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

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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 significantly higher fees and better before- and after-fee performance than conventional funds with similar characteristics. Differences, however, were driven exclusively by SRI funds run by management companies specialized in socially responsible investment.

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

JEL Classification: G12; G20; G23; A13.

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Previous research on socially responsible investment (SRI) mutual funds has focused on determining whether SRI funds have lower financial performance than conventional funds. In this paper, we contribute to the debate on the performance of SRI funds' by identifying and separately addressing questions that have been confounded in previous research and by using a methodology that overcomes some of the limitations of previous studies.

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 exclusionary 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. Our results also shed light on the way in which mutual fund fees are determined, particularly on the question of whether fees simply reflect funds' operating costs or, as argued by Christoffersen and Musto (2002) and Gil-Bazo and Ruiz-Verdú (2007), they are set taking into account the performance sensitivity of funds' clienteles. This is especially relevant in the context of the recent debate in the literature regarding the sensitivity of SRI fund investors to performance (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 the SRI attribute, but to differences between the companies that manage SRI funds and those that manage conventional funds.

Finally, we use empirical methods that are especially suited to addressing the questions of interest. Several prior studies use the so-called matched-pair analysis to estimate performance differences between SRI funds and a matched sample of comparable conventional funds. In this paper, we improve upon this approach 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 method to adjust for the bias that arises when matches with identical values of the matching variables are not available. Moreover, in contrast with previous research, we exploit the panel nature of our dataset, rather than aggregating information over time. Thus, we match fund-year observations of SRI funds with fund-year observations of conventional funds and, therefore, ensure that performance, fees, and control variables are measured over the same periods for SRI and matched conventional funds.

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 significantly outperform comparable conventional funds between 1% and 1.5% per year before expenses. We investigate whether differences in performance between SRI and conventional funds are due to differences in 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.

SRI funds also charge higher expenses than similar conventional funds. Importantly, however, the higher expenses of SRI funds do not prevent these funds from exhibiting higher after-fee performance than similar conventional funds. Our results also show that fund loads are higher for SRI funds, although the evidence is not as strong as for expenses. When we aggregate expenses and loads to obtain a measure of the total ownership cost of mutual fund shares, we estimate a significant fee premium for SRI funds.

In order to control for management company effects, we compare SRI and conventional funds run by the same management company and find that performance differences become smaller 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. We find no significant differences in fees or performance between SRI funds managed by generalist companies and similar conventional funds. SRI funds run by specialized management companies, however, outperform comparable conventional funds by 2% annually and charge significantly higher fees. 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).

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 contrast with our results, none of these papers finds significant differences in fees between SRI and comparable conventional funds.

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

The paper is organized as follows. Section 1 describes the fee structure of US mutual funds and the dataset. Section 2 discusses how we estimate risk-adjusted returns. Section 3 describes the matching estimator methodology and our estimates of the differences in performance and fees between SRI and conventional funds. Section 4 analyzes the role of management companies. Finally, Section 5 concludes.

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,² and, thus, define total ownership cost as $\text{TOC} = \text{expense ratio} + (\text{total load}/7)$.

²We also consider holding periods of 5 and 10 years.

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 2005.³ 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 labeled a mutual fund as SRI in a given year if it was included in the corresponding SIF report. Some SRI funds included in some reports, however, do not

³We thank Todd Larsen from SIF for providing the reports on which our list of SRI funds is based.

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.⁴ 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. 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 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.

⁴For instance, the mutual fund *Lutheran Brotherhood Opportunity Growth Fund* was included in SIF reports from 1997 to 2001, but was no longer included in subsequent reports. Similarly, the fund *Fidelity Select Environmental* was only included in the SIF report of 2005, although it had been operating since 1997. Our inspection of the funds' prospectuses did not reveal any change in the orientation of these funds.

2 Estimation of risk-adjusted returns

Following a long list of studies in the mutual fund performance evaluation literature,⁵ 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.⁶ 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 .

⁵Bauer et al. (2005) and Renneboog et al. (2008a) have recently used this model to evaluate the performance of SRI funds.

⁶Data were downloaded from Kenneth French’s website, <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/>.

