

The performance of European socially responsible funds

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Abstract

Recent years have witnessed an increasing growth in mutual funds that invest according to social criteria. As a consequence, the financial performance of these portfolios has attracted the interest of academics and practitioners. This paper investigates the performance of a sample of socially responsible mutual funds from seven European countries investing globally and/or in the European market. Using unconditional and conditional models, we assess the performance of these funds in comparison to conventional and socially responsible benchmark portfolios.

The results show that European socially responsible funds present, in general, neutral performance, either in relation to conventional or socially responsible benchmarks. Furthermore, performance estimates seem to be slightly higher when funds are evaluated in relation to socially responsible indices. Our results also show that socially responsible funds are more exposed to conventional than to socially responsible indices. Furthermore, conventional benchmarks are better capable of explaining fund returns than socially responsible benchmarks. These findings are robust to both unconditional and conditional models of performance. We also observe that conditional models lead to a slight improvement of performance estimates and of the explanatory power of the models, both when conventional and socially responsible benchmarks are considered. This is consistent with most previous empirical findings on conditional performance evaluation.

Our results show that investors that wish to hold European funds can add social screens to their investment choices without compromising their financial performance.

Keywords: Fund performance evaluation, Socially responsible mutual funds, Socially responsible investing, Socially responsible indices, General market indices

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Introduction

The concept of socially responsible investing (SRI) has been receiving an increasing interest in the academic literature. Accompanying this trend, a significant number of socially responsible mutual funds have been created worldwide. The financial performance of socially responsible funds provides a partial answer to whether ethical standards are inconsistent with the wealth maximisation paradigm used in mainstream finance (Wood, 1987). Therefore, a central issue of debate concerns the impact of social screening on mutual fund performance. Theoretically, portfolio theory arguments suggest that the imposition of additional constraints will inhibit the construction of the optimal portfolio. As the universe of investments is reduced, investors will benefit less from the potential for diversification than in an unconstrained portfolio, which will result in lower risk-adjusted returns. Furthermore, the additional costs of monitoring social performance might also cause socially responsible funds to underperform. Notwithstanding, advocates of socially responsible investing sustain that firms that are engaged in corporate social responsibility practices will benefit from improved economic performance over the long run. The underlying argument is that high levels of corporate social responsibility are indicators of high quality of management and may reflect comparative advantages over less socially responsible firms.

In general, empirical studies have not found statistically significant differences in the performance of socially screened mutual funds compared to their conventional counterparts. However, most of these studies have been conducted in the US market, which is by far the most developed market for socially responsible investment. With the exception of the UK, the European socially responsible mutual fund market is less explored.

We are aware of only two studies that carry out comparative analysis of several European markets. Kreander et al. (2005) focus on several European markets (British, Swedish, German, Dutch, Norwegian, Swiss and Belgian). However, this study employs more conventional measures of fund performance. Bauer et al. (2005), although applying more recent methodologies of performance evaluation, only consider one additional market (Germany), besides the well known US and UK markets.

The purpose of this paper is to investigate the performance of a comprehensive sample of socially responsible funds from seven European countries. In particular, we assess the performance of socially screened funds that invest globally and/or in the European market relative to conventional and socially responsible benchmark portfolios. Mutual fund performance is evaluated using both traditional and conditional measures of performance evaluation. The conditional model, developed by Ferson and Schadt (1996), accounts for time-variation of risk and is considered appropriate in current mutual fund performance literature. Christopherson et al. (1998) extended this conditional model to allow not only time varying risk measures but also time varying estimates of performance depending on economic conditions. One of the contributions of our study is apply this extended conditional model which we will designate as the full conditional model to measure the performance of European socially responsible mutual funds. The few studies that apply conditional models to evaluate socially responsible fund performance are limited to the Ferson and Schadt (1996) specification of the model.

The results of our study are of major interest for investors and to academics alike. Besides contributing to the literature on whether it is possible to “do well while doing good”, the results have implications to the market efficiency debate, which predicts that no portfolio

selection criteria, whether based on social values or not, will provide investors with consistently superior performance. Our findings suggest that funds that do incorporate social responsible criteria in the portfolio selection process show a performance that is consistent with what would be expected from investing in a conventional portfolio. This is relevant for investors as it implies that they can invest according to social values without sacrificing financial performance.

This paper is organized as follows. The next section discusses the literature on the performance of socially responsible funds. The “Methodology” section focuses on the models used to assess fund performance. The subsequent section describes the data. Next, results of the empirical analysis are provided and discussed. Finally, the last section summarises the main results and presents some concluding remarks.

Review of the literature

Numerous studies have focused on the relationship between social and financial performance. This research has been developed along three different areas.

