

The Performance of Socially Responsible Mutual Funds: The Role of Fees and Management Companies

Javier Gil-Bazo Pablo Ruiz-Verdú André A. P. Santos *

Abstract

In this paper, we shed light on the debate about the financial performance of socially responsible investment (SRI) mutual funds by separately analyzing the contributions of before-fee performance and fees to SRI funds' performance and by investigating the role played by fund management companies in the determination of those variables. We apply the matching estimator methodology to obtain our results and find that in the period 1997-2005, US SRI funds had better before- and after-fee performance than conventional funds with similar characteristics. The differences, however, are driven exclusively by SRI funds run by management companies specialized in SRI. While these funds significantly outperform similar conventional funds, funds run by companies not specialized in SRI underperform their matched conventional funds. We find no significant differences in fees between SRI and conventional funds except in one case: SRI funds are cheaper than conventional funds run by the same management company.

Keywords: Socially responsible investment; Mutual fund fees; Mutual fund performance.

*Department of Business Administration, Universidad Carlos III de Madrid. The authors would like to thank Manuel F. Bagues, Iraj Fooladi, Vasiliki Skintzi, Gabriela Mundaka, and seminar participants at Universidad Carlos III de Madrid, the 2008 FMA European Conference, the 2008 EFMA Annual Conference, and the 2008 Finance Forum of the Spanish Finance Association for very helpful comments. The usual disclaimer applies. The financial support of the Spanish Ministry of Education and Science (SEJ2005-06655/ECON and SEJ2007-67448) and of the BBVA foundation is gratefully acknowledged. Corresponding author: Javier Gil-Bazo, Universidad Carlos III de Madrid, Department of Business Administration. Calle Madrid, 126. 28903 - Getafe, Madrid - Spain. E-mail: javier.gil.bazo@uc3m.es.

Whether or not investing in SRI funds carries a price in terms of a reduced financial performance is an essential question for those investors who are concerned about the ethical consequences of their investments and, at the same time, want to obtain an adequate financial return from those investments. Previous research on socially responsible investment (SRI) mutual funds has, thus, focused on comparing the financial performance of SRI and conventional funds. In this paper, we make four main contributions to the debate on the financial performance of SRI funds.

First, we make a clear distinction between the two components of mutual fund net financial performance: before-fee performance and fees. According to standard portfolio choice theory, constraining the investment opportunity set cannot improve performance. Since one of the defining characteristics of most SRI funds is that they exclude from their investment universe companies from sectors such as tobacco, alcohol, or gambling, it follows that their before-fee risk-adjusted performance should be no higher than the one they could obtain if they lifted those restrictions. While the implicit assumption in most previous work is that differences in performance between SRI and conventional funds, if any, would be due to differences in SRI funds' ability to generate risk-adjusted returns, differences in reported performance (which is net of fund expenses) could as well be due to differences in fees. By investigating before-fee performance we can evaluate directly whether SRI funds underperform conventional ones, without the potentially confounding effect of fees.

Second, explicitly analyzing fees allows us to determine whether investors in SRI funds pay an explicit price for the ethical value of their investments. Further, extant studies on mutual fund fee determination show that funds facing less sophisticated (or less sensitive to performance) investors charge higher fees (Christoffersen and Musto, 2002; Houge and Wellman, 2007; and Gil-Bazo and Ruiz-Verdú, 2008). Therefore, an explicit analysis of fee differences between SRI and conventional funds may also shed light on the debate regarding the performance sensitivity of SRI fund investors relative to that of investors in conventional

funds (Bollen, 2007; Renneboog et al., 2008a; and Benson and Humphrey, 2008).

Third, we analyze the role of fund management companies in determining the differences between SRI and conventional funds. Despite the key influence of mutual fund management companies over fees and performance, their role has not been previously investigated in the literature on SRI. This is particularly relevant because estimated differences between SRI and conventional funds may not be due to socially responsible investing per se, but to differences between the companies that manage SRI funds and those that manage conventional funds.

Finally, we improve upon the matched-pair analysis employed in several prior studies by using the matching estimator methodology of Abadie and Imbens (2006). This methodology provides a systematic procedure to find matches when matching is done on several variables simultaneously, as well as a technique to adjust for the bias that arises when matches with identical values of the matching variables are not available.

To derive our empirical results, we obtain a sample of equity SRI funds from the Social Investment Forum for the period 1997-2005 and merge this sample with the CRSP Survivor-Bias Free US Mutual Fund Database. Our results indicate that the SRI constraint does not reduce funds' before-fee performance, measured using the four-factor alpha of Carhart (1997). On the contrary, SRI funds outperform comparable conventional funds by a substantial amount that lies between 0.96% and 1.83% per year before expenses. We investigate whether differences in before-fee performance between SRI and conventional funds are due to differences in fund turnover, which has been documented to have a negative effect on fund performance (Carhart, 1997). We find that SRI funds exhibit lower turnover, but this cannot explain the performance differential between SRI and conventional funds.

We do not find economically or statistically significant differences in fees (expenses, loads, or a measure of the total ownership cost of mutual fund shares) between SRI and similar conventional funds. Therefore, either there are no significant differences in the way fees are set for SRI and conventional funds, or the effect of those differences cancel out on average.

Consistently with the results for before-fee performance and fees, we find that SRI funds obtain a higher after-fee risk-adjusted performance than similar conventional funds.

To control for management company effects, we compare SRI and conventional funds run by the same management company and find that differences in performance between both types of funds are small and statistically insignificant. These results suggest that differences between SRI and conventional funds may be explained by management company-level factors that determine both fund performance and the company's decision to manage SRI funds. We further explore this issue by distinguishing between SRI funds run by management companies specialized in SRI and those run by generalist companies. Our results show that SRI funds managed by generalist companies actually underperform, both before and after fees, similar conventional funds, although the difference is not highly statistically significant in all specifications. SRI funds run by specialized management companies, however, outperform comparable conventional funds by more than 2.6% annually. This difference is substantial and highly statistically significant in all specifications. These results are consistent with two different hypotheses. First, unobservable factors at the management company level could be associated with both the decision to specialize in SRI funds and higher fees and performance. In this case, socially responsible investing itself would not have any effect on performance or fees. Alternatively, socially responsible investing could be associated with superior performance but only management companies that specialize in SRI would be able to exploit this advantage.

Previous empirical research has not found differences between the average performance of SRI and conventional funds in the US.¹ Hamilton et al. (1993) find that young SRI funds outperformed a random sample of conventional funds in the period 1981-1990 (with performance defined as after-expense Jensen's alpha), although results revert for seasoned funds. Benson et al. (2006) report empirical evidence that SRI funds underperformed randomly chosen conventional funds in the period 1994-2003 using the same measure of performance.