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. 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 scalar 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 simultaneously control for many variables.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

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 recently 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 .

variables.⁸

We further depart from previous work in that we make use of the panel nature of our dataset. Although previous studies often analyze several years of data, their analysis is essentially cross-sectional, since they compute, for each fund, a single measure of performance for the entire sample period and use a single value for each of the matching variables. In contrast, we 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). We use these variables because of their potential role as determinants of both before-fee performance and fees.

Exploiting the panel structure of the data ameliorates several problems. First, in a cross-sectional analysis, the researcher must choose a time at which the matching variables are measured, so the quality of the matches worsens for periods that are far away from the time of matching, as discussed by Kreander et al. (2005). Using the full panel eliminates this problem. A second problem with the cross-sectional approach is the fact that SRI funds may not have the same life span as the conventional funds with which they are matched, which may generate survivorship biases (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 in different periods.

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,

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).

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. SRI funds earn higher raw (risk-unadjusted) before-fee returns than similar conventional funds in all specifications, although the difference is not statistically significant. Differences in risk-adjusted performance, estimated as four-factor alpha, however, are highly statistically significant. They are also larger than those estimated for raw returns and economically significant: SRI funds earn an annual four-factor alpha that is between 1.16% and 1.55% higher than the one earned by matched conventional funds. This difference is substantial, considering that the mean four-factor alpha for SRI funds is 0.81%. SRI funds also earn higher one-factor alphas in all specifications, although differences are smaller and not statistically significant.

We can extract two conclusions from Panel A of Table 3. First, the fact that performance differences are greater when we control for exposure to different risk factors shows that SRI and conventional funds differ in their exposure to those 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. The transaction costs generated by excessive trading 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, with the difference being both statistically and economically significant.⁹ However, the large 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

⁹The fund turnover ratio provided by CRSP is the minimum of aggregated sales and aggregated purchases of securities, divided by the average 12-month total net assets of the fund.

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.¹⁰

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. 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,

¹⁰A notable exception is the Vice Fund, which focuses on firms in the alcohol, gambling, tobacco, and military sectors.

Christoffersen and Musto (2002) and Gil-Bazo and Ruiz-Verdú (2007) 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 SRI funds charge higher expenses than similar conventional funds. However, although the difference is highly statistically significant, its magnitude is relatively small. Thus, the expense ratio of SRI funds is just about 6 bp higher than that of conventional funds (with an average expense ratio of 136.85 bp for SRI funds).

From these results, however, one cannot conclude that SRI funds are more expensive than conventional funds, since, on top of expenses, mutual funds often charge loads to investors. To address this issue and shed light on the pricing policies of SRI and conventional funds, we first analyze differences in total ownership costs, which include both expenses and annuitized loads assuming a holding period of seven years. Results shown in Table 4 indicate that differences in fees between SRI and conventional funds increase when loads are taken into account: total ownership costs are between 6.3 and 9.5 bp higher for SRI funds (with differences statistically significant at the 5% level). 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 The matching estimator results for differences in loads between SRI and similar conventional funds, reported in Table 4, confirm that loads are higher for SRI funds, although differences are not statistically significant in all specifications. Inspection of the sample reveals that only 52.74 percent of SRI funds charge loads, as opposed to 57.65 percent of conventional funds. This suggests that higher average loads among SRI funds are not due to SRI funds being more likely to charge loads, but to the fact that SRI load funds charge higher loads than conventional load funds, a conjecture that we confirm in unreported results.

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 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, the estimated difference in four-factor net alpha is positive (between 1% and 1.5%), statistically significant, and robust to the specification used. Therefore, even though SRI fund investors pay a price, in terms of higher fees, for consuming the SRI attribute, this price is not high enough to offset the performance advantage of SRI funds.

Several factors explain the difference between our results, which show that SRI funds outperform their conventional matches, and those of extant 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 that differences in performance between both groups increase when exposure to the Fama-French factors, as

¹¹Results are available from the authors upon request.

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, and we have accounted for time-variation in both the matching variables and performance.

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 compare

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.

