRI funds that have negative screening strategies for environment, social or governance foci (ESG). Negative Screens only restrict investments in firms that perform poorly on certain attributes. ESG has four definitions namely, Any, Env, Social, Govern. *ESG\_Any* refers to fund screens for any environment, social or governance criteria. *Env* refers to environment screens. *Social* refers to social screens. *Govern* refers to governance screen. The regression coefficients for our control variables are suppressed to conserve space as they are similar to the ones observed in Table 10. Refer to table 10 for a description of control variables,  $R_M - R_F$ , *Age*, *BM*, *Cap*, *Leverage*, *Turnover*, *Div Yield*, *Ret Volt*, *CF Volt*, *ROA*, *Fund No Stocks*, *Fund Defensive* and *Fund Turnover*. To control for regression residuals being correlated across time and fund, we present double clustered (time and fund clusters) robust standard errors. The t-statistics are presented in brackets. The p-values for significance at the 1%, 5% and 10% levels are indicated using the \*\*\*, \*\* and \* asterisks notation, respectively.

Independent Variables	[1] ESG= Any	[2] ESG= Env	[3] ESG= Social	[4] ESG= Govern
POSITIVE_ESG	-0.324*	-0.394*	-0.357*	-0.359*
	[-1.82]	[-1.84]	[-1.71]	[-1.94]
POSITIVE_ESG * CRISIS	1.150**	0.936*	1.186**	1.161**
	[2.26]	[1.94]	[2.12]	[2.29]
NEGATIVE_ESG	0.005	-0.029	-0.252	-0.287
	[0.03]	[-0.16]	[-0.88]	[-1.11]
NEGATIVE_ESG * CRISIS	0.727	0.741	0.163	0.554
	[1.53]	[1.53]	[0.18]	[0.78]
PROD_ONLY	-0.108	-0.110	0.117	0.150
	[-0.56]	[-0.57]	[0.39]	[0.56]
PROD_ONLY * CRISIS	-0.260	-0.258	0.312	-0.077
	[-0.48]	[-0.47]	[0.25]	[-0.08]
Intercept & Other Variables Suppressed				
Observations	11,638	11,638	11,638	11,638
R-squared	0.87	0.87	0.87	0.87