Neither of these studies documents statistically significant differences in performance. Both the approach and the results of our paper are closer to those of Statman (2000) and Bauer et al. (2005). Statman (2000) compares the performance of a sample of SRI funds with that of a control group of conventional funds of similar size and reports that the average Jensen's alpha of SRI funds was higher than that of the control group in the period 1990-1998, although the difference is only marginally significant. Bauer et al. (2005) use fund size and age as matching variables to analyze differences between SRI and conventional funds in the US, UK, and Germany. Although they do not find significant differences in performance between US SRI funds and matched conventional funds in terms of four-factor alphas, they show that the relative performance of SRI funds improved in the period 1998-2001. The empirical evidence for other countries suggests that SRI funds do not outperform conventional funds (Gregory et al., 1997; Hamilton et al., 1993; Kreander et al., 2005; Bauer et al., 2007; Renneboog et al., 2008a; Jones et al., 2008; Cummings, 2000).

A few studies have also provided empirical evidence regarding differences in fees between SRI and non-SRI funds. While Statman (2000) and Benson et al. (2006) document that SRI funds charge slightly lower fees than conventional funds, Geczy et al. (2005), show that the average expense ratio of US SRI no-load funds exceeds that of conventional funds. In line with our results, none of these papers finds significant differences in fees between SRI and comparable conventional funds.

The paper is organized as follows. In Section 1, we describe the fee structure of US mutual funds and the data set. In Section 2, we discuss how we estimate risk-adjusted returns. We describe the matching estimator methodology and our empirical results in Section 3. In Section 4, we analyze the role of management companies. Finally, we conclude in Section 5.

1 Data

1.1 The fee structure of US mutual funds

Mutual funds charge two kinds of fees: expenses and loads. *Expenses* comprise the management fee (typically a fixed percentage of assets under management) and other recurring operating costs—such as custodian, administration, accounting, registration, and transfer agent fees. Rather than charging explicit fees for these expenses, funds deduct them on a daily basis from the fund’s net assets. Expenses are expressed as a percentage of assets under management (the *expense ratio*). *Loads* are one-time fees used to compensate distributors. They are paid either at the time of purchasing (*front-end load*) or redeeming fund shares (*back-end load*) and computed as a fraction of the amount invested.

Since the 1980s, many funds charge *12b-1 fees*, which are used to pay for marketing and distribution costs and are included in the fund’s expense ratio. Many funds offer multiple share classes (such as A, B, or C classes) with different combinations of loads and 12b-1 fees.

To approximate the total cost of mutual fund shares, we aggregate all the costs incurred by fund shareholders using the now standard total ownership cost (TOC) measure introduced by Sirri and Tufano (1998). To obtain this measure, we annuitize the total load by dividing it by the number of years that investors are expected to hold the mutual fund shares. Following Sirri and Tufano (1998), we assume a seven-year holding period, and, thus, define total ownership cost as $TOC = \text{expense ratio} + (\text{total load}/7)$.

1.2 Sample selection

Our main source of data is the CRSP Survivor-Bias Free US Mutual Fund Database (see Carhart, 1997; Carhart et al., 2002; and Elton et al., 2001, for detailed discussions of the dataset). We obtain monthly information on returns, and yearly information on fees and other fund characteristics for all domestic, diversified, equity mutual funds in the database for

the period December 1994–December 2005. We consider a fund to be a domestic, diversified, equity mutual fund if it belongs to any of the following *Standard & Poor’s Detailed Objective Codes* as reported by CRSP: *Aggressive Growth*, *Growth Mid Cap*, *Growth and Income*, *Growth*, *Small Company Growth*.

In the CRSP dataset, different classes of the same fund appear as different funds. We identify the classes that belong to the same fund and obtain fund-level information by averaging (weighting the classes by total net assets) the class-level data provided by CRSP. We also exclude index funds from our sample. Since CRSP has an index identifier only since year 2003, we use funds’ names to determine whether they are index funds or not. For SRI funds, we double-check the classification manually to make sure that we do not unnecessarily delete SRI funds from the sample. We follow a similar procedure to identify institutional classes. Since funds often have both retail and institutional classes, we classify a fund as institutional if more than fifty percent of its assets are in institutional classes. Institutional funds are excluded from the sample.

We obtain our list of SRI funds from the Social Investment Forum’s (SIF) reports published in 1997, 1999, 2001, 2003 and 2005.² Each report contains comprehensive information about SRI in the US for both the publication year and the preceding one. To build our sample of SRI funds, we first label a mutual fund as SRI in a given year if it is included in the corresponding SIF report. Some SRI funds included in some reports, however, do not appear in others, despite being alive. We checked funds’ prospectuses to identify whether these changes were due to changes in the SRI orientation of the funds and found that temporary exclusions from the reports were not associated with any significant change in reported investment strategy.³ Thus, we label a fund as SRI for the whole sample period if the fund appears at least once in the SIF reports.

In our tests, we exclude from the sample those observations of SRI and conventional funds with missing values for risk-adjusted performance (Section 2 describes the procedure

employed to estimate risk-adjusted performance), expenses, loads, or any of the control variables (investment objective, total net assets, age, and total net assets of the management company). An important feature of our sample is that it is free of survivorship bias, since the CRSP dataset contains information on all funds operating during the entire sample period and since we obtained historical lists of SRI funds from SIF.

Our final sample of actively managed, retail, domestic, US, equity mutual funds in the 1997–2005 period contains a total of 455 SRI and 8,476 conventional fund-year observations, that correspond to 86 SRI funds and 1,761 conventional funds, respectively. Table 1 displays both the number and total assets under management for each group of funds by year. Table 2 reveals several differences between SRI and conventional funds. First, average and median expense ratios are higher and total loads lower for SRI funds, resulting in similar average and median total ownership costs. Second, the companies that manage SRI funds are smaller than those managing conventional funds. Third, average size (measured as total net assets in millions of dollars) is larger, but median size smaller, for SRI funds. Fourth, the turnover ratio (defined as the minimum of aggregated sales and aggregated purchases of securities, divided by the average 12-month total net assets of the fund) is substantially higher for conventional funds. Finally, both the before- and after-fee raw returns of conventional funds are slightly higher than those of SRI funds.