SRI fund-year observations with observations of conventional funds of the same year, with similar size and age, and managed by the same management company. As Table 5 reports, differences in performance between SRI and similar conventional funds run by the same company are very small in absolute value and statistically insignificant. More precisely, differences in four-factor before-expense performance decrease from an annual 1.5%, when we compare SRI funds with conventional funds in the whole sample, to just 14–27 bp, when we compare SRI funds to conventional funds run by the same management company. In contrast with the results in Section 3, the total ownership cost of SRI funds is between 13 and 18 bp lower than that of conventional funds managed by the same management company, and this difference is statistically significant. Differences in net performance are positive, although statistically insignificant. The differences between SRI and conventional funds reported in previous sections, therefore, seem to be fully explained by differences in unobserved characteristics of management companies that are more likely to offer one type of fund or the other.

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 455 SRI fund-year observations and 8,476 conventional fund-year observations in the original sample, the subsample of management companies offering both types of funds contains 153 SRI and 660 conventional fund-year observations, respectively. Further, the restricted subsample of SRI and conventional funds may not be representative of the whole population. Inspection of the data suggests that this may be the case, as funds run by management companies offering both types of funds are both larger and older than funds in the unrestricted sample. In addition to this problem, 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.

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).¹³ 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 28 fund-year observations of conventional funds run by companies specialized in SRI funds, which are not enough to match 355 fund-year observations of SRI funds run by this type of management company. Therefore, we perform this kind of comparison only for generalist companies. Panel A of Table 6 shows that SRI funds run by generalist companies underperform conventional funds also run by generalist companies by an amount between 54 and 68 bp, but the differences are statistically insignificant. SRI funds are also associated with lower fees, but, again, this difference (between 3.6 and 7.6 bp) is both statistically insignificant. Finally, both groups exhibit similar net performance. These results are, therefore, in line with those of Table 5, and suggest that management company characteristics can explain differences between SRI and conventional funds.

Our results are still subject to the criticism that funds in generalist companies may not

¹³To compute the fraction of assets under management in SRI funds, we also take into account funds with an *Environmental* investment objective as reported by CRSP. These funds are not included in the sample used in our tests, because there are only two fund-year observations with this investment objective that are not SRI and, therefore, matching *Environmental* SRI funds with conventional funds with the same investment objective is not feasible. It is worth noting that including these funds in the sample does not affect the results.

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-expense performance between SRI funds in generalist companies and matched conventional funds from the whole sample are similar to those reported in Panel A.

These results suggest that the differences between SRI and conventional funds reported in Section 3 are fully driven by 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 2.1% before expenses and 2% after expenses. The total ownership cost of SRI funds exceeds that of conventional funds by about 13 bp. All these differences are highly 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, and generalist companies as those with less than 75% of assets in SRI funds.

There are two possible explanations for the results of Table 6. First, companies that are more likely to deliver higher risk-adjusted returns and charge higher fees 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

and higher fees of SRI funds in specialized 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 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 panel of US equity funds in the period 1997-2005.

We provide evidence that investors pay an explicit price, in the form of higher fees, for investing in SRI mutual funds. Investing in SRI funds, however, does not come at the cost of reduced before- or after-fee performance. 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. The differences between SRI and conventional funds, however, are found only for funds operated by management companies that specialize in the management of SRI funds. These results are of practical significance for investors. First, they show that SRI funds may outperform their conventional peers. And second, they suggest that investors should take into account management company characteristics, particularly their specialization in SRI, when investing in SRI funds.

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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.