2 Estimation of risk-adjusted returns

Following a long list of studies in the mutual fund performance evaluation literature,⁴ we employ Carhart’s (1997) four-factor model to estimate risk-adjusted performance:

$$r_{it} = \alpha_i + \beta_{rm,i}rm_t + \beta_{smb,i}smb_t + \beta_{hml,i}hml_t + \beta_{pr1y,i}pr1y_t + \varepsilon_{it}, \quad (1)$$

where r_{it} is fund i 's before-expense return in month t in excess of the 30-day risk-free interest rate—proxied by Ibbotson's one-month Treasury bill rate; rm_t is the market portfolio return in excess of the risk-free rate; and smb_t and hml_t denote the return on portfolios that proxy for common risk factors associated with size and book-to-market, respectively. The term $pr1y_t$ is the return difference between stocks with high and low returns in the previous year, and is included to account for passive momentum strategies by mutual funds.⁵ The term α_i is the four-factor *alpha* and captures the fund's risk-adjusted performance according to Carhart's model. For comparison with previous studies, we also consider Jensen's alpha, estimated using the market return rm_t as the single risk factor.

We follow Carhart's (1997) two-stage estimation procedure to obtain a panel of monthly fund risk-adjusted performance estimates. In the first stage, for every month, t , in years 1997-2005, we regress fund excess returns on the risk factors over the previous three years. If less than three years of previous data are available for a specific fund-month, we require a minimum of 30 monthly observations in the previous three years. In the second stage, we estimate a fund's risk-adjusted performance in month t as the difference between the fund's before-expense excess return and the realized risk premium, defined as the vector of betas times the vector of factor realizations in month t . Finally, we obtain each fund's risk-adjusted performance as the average of the annualized monthly alphas over the fund's life in the sample.

3 Differences between SRI funds and conventional funds

3.1 Empirical strategy

The ideal experiment to evaluate the impact of socially responsible investing on performance and fees would be to observe the same funds both with and without the SRI constraint. Most previous studies (Gregory et al., 1997; Statman, 2000; Kreander et al., 2005; Bauer et al.,

2005) approximate the ideal experiment by comparing the performance of SRI funds to that of a control group of comparable conventional funds, a methodology that is known as matched-pair analysis.⁶ More precisely, each SRI fund is matched to one or several conventional funds with similar values of one or more matching variables. The difference between SRI and conventional funds is then estimated by averaging the differences between each SRI fund and the corresponding matched conventional funds. Finding control observations, however, is not easy when matching is done on several control variables, since exact or nearly exact matches for all variables and observations are rare even in large data sets (Zhao, 2004). In this paper, we employ the bias-adjusted matching estimator developed by Abadie and Imbens (2006), which overcomes this difficulty. The matching estimator analysis maps the multiple matching variables into a single number that measures the distance to the observation to be matched and selects as control observations those with the lowest value for this distance. Matching estimators, therefore, make it possible to use several matching variables simultaneously.⁷ The bias-adjusted matching estimator of Abadie and Imbens further corrects the potential bias arising from the difference in the matching variables by explicitly taking into account how the variable of interest (fees or performance) is related to the matching variables.⁸

To estimate the differences between SRI and conventional funds, we first compute for each fund the average value (averaged over the life of the fund in the sample) of each of the outcome variables. These outcome variables are different measures of performance and fees as well as fund turnover. We then match each SRI fund with conventional funds that, in the year in which the SRI fund first appears in the sample, have the same investment objective as the SRI fund and have similar age, size, and size of the fund's management company. Therefore, we match SRI funds with conventional funds that are initially similar and estimate the differences over time in performance and fees between the initially similar funds. We report results for simple and biased-adjusted estimators obtained using one and four matches per

SRI fund. The one-match procedure is the one that most closely approximates the matched-pair methodology used in previous studies and it maximizes the quality of the matches, although at the cost of a small sample size. In some specifications, we use two, rather than four matches, because of a low number of available fund-year observations.

3.2 Differences in before-fee performance

Panel A in Table 3 reports our estimates of the difference in before-fee performance between SRI and conventional funds. The difference in raw (risk-unadjusted) before-fee returns between SRI funds and similar conventional funds is negligible in all specifications and not statistically significant in any of them. Differences in risk-adjusted performance, estimated as four-factor alpha, however, are statistically significant. They are also economically significant: SRI funds earn an annual four-factor alpha that is between 0.96% and 1.83% higher than the one earned by matched conventional funds. This difference is substantial, considering that the mean four-factor alpha for SRI funds is 0.58%. SRI funds also earn higher one-factor alphas, although the difference is not statistically significant in all specifications.

We can extract two conclusions from Panel A of Table 3. First, the fact that differences in raw performance are negligible, while differences in risk-adjusted performance are substantial and statistically significant show that SRI and conventional funds differ in their exposure to the different risk factors. Therefore, SRI and conventional funds seem to follow different investment strategies, a finding consistent with results reported by Benson et al. (2006). Second, the risk-adjusted before-fee returns of SRI funds are higher than those of comparable conventional funds. We consider several possible explanations for this result.

First, the large size of the investment universe faced by fund managers implies that they must make choices about the breadth and depth of their analysis. Restricting the investment universe may prove optimal if depth is relatively more profitable than breadth (see Nieuwerburgh and Veldkamp, 2005). Recent evidence showing that fund families following

more focused investment strategies (Nanda et al., 2004) and mutual funds holding portfolios concentrated in specific industries tend to perform better (Kacperczyk et al., 2005) provides support for this hypothesis. Mutual funds' preference for investing in firms with headquarters located near those of the management company (Coval and Moskowitz, 1999, 2001) also provides support for the idea that fund managers often choose to restrict their investment universe. The performance premium of SRI funds could, thus, stem from the gains from specialization induced by their investment restrictions.

SRI constraints could also have a positive impact on performance if limiting the set of investment opportunities reduces excessive trading. Transaction costs are directly deducted from funds' assets (transaction costs are not part of fund expenses) and, thus, directly affect before-fee returns. To explore this possibility, we estimate the difference between the turnover ratio of SRI and conventional funds and find (Panel B in Table 3) that SRI funds have a lower portfolio turnover than comparable conventional funds. However, the difference in turnover cannot explain the performance difference between SRI and conventional funds, as shown in Table 3 (Panel A), which reports the estimated differences in before-fee (but net of transaction costs) performance between SRI and conventional funds when turnover is used as an additional matching variable.

The performance advantage of SRI funds could also be explained by differences in the severity of the conflict of interest between investors (who seek high risk-adjusted returns) and fund managers (who want to maximize fee revenues net of management costs). If SRI is associated with better fund governance, and if agency problems have a significant effect on performance, then SRI funds could exhibit better performance than conventional funds.

Finally, the requirements that a fund has to fulfil in order to be included in the SIF's listing of SRI funds are rather weak. For example, a fund could be on the list just by imposing a screen on companies with interests in the tobacco business. If the constraints that SRI (as defined in our dataset) imposes on fund managers are minor, the performance

of SRI mutual funds should not be expected to be lower than that of conventional funds. Hong and Kacperczyk (2007) identify only 193 distinct “sin” companies, out of a sample of thousands of US companies. Therefore, at least part of our sample of SRI mutual funds may face only minor restrictions on their investment policies. The fraction of “sin” companies among large US companies, however, is larger (see Statman, 2005). Further, leaving out “sin” companies may have a relatively large cost, since Hong and Kacperczyk (2007) report that these companies outperform comparable ones in their sample.

It is important to highlight that the estimated performance differences between SRI and conventional funds cannot be explained by (nor require) a performance premium for socially responsible *firms*. If these firms yielded higher risk-adjusted returns, conventional funds could obtain returns as high as those of SRI funds by investing in SRI firms, since conventional funds are not restricted to investing in firms that are not socially responsible.⁹

3.3 Differences in fees

Even if socially responsible investment does not impose a cost on SRI fund investors in terms of reduced before-fee financial performance, these investors could still pay an explicit price for their funds’ social responsibility in the form of higher fees. Indeed, there are reasons to expect fees charged by SRI funds to be higher. First, some SRI funds actively engage with the firms in which they invest to encourage them to pursue socially responsible policies. The costs of such active monitoring may be partly passed on to investors in the form of higher expenses. Second, investors concerned about social responsibility may be willing to pay a premium for the SRI attribute.¹⁰ Finally, investors in SRI funds may differ from other investors in their sensitivity to financial performance. It is well known that investor sensitivity to performance differs across funds (Sirri and Tufano, 1998). Further, Christoffersen and Musto (2002), Houge and Wellman (2007), and Gil-Bazo and Ruiz-Verdú (2008) show that fund fees are higher in funds facing less performance-sensitive investors. Therefore, if SRI fund investors

were less sensitive to after-fee performance, one would expect SRI funds to charge higher fees. The empirical evidence on the performance sensitivity of SRI mutual fund investors, however, is mixed. Bollen (2007) finds that flows of money to SRI funds in the US are more sensitive to performance than flows to conventional funds when returns in the previous year are positive, and less sensitive when past returns are negative. Renneboog et al. (2005) report similar evidence for a sample of international funds, although they also find that flows of money to SRI funds are not negatively affected by fund management fees or loads, contrary to conventional funds. However, more recent evidence for the US market (Benson and Humphrey, 2008) suggests that, controlling for fund characteristics, the relation between monthly flows of money and performance is flatter for SRI funds than for conventional funds.

Table 4 contains the results of the matching estimator analysis for differences in fees. The table shows that the difference in the expense ratio of SRI and similar conventional funds is negligible. Thus, while the average expense ratio of SRI funds is 134.45 basis points, estimated differences range between -1.31 and -3.57 basis points. Further, none of the differences is statistically significant at conventional significance levels.

From these results, however, one cannot conclude that investors in SRI funds pay the same fees as those investing in conventional funds, since, on top of expenses, mutual funds often charge loads. To address this issue and shed light on the pricing policies of SRI and conventional funds, we estimate the difference in the loads charged by SRI and conventional funds. As we report in Table 4, there is no conclusive evidence that SRI and conventional funds charge different loads. While SRI funds are estimated to charge higher loads when we use a single match per SRI fund, the estimated difference turns negative when we use four matches. Further, in both cases, the difference is not statistically significant. To complete the analysis, we also estimate the difference in total ownership costs, which include both expenses and loads. As expected from the previous results, differences in total ownership costs are small and not statistically significant. Our conclusions do not change if, instead of

a seven-year holding period, we assume that investors hold their shares for either five or ten years.¹¹

We can thus conclude from Table 4 that either SRI and conventional funds set fees in a similar way or there are factors that differently affect the fee-setting policies of SRI and conventional funds but the effects of these factors cancel out on average. For example, our results are consistent with the hypothesis that investors in SRI and conventional funds do not differ in their price sensitivity. However, our results could also be compatible with, for example, a lower price sensitivity by SRI investors (which would lead, other things equal, to higher fees) together with a greater regard for investors' interests by SRI fund management companies (which would lead, other things equal, to lower fees).

3.4 Differences in after-fee performance

The results above show, on the one hand, that SRI funds outperform comparable conventional funds before fees and, on the other hand, that SRI funds do not charge higher fees. Panel C in Table 3 shows the results of the analysis for differences in after-fee performance. Although the difference in one-factor net alpha is not significant in all cases, estimated differences in both one- and four-factor after-fee alphas are positive and substantial in all specifications (between 0.85% and 2.08%). Therefore, SRI funds outperform similar conventional funds both before and after fees.

Several factors might explain the difference between our results and those of prior studies, which, generally find no significant difference between the performance of SRI and conventional funds. First, many previous studies use raw returns or one-factor alphas as measures of risk-adjusted performance. In contrast, both Bauer et al. (2005) and our paper show clearer differences in performance between both groups when exposure to the Fama-French factors, as well as momentum strategies, are taken into account. Second, we focus on a more recent sample period, which is potentially important since, as suggested by Bauer et al. (2005),

the differential performance of SRI funds with respect to conventional funds has improved over time. Our results show that the superior performance of SRI funds documented by Bauer et al. (2005) for the period 1998-2001 survives when the sample period is extended until 2005. Finally, we have used the matching estimator methodology, which enables us to control for a larger number of fund characteristics than in previous studies.

A possible concern about our results is that they may be sensitive to the moment in which we match each SRI fund with the corresponding conventional funds. As discussed by Kreander et al. (2005), the quality of the matches worsens for periods that are far away from the time of matching. In small samples, this lower quality of the matches may lead to imprecise estimates and, potentially, the choice of matching period may also introduce biases. For example, if SRI funds do not have the same life span as the conventional funds with which they are matched, survivorship biases may emerge (see, e.g., Gregory and Whittaker, 2007). Further, differences in life spans may also introduce biases because estimated average performance is time-varying. Indeed, Lynch et al. (2004) show that mutual fund performance moves with the business cycle. Apparent differences in performance could thus arise because the performance of SRI and conventional funds is measured over different periods.

To check whether our results are robust to these potential problems, we also match each SRI fund-year observation with conventional fund-year observations of the same year, with the same investment objective, and with similar fund size, age, and size of the fund's management company (all in logs). That is, we compare fund-year observations of SRI funds with contemporaneous fund-year observations of conventional funds with similar characteristics. In results not reported, but available from the authors upon request, we find that the risk-adjusted performance of SRI funds, measured as annual four-factor alpha, is higher than that of similar conventional funds both before and after fees. Further, the estimated differences are similar to those reported in Table 3 and highly statistically significant. We also obtain essentially the same results for turnover and when we use turnover as a match-

ing variable in the estimation of performance differences. As in Table 4, we estimate very small fee differences between SRI and conventional funds. However, these differences are consistently positive and statistically significant, suggesting that SRI funds might charge higher fees than similar conventional funds. This last result, however, should be interpreted with care, since statistical significance is likely to be overstated when we match fund-year observations. The reason for this overstatement is that when matching fund-year observations, we use several observations of the same fund. Since fees are very persistent over time, observations of the same fund will be strongly correlated. This strong correlation, in turn, implies that the standard errors of the coefficients are likely to be underestimated and, as a result, that the statistical significance of the estimated coefficients is likely to be overstated (see Petersen (2008) for a discussion of this issue in the context of regression analysis). In any case, the economic significance of the differences is small and it does not alter the result that SRI funds have a higher after-fee performance than similar conventional funds.