	Simple		Bias Corrected	
	1 match	4 matches	1 match	4 matches
Panel A: Before-fee performance				
<i>Gross Returns</i>				
Coeff.	0.0093	0.0056	0.0091	0.0052
S.e.	0.0074	0.0060	0.0074	0.0060
Mean (SRI)	0.0981	0.0981	0.0981	0.0981
 <i>Gross alpha, 1 factor</i>				
Coeff.	0.0084	0.006	0.0082	0.0057
S.e.	0.0069	0.0057	0.0069	0.0057
Mean (SRI)	0.0239	0.0239	0.0239	0.0239
 <i>Gross alpha, 4 factors</i>				
Coeff.	0.0155***	0.0121**	0.0154***	0.0116**
S.e.	0.0058	0.0047	0.0058	0.0047
Mean (SRI)	0.0081	0.0081	0.0081	0.0081
 <i>Gross alpha, 4 factors (turnover)</i>				
Coeff.	0.0174***	0.0109**	0.0172***	0.0106**
S.e.	0.0058	0.0046	0.0058	0.0046
Mean (SRI)	0.0081	0.0081	0.0081	0.0081
Panel B: Portfolio turnover				
Coeff.	-0.2318***	-0.2049***	-0.2300***	-0.1981***
S.e.	0.0471	0.0374	0.0472	0.0374
Mean (SRI)	0.6452	0.6452	0.6452	0.6452
Panel C: After-fee performance				
<i>Net alpha, 1 factor</i>				
Coeff.	0.0077	0.0055	0.0076	0.0051
S.e.	0.0069	0.0057	0.0069	0.0057
Mean (SRI)	0.0102	0.0102	0.0102	0.0102
 <i>Net alpha, 4 factors</i>				
Coeff.	0.0149***	0.0115**	0.0148***	0.0111**
S.e.	0.0057	0.0047	0.0057	0.0047
Mean (SRI)	-0.0056	-0.0056	-0.0056	-0.0056

* 10% sig.; ** 5% sig.; *** 1% 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.	6.50***	5.25***	6.33***	5.30***
S.e.	2.38	1.89	2.37	1.89
Mean (SRI)	136.85	136.85	136.85	136.85
<i>Total Ownership Cost</i>				
Coeff.	9.43**	6.26**	9.58**	6.84**
S.e.	3.80	3.06	3.80	3.05
Mean (SRI)	165.87	165.87	165.87	165.87
<i>Total Loads</i>				
Coeff.	20.53	7.09	22.74	10.83
S.e.	14.94	12.08	14.95	12.04
Mean (SRI)	203.07	203.07	203.07	203.07

*** 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.

	1 match (simple)	2 matches (bias corrected)
<i>Gross Alpha, 4 factors</i>		
Coeff.	0.0014	0.0027
S.e.	0.0094	0.0077
Mean (SRI)	-0.0123	-0.0123
<i>Net Alpha, 4 factors</i>		
Coeff.	0.0030	0.0034
S.e.	0.0094	0.0077
Mean (SRI)	-0.0241	-0.0241
<i>Total Ownership Cost</i>		
Coeff.	-18.08**	-13.36**
S.e.	7.35	6.74
Mean (SRI)	159.86	159.86

* 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.

	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.	-0.0068	-0.0054
S.e.	0.0075	0.0075
Mean (SRI)	-0.0128	-0.0128
<i>Net Alpha, 4 factors</i>		
Coeff.	-0.0068	-0.0049
S.e.	0.0076	0.0076
Mean (SRI)	-0.0246	-0.0246
<i>Total Ownership Cost</i>		
Coeff.	-3.60	-7.60
S.e.	9.00	8.91
Mean (SRI)	156.42	156.42
Panel B: SRI funds run by generalist management companies and all conventional funds		
<i>Gross Alpha, 4 factors</i>		
Coeff.	-0.0041	-0.0046
S.e.	0.0072	0.0071
Mean (SRI)	-0.0128	-0.0128
<i>Net Alpha, 4 factors</i>		
Coeff.	-0.0036	-0.0041
S.e.	0.0072	0.0072
Mean (SRI)	-0.0245	-0.0245
<i>Total Ownership Cost</i>		
Coeff.	-1.85	-1.57
S.e.	10.09	10.20
Mean (SRI)	156.42	156.42
Panel C: SRI funds run by specialized management companies and all conventional funds		
<i>Gross Alpha, 4 factors</i>		
Coeff.	0.0210***	0.0208***
S.e.	0.0071	0.0071
Mean (SRI)	0.0139	0.0139
<i>Net Alpha, 4 factors</i>		
Coeff.	0.0201***	0.0198***
S.e.	0.0070	0.0071
Mean (SRI)	-0.0004	-0.0004
<i>Total Ownership Cost</i>		
Coeff.	12.57***	13.48***
S.e.	3.89	3.90
Mean (SRI)	168.50	168.50

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