4 The role of management companies

Previous sections, as well as extant work on the performance of SRI mutual funds, compare SRI mutual funds with conventional funds that have similar characteristics. Mutual fund performance and fees, however, are not determined exclusively at the level of the individual fund. Mutual funds are operated by management companies, and the resources, policies, and culture of these companies play an important role in the determination of individual funds' performance and fees. Management companies differ in their ability to attract and retain talented managers, the incentives provided to these managers, the availability of supporting staff, their technology, their ability to negotiate prices with other service providers (such as brokers), their advertising policies, and the governance of their funds.¹² In previous sections, we partly controlled for the influence of the management company by including management company size as one of the matching variables. Using observable company characteristics as

matching variables, however, may be insufficient to control for those management company traits most relevant for the determination of performance or fees.

To filter out the impact of unobserved management company heterogeneity, we match SRI funds with conventional funds with similar size and age, and managed by the same management company. As Table 5 reports, differences in performance, both before and after fees, between SRI and similar conventional funds run by the same company are not statistically significant. They are also smaller than the corresponding estimated differences reported in Table 3. The differences in performance between SRI and conventional funds reported in previous sections, therefore, might be largely explained by differences in unobserved characteristics of management companies that are more likely to offer one type of fund or the other. However, our results also show that SRI funds have a lower total ownership cost than conventional funds managed by the same management company and the difference (of at least 22 basis points) is both statistically and economically significant.¹³ Therefore, management companies that offer both conventional and SRI funds do not seem to charge a fee premium for the latter. On the contrary, SRI funds are cheaper than conventional funds with similar size and age.

These results, however, should be interpreted with care. First, the subsample of funds employed to obtain these results is substantially smaller than the full sample. In particular, while there are 86 SRI funds and 1,761 conventional funds in the original sample, the subsample of management companies offering both types of funds contains 27 SRI and 108 conventional funds, respectively. Thus, restricting the set of conventional funds that can serve as controls to those in the same management company as the corresponding SRI fund necessarily leads to poorer matches. Further, the restricted subsample of SRI and conventional funds may not be representative of the whole population. Indeed, funds run by management companies offering both types of funds are both larger and older than funds in the unrestricted sample.

As a second approach to determine the role of fund management companies, we hypothesize that management company specialization in the management of SRI funds is key in explaining the differences between SRI and conventional funds. Under this assumption, we can use companies' degree of specialization to control for relevant management company characteristics without requiring control observations to belong to the same management company. To do this, we divide the sample of SRI funds into two subsamples: one containing funds managed by companies that specialize in SRI funds (defined as those that have more than 50% of their assets in SRI funds) and the other one containing funds managed by generalist companies (which manage SRI funds, but have less than 50% of their assets in this type of fund). We would like to compare SRI funds with similar conventional funds run by the same type of management company (specialized or generalist). Unfortunately, there are only five conventional funds run by companies specialized in SRI funds, which are not enough to match 66 SRI funds run by this type of management company. Therefore, we perform this comparison only for generalist companies. Panel A of Table 6 shows that SRI funds run by generalist companies underperform, both before and after fees, conventional funds also run by generalist companies by an amount between 3.09% and 4.24%, although these differences are not statistically significant when we use the bias correction procedure. SRI funds are associated with a higher total ownership cost, but, again, this difference (between 3.47 and 5.62 basis points) is small and not statistically significant. These results are, therefore, in line with those of Table 5, and suggest that management company characteristics may explain the performance differences between SRI and conventional funds that we find when we analyze the whole sample SRI funds.

Our results, however, are still subject to the criticism that funds in generalist companies may not be representative of the rest of the population. For instance, conventional funds in generalist companies could have higher performance and fees than conventional funds managed by other kinds of companies. In order to discard this possibility, we also compare

SRI funds in generalist companies with all conventional funds. As Panel B of Table 6 shows, differences in before- and after-expense performance between SRI funds in generalist companies and matched conventional funds from the whole sample are slightly smaller than those reported in Panel A, but they are estimated more precisely (all performance differences are statistically significant at the 5% or 10% level) thanks to the larger sample of potential matches. The coefficients for the difference in total ownership cost once again change sign and are not statistically significant.

These results suggest that the differences between SRI and conventional funds reported in Section 3 are fully driven by the subsample of SRI funds run by management companies specialized in SRI. Indeed, when we compare SRI funds run by specialized management companies with all conventional funds (Panel C of Table 6), we find that SRI funds outperform conventional funds by as much as 2.76% before expenses and 2.70% after expenses and all differences are highly statistically significant. The total ownership cost of SRI funds exceeds that of conventional funds by less than 10 basis points and the difference is not statistically significant. Results (available from the authors upon request) are almost identical if specialized management companies are defined as those in which SRI funds represent 75% of total assets under management or more.

There are two possible explanations for the results of Table 6. First, companies that are more likely to deliver higher risk-adjusted returns could also be more likely to specialize in SRI funds. For instance, more ethical management companies could be less prone to act against investors' interests, which would result in better performance. At the same time, they could be more inclined to manage SRI funds. SRI funds operated by these companies could, thus, outperform conventional funds, even if socially responsible investing *per se* did not increase performance. According to the second explanation, socially responsible investing itself would deliver superior performance, but this superiority would only be realized by management companies specialized in SRI. If the superior performance of SRI funds in spe-

cialized management companies were due to the specific characteristics of these management companies and not to the SRI nature of these funds, then we would observe no differences between SRI funds and conventional funds in specialized companies. As mentioned above, however, we cannot perform this comparison due to the low number of conventional funds run by management companies specialized in SRI.

It is important to note that our results do not imply that the optimal strategy for mutual fund investors is to invest in SRI funds managed by specialized companies. First, while the average performance of SRI funds is higher than that of conventional funds, the best conventional funds could still outperform the best SRI funds. If investors were able to detect the best performers, it would then be optimal, from the point of view of financial performance, to invest only in conventional funds. Further, while SRI funds perform better on average than similar conventional funds, the best conventional funds may be very different in size or age from conventional funds and, thus, may not be included in our control group. We cannot rule out that investing in these funds may yield a higher performance than investing in SRI funds. Indeed, Geczy et al. (2005) show that an optimal investment strategy in conventional funds may outperform a similarly optimal investment in SRI funds, while Renneboog et al. (2008a) report that the performance of a “smart-money” portfolio of SRI funds (constructed by tracking the inflows of new money into mutual funds) does not differ from that of a “smart-money” portfolio of conventional funds.

5 Concluding Remarks

In this paper, we revisit the question of whether mutual funds constrained by a socially responsible investment strategy underperform mutual funds not subject to that constraint. To address this question, we separately investigate the contributions of before-fee performance and fees to the financial performance of SRI funds, and explicitly analyze the role played by mutual fund management companies in explaining observed differences between SRI and

conventional funds. To obtain our results, we apply the matching estimator methodology to a sample of US equity funds in the period 1997-2005.

We provide evidence that investors do not pay a price, in the form of reduced performance, for investing in SRI mutual funds. On the contrary, investors in SRI funds have earned a premium in terms of superior risk-adjusted performance relative to that of similar conventional funds both before and after fees. At the same time, there is no conclusive evidence that SRI funds charge higher fees. We find, however, that the performance premium of SRI funds with respect to conventional funds is entirely due to SRI funds operated by management companies that specialize in the management of SRI funds. While SRI funds operated by companies specialized in SRI significantly outperform their conventional peers, SRI funds run by generalist companies underperform similar conventional funds. These results are of practical significance for investors. First, they show that SRI funds may outperform similar conventional funds. And second, they suggest that investors should take into account management company characteristics, particularly their specialization in SRI, when investing in SRI funds.

References

- Abadie, A., D. Drukker, J. Herr and G. Imbens: 2004, 'Implementing Matching Estimators for Average Treatment Effects in Stata', *The Stata Journal* **4**(3), 290–311.
- Abadie, A. and G. Imbens: 2006, 'Large Sample Properties of Matching Estimators for Average Treatment Effects', *Econometrica* **74**(1), 235–267.
- Bauer, R., J. Derwall and R. Otten: 2007, 'The Ethical Mutual Fund Performance Debate: New Evidence from Canada', *Journal of Business Ethics* **70**(2), 111–124.
- Bauer, R., K. Koedijk and R. Otten: 2005, 'International Evidence on Ethical Mutual Fund Performance and Investment Style', *Journal of Banking and Finance* **29**(7), 1751–1767.
- Benson, K., T. Brailsford and J. Humphrey: 2006, 'Do Socially Responsible Fund Managers Really Invest Differently?', *Journal of Business Ethics* **65**(4), 337–357.
- Benson, K. and J. Humphrey: 2008, 'Socially responsible investment funds: Investor reaction to current and past returns', *Journal of Banking and Finance*, *forthcoming*.
- Bollen, N.: 2007, 'Mutual Fund Attributes and Investor Behavior', *Journal of Financial and Quantitative Analysis* **42**(3), 683–708.
- Carhart, M.: 1997, 'On Persistence in Mutual Fund Performance', *The Journal of Finance* **52**(1), 57–82.
- Christoffersen, S. and D. Musto: 2002, 'Demand Curves and the Pricing of Money Management', *Review of Financial Studies* **15**(5), 1499–1524.
- Coval, J. D. and T. J. Moskowitz: 1999, 'Home Bias at Home: Local Equity Preference in Domestic Portfolios', *The Journal of Finance* **54**(6), 2045–2074.
- Coval, J. D. and T. J. Moskowitz: 2001, 'The Geography of Investment: Informed Trading and Asset Prices', *Journal of Political Economy* **109**(4), 811–841.

- Cummings, L.: 2000, 'The Financial Performance of Ethical Investment Trusts: An Australian Perspective', *Journal of Business Ethics* **25**, 79–92.
- Geczy, C., R. Stambaugh and D. Levin: 2005, 'Investing in Socially Responsible Mutual Funds', *Working Paper, University of Pennsylvania*.
- Gil-Bazo, J. and P. Ruiz-Verdú: 2008, 'The Relation between Price and Performance in the Mutual Fund Industry', *Journal of Finance (forthcoming)*.
- Gregory, A., J. Matatko and R. Luther: 1997, 'Ethical Unit Trust Financial Performance: Small Company Effects and Fund Size Effects', *Journal of Business Finance & Accounting* **24**(5), 705–725.
- Gregory, A. and J. Whittaker: 2007, 'Performance and Performance Persistence of Ethical Unit Trusts in the UK', *Journal of Business Finance & Accounting* **34**(7-8), 1327–1344.
- Hamilton, S., H. Jo and M. Statman: 1993, 'Doing Well while Doing Good? The Investment Performance of Socially Responsible Mutual Funds', *Financial Analysts Journal* **49**(6), 62–66.
- Hong, H. and M. Kacperczyk: 2007, 'The Price of Sin: The Effects of Social Norms on Markets', *Working Paper, Princeton University*.
- Houge, T. and J. Wellman: 2007, 'The Use and Abuse of Mutual Fund Expenses', *Journal of Business Ethics* **70**(1), 23–32.
- Imbens, G.: 2004, 'Nonparametric Estimation of Average Treatment Effects under Exogeneity: A Review', *Review of Economics and Statistics* **86**(1), 4–29.
- Jones, S., S. van der Laan, G. Frost and J. Loftus: 2008, 'The Investment Performance of Socially Responsible Investment Funds in Australia', *Journal of Business Ethics* **80**, 181–203.

- Kacperczyk, M., C. Sialm and L. Zheng: 2005, 'On the Industry Concentration of Actively Managed Equity Mutual Funds', *The Journal of Finance* **60**(4), 1983–2011.
- Kreander, N., R. Gray, D. Power and C. Sinclair: 2005, 'Evaluating the Performance of Ethical and Non-ethical Funds: A Matched Pair Analysis', *Journal of Business Finance & Accounting* **32**(7-8), 1465–1493.
- Lynch, A., J. Wachter and W. Boudry: 2004, 'Does mutual fund performance vary over the business cycle?', *New York University and University of Pennsylvania, Working Paper*.
- McLachlan, J. and J. Gardner: 2004, 'A Comparison of Socially Responsible and Conventional Investors', *Journal of Business Ethics* **52**, 11–25.
- Mill, G.: 2006, 'The Financial Performance of a Socially Responsible Investment Over Time and a Possible Link with Corporate Social Responsibility', *Journal of Business Ethics* **63**(2), 131–148.
- Nanda, V., Z. Wang and L. Zheng: 2004, 'Family Values and the Star Phenomenon', *Review of Financial Studies* **17**(3), 667–698.
- Nieuwerburgh, S. V. and L. Veldkamp: 2005, 'Information Acquisition and Portfolio Underdiversification', *Working paper, New York University*.
- Petersen, M. A.: 2008, 'Estimating standard errors in finance panel data sets: Comparing approaches', *Review of Financial Studies, forthcoming*.
- Renneboog, L., J. Ter Horst and C. Zhang: 2005, 'Is Ethical Money Financially Smart?', *ECGI Working Paper Series in Finance*.
- Renneboog, L., J. Ter Horst and C. Zhang: 2008a, 'The Price of Ethics and Stakeholder Governance: The Performance of Socially Responsible Mutual Funds', *Journal of Corporate Finance* **14**(3), 302–322.

- Renneboog, L., J. Ter Horst and C. Zhang: 2008b, ‘Socially Responsible Investments: Institutional Aspects, Performance, and Investor behavior’, *Journal of Banking and Finance* **32**(9), 1723–1742.
- Sirri, E. and P. Tufano: 1998, ‘Costly Search and Mutual Fund Flows’, *The Journal of Finance* **53**(5), 1589–1622.
- Statman, M.: 2000, ‘Socially Responsible Mutual Funds’, *Financial Analysts Journal* **56**(3), 30–39.
- Statman, M.: 2005, ‘Socially Responsible Indexes: Composition, Performance and Tracking Errors’, *Working paper, Santa Clara University*.
- Zhao, Z.: 2004, ‘Using Matching to Estimate Treatment Effects: Data Requirements, Matching Metrics, and Monte Carlo Evidence’, *Review of Economics and Statistics* **86**(1), 91–107.

Notes

¹See Renneboog et al. (2008b) for a comprehensive survey of the literature on SRI.

²We thank Todd Larsen from SIF for providing these reports.

³For instance, the mutual fund *Lutheran Brotherhood Opportunity Growth Fund* was included in SIF reports from 1997 to 2001, but was not included in subsequent reports. Similarly, the fund *Fidelity Select Environmental* was included only in the 2005 SIF report, although it had been operating since 1997. Inspection of the funds' prospectuses did not reveal any change in the orientation of these funds.

⁴Bauer et al. (2005) and Renneboog et al. (2008a) have recently used this model to evaluate the performance of SRI funds.

⁵Data were downloaded from Kenneth French's website, <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/>.

⁶See, however, Mill (2006) for a time-series analysis of a UK unit trust that was initially conventional and later shifted to a socially responsible investment objective.

⁷To account for differences in the units used to measure each matching variable and in the dispersion of these variables, the distance metric employed scales the distance according to each of the matching variables by its variance (a procedure also employed by Bollen, 2007). More precisely, if the matching variables are size (s), age (a), and size of the management company (c), the distance between funds A and B would be: $d = \sqrt{\frac{(s_A - s_B)^2}{\sigma_s^2} + \frac{(a_A - a_B)^2}{\sigma_a^2} + \frac{(c_A - c_B)^2}{\sigma_c^2}}$, where σ_k^2 is the sample variance of variable k .

⁸For a more detailed discussion of the matching estimators analysis and a comparison to other methods, see Imbens (2004). For an implementation of the matching estimator used in this paper, see Abadie et al. (2004).

⁹A notable exception is the Vice Fund, which focuses on firms in the alcohol, gambling, tobacco, and military sectors.

¹⁰See McLachlan and Gardner (2004) for an empirical study of the differences between

socially responsible and conventional investors.

¹¹Results are available from the authors upon request.

¹²Mutual funds boards are picked by the management company that runs the fund and many or all funds operated by a management company share the same board.

¹³We note that we obtain the same results (not reported) if we do the matching by fund-year observation rather than by fund.

Tables

Table 1: Number and total net assets of SRI and conventional funds

The table shows the number and total net assets (TNA) of SRI and conventional funds in the sample per year. Total net assets are reported in millions of US dollars.

	SRI Funds		Conventional Funds	
	Number of funds	TNA	Number of funds	TNA
1997	31	88,774	660	1,008,553
1998	41	111,272	736	1,288,145
1999	42	115,505	824	1,717,278
2000	47	99,517	921	1,670,100
2001	56	55,113	1,005	1,457,958
2002	61	36,573	1,102	1,138,293
2003	59	104,947	1,077	1,404,566
2004	60	120,962	1,091	1,637,126
2005	58	141,550	1,060	1,749,477

Table 2: Descriptive statistics

The table shows descriptive statistics for the SRI and conventional funds in the sample. *S.D.* denotes standard deviation. *Expense ratio*, *Total loads* and *Total ownership cost* are reported as percentages. Total loads are the total of all maximum front, deferred, and redemption fees as reported by CRSP. Total ownership cost is defined as expense ratio + total loads/7. Total net assets by fund (*TNA, funds*) and by management company (*TNA, mgmt. co.*) are reported in millions of US dollars. *Age* is reported in years. *Turnover* stands for the fund's turnover ratio, defined as the minimum of aggregated sales and aggregated purchases of securities, divided by the average 12-month total net assets of the fund. *Net returns* are the fund's annual returns computed as the sum of monthly returns as reported by CRSP, which are net of expenses. *Gross returns* are defined as net returns plus the expense ratio.

	SRI Funds			Conventional Funds		
	Mean	S.D.	Median	Mean	S.D.	Median
Expense ratio	1.37%	0.42%	1.36%	1.31%	0.44%	1.25%
Total loads	2.03%	2.44%	0.02%	2.09%	2.33%	0.93%
Total ownership cost	1.66%	0.57%	1.51%	1.60%	0.65%	1.49%
TNA, funds	1,921	7,462	248	1,542	5,082	286
TNA, mgmt. co.	11,860	34,137	1,782	30,584	81,540	4,544
Age	14.40	14.79	9.00	14.29	13.53	13.53
Turnover	0.645	0.574	0.510	0.933	1.068	0.690
Net returns	8.44%	19.97%	9.24%	7.66%	20.07%	9.39%
Gross returns	9.81%	19.96%	10.63%	8.96%	20.06%	10.67%
Fund-year observations	455			8,476		

Table 3: Matching estimator analysis for before-expense performance, fund turnover and after-expense performance.

The table shows the matching estimator results (coefficient, standard error, and mean of the outcome variable for the SRI group) for differences between SRI and matched conventional funds in: before-expense performance (Panel A), fund turnover (Panel B), and after-expense performance (Panel C). A positive sign indicates that the value of the outcome variable is higher for SRI funds. Matching variables include year, investment objective, fund age and total net assets (both in logs), and management company total net assets (in logs). 1- and 4-factor alphas are annual Jensen's and Carhart's alphas, respectively, and are reported as percentages.

	Simple		Bias Corrected	
	1 match	4 matches	1 match	4 matches
Panel A: Before-fee performance				
<i>Gross Returns</i>				
Coeff.	0.14	-0.07	0.16	-0.08
S.e.	1.07	0.88	1.06	0.88
Mean (SRI)	9.44	9.44	9.44	9.44
<i>Gross alpha, 1 factor</i>				
Coeff.	2.04**	0.96	2.06**	0.82
S.e.	0.91	0.72	0.91	0.72
Mean (SRI)	1.81	1.81	01.81	1.81
<i>Gross alpha, 4 factors</i>				
Coeff.	1.79***	1.03*	1.83***	0.96*
S.e.	0.67	0.57	0.67	0.57
Mean (SRI)	0.58	0.58	0.58	0.58
<i>Gross alpha, 4 factors (turnover)</i>				
Coeff.	1.49**	1.19**	1.52**	1.20**
S.e.	0.65	0.53	0.66	0.53
Mean (SRI)	0.58	0.58	0.58	0.58
Panel B: Portfolio turnover				
Coeff.	-0.15	-0.16**	-0.16	-0.18**
S.e.	0.10	0.08	0.10	0.08
Mean (SRI)	0.71	0.71	0.71	0.71
Panel C: After-fee performance				
<i>Net alpha, 1 factor</i>				
Coeff.	2.05**	0.98	2.08**	0.85
S.e.	0.90	0.72	0.90	0.72
Mean (SRI)	0.46	0.46	0.46	0.46
<i>Net alpha, 4 factors</i>				
Coeff.	1.80***	1.05*	1.85***	0.99*
S.e.	0.67	0.58	0.67	0.57
Mean (SRI)	-0.76	-0.76	-0.76	-0.76

*** 1% sig.; ** 5% sig.; * 10% sig.

Table 4: Matching estimator analysis for fees.

The table shows the matching estimator results (coefficient, standard error, and mean of the outcome variable for the SRI group) for differences between SRI and matched conventional funds. A positive sign indicates that the value of the outcome variable is higher for SRI funds. Matching variables include year, investment objective, fund age and total net assets (both in logs), and management company total net assets (in logs). Fees are in basis points.

	Simple		Bias Corrected	
	1 match	4 matches	1 match	4 matches
<i>Expenses</i>				
Coeff.	-1.31	-1.98	-2.09	-3.57
S.e.	6.22	4.69	6.21	4.71
Mean (SRI)	134.45	134.45	134.45	134.45
<i>Total Ownership Cost</i>				
Coeff.	1.11	-4.84	0.86	-6.12
S.e.	9.86	7.25	9.85	7.26
Mean (SRI)	160.38	160.38	160.38	160.38
<i>Total Loads</i>				
Coeff.	16.96	-20.03	20.68	-17.87
S.e.	33.80	25.90	33.68	25.85
Mean (SRI)	181.55	181.55	181.55	181.55

*** 1% sig.; ** 5% sig.; * 10% sig.

Table 5: Matching estimator analysis for SRI funds managed by the same management company.

The table shows the matching estimator results (coefficient, standard error, and mean of the outcome variable for the SRI group) for differences between SRI funds and matched conventional funds managed by the same management company. A positive sign indicates that the value of the outcome variable is higher for SRI funds. Matching variables include year, fund age and total net assets (both in logs). Fees are in basis points. 4-factor alphas are annual Carhart's alphas reported as percentages.

	Simple		Bias Corrected	
	1 match	2 matches	1 match	2 matches
<i>Gross Alpha, 4 factors</i>				
Coeff.	0.69	0.53	1.38	0.54
S.e.	1.23	1.15	1.21	1.09
Mean (SRI)	-0.83	-0.94	-0.83	-0.94
<i>Net Alpha, 4 factors</i>				
Coeff.	0.90	0.69	1.68	0.73
S.e.	1.22	1.15	1.20	1.09
Mean (SRI)	-1.94	-2.02	-1.94	-2.02
<i>Total Ownership Cost</i>				
Coeff.	-25.81**	-22.45**	-40.28***	-22.66**
S.e.	10.94	11.37	12.30	11.39
Mean (SRI)	136.77	135.79	136.77	135.79

* 10% sig.; ** 5% sig.; *** 1% sig.

Table 6: Matching estimator analysis for SRI funds managed by generalist and specialized management companies.

The table shows the matching estimator results (coefficient, standard error, and mean of the outcome variable for the SRI group) for differences between: SRI funds managed by generalist management companies and matched conventional funds managed by generalist companies (Panel A); SRI funds managed by generalist management companies and matched conventional funds from the whole sample (Panel B); and SRI funds managed by management companies specialized in SRI and matched conventional funds from the whole sample (Panel C). Specialized (generalist) management companies offer SRI funds and have more (less) than 50% of their assets in this type of funds. A positive sign indicates that the value of the outcome variable is higher for SRI funds. Matching variables include year, investment objective, fund age and total net assets (both in logs), and management company total net assets (in logs). Fees are in basis points. 4-factor alphas are annual Carhart's alphas reported as percentages.

	1 match (simple)	1 match (bias corrected)
Panel A: SRI funds and conventional funds run by generalist management companies		
<i>Gross Alpha, 4 factors</i>		
Coeff.	-3.09	-4.23*
S.e.	2.39	2.33
Mean (SRI)	-1.20	-1.20
<i>Net Alpha, 4 factors</i>		
Coeff.	-3.15	-4.24*
S.e.	2.41	2.35
Mean (SRI)	-2.33	-2.33
<i>Total Ownership Cost</i>		
Coeff.	5.62	3.47
S.e.	18.59	18.36
Mean (SRI)	144.05	144.05
Panel B: SRI funds run by generalist management companies and all conventional funds		
<i>Gross Alpha, 4 factors</i>		
Coeff.	-1.41**	-1.55**
S.e.	0.66	0.64
Mean (SRI)	-1.20	-1.20
<i>Net Alpha, 4 factors</i>		
Coeff.	-1.16*	-1.30*
S.e.	0.69	0.67
Mean (SRI)	-2.33	-2.33
<i>Total Ownership Cost</i>		
Coeff.	-23.48	-22.60
S.e.	26.64	26.44
Mean (SRI)	144.05	144.05
Panel C: SRI funds run by specialized management companies and all conventional funds		
<i>Gross Alpha, 4 factors</i>		
Coeff.	2.76***	2.74***
S.e.	0.81	0.82
Mean (SRI)	1.12	1.12
<i>Net Alpha, 4 factors</i>		
Coeff.	2.70***	2.68***
S.e.	0.81	0.83
Mean (SRI)	-0.30	-0.30
<i>Total Ownership Cost</i>		
Coeff.	8.56	9.08
S.e.	9.79	9.77
Mean (SRI)	165.33	165.33

* 10% sig.; ** 5% sig.; *** 1% sig.