A first approach involves assessing the financial performance of individual companies that have good records of social performance *versus* those that are less socially responsible. These first generation studies go back to Moskowitz’s (1972) pioneer study. Although more than 30 years of empirical findings have produced inconclusive results, recent review studies (Margolis and Walsh, 2003; Orlitzky et al., 2003) have argued that most studies tend to show a positive relationship between corporate social and financial performance.¹

A second body of research has compared the performance of indices that exclude companies with lower social records with conventional market indices. In general, these studies (as in Grossman and Sharpe, 1986; Kurtz and DiBartolomeo, 1996; Guerard, 1997; Sauer, 1997; Statman, 2006) have found that the performance of social indices is comparable to the performance of broad market indices.

Finally, a third area of research has focused on the performance of socially responsible mutual funds relative to comparable unscreened investments (conventional funds and indices). This research is more recent, as the emergence and growth of a significant number of funds that invest according to social screens has occurred only in the latest years. This type of approach is somewhat appealing relative to the first group of studies, as it overcomes the problem of measuring corporate social performance, one of the major limitations faced by researchers who analyse the link between social and financial performance of individual companies.²

Overall, empirical findings have typically shown that the performance of socially responsible funds is similar to the performance of conventional funds.³ This type of findings challenges the neo-classical argument that socially screened portfolios, by considering only a subset of the market portfolio, will limit the potential for diversification, resulting in lower risk-adjusted returns. In contrast, proponents of socially responsible investing argue that competitive returns to socially responsible funds arise because screening practices allow fund managers to identify the best companies in terms of potential for profits.

The majority of the studies on the performance of socially responsible mutual funds have provided evidence on US and UK funds. Studies on the US market include Hamilton et al. (1993), Reyes and Grieb (1998), Goldreyer and Diltz (1999), Statman (2000), and Bello

(2005). Despite differences in sample size and time periods, the results are similar as no significant differences were found in the performance of socially responsible funds and their conventional peers. These studies are, in general, conducted in the context of the single-index framework and are therefore subject to the limitations that arise when using only one factor (a benchmark index) to measure risk.

UK ethical funds⁴ have also been the focus of researchers. Luther et al. (1992) find weak evidence that these funds outperform conventional funds. This study, as well as that of Luther and Matatko (1994), found evidence of a size effect, as ethical funds showed a greater exposure to small companies than conventional funds. In fact, the screening process may imply that these funds are more likely to exclude large companies from their portfolios. Consequently, ethical funds may appear to generate higher risk-adjusted returns.⁵ Considering that it is difficult to disentangle the effects of screening from size on fund performance, it is necessary to control for this issue when evaluating performance. Mallin et al. (1995) overcome this problem through a matched sample of non-ethical funds formed on the basis of size and formation date. These authors also find some evidence that UK ethical trusts outperform non-ethical trusts. In turn, Gregory et al. (1997) argue that the best way to cope with the small size effect is to consider a two factor benchmark that accounts for size.⁶ After doing so, the overperformance of UK ethical funds found in previous studies disappears. More recently, Gregory and Whittaker (2007) investigate both the performance and the consistency of performance of UK ethical funds also on a risk/style adjusted basis, concluding that neither ethical nor conventional funds exhibit significant underperformance. Besides the UK, several studies have analysed other European markets. Scholtens (2005) investigates the performance

of Dutch socially responsible funds and finds that, although these funds outperform conventional funds, the difference is not statistically significant.

The first study to perform a comparative analysis of a considerable number of European markets was that of Kreander et al. (2005). Considering socially responsible funds from seven European countries (Belgium, Germany, Netherlands, Norway, Sweden, Switzerland and UK), their results show that the performance of social mutual funds is similar to that of conventional funds. Although Kreander et al. (2005) consider the possibility of managers following a market timing strategy by applying the simple Treynor and Mazuy (1966) regression model, they do not consider other potential benchmark problems that arise in the context of the traditional measures of performance that are used. Schröder (2004) and Bauer et al. (2005), besides considering the US market, also analyse the performance of socially responsible funds in some European markets. The former focuses on German and Swiss funds, while the latter use a larger sample composed of UK and German funds. Using multi-factor models that control for investment style as well as conditional models of performance evaluation, both studies come to the common conclusion that socially screened funds do not underperform their unscreened peers.

There are also a few studies on non-European funds. For example, Bauer et al. (2006) investigate the performance of Australian ethical funds, and Bauer et al. (2007) study Canadian ethical funds. Again, no statistical difference in performance is found between these two types of funds.

The most recent studies on socially responsible fund performance, including the previous two, employ the conditional framework, as suggested by Ferson and Schadt (1996), to assess fund performance. In fact, it is now widely acknowledged that neglecting for time

variation in risk measures (betas) and expected returns can lead to biased estimates of performance. This is the case when managers engage in dynamic strategies on the basis of public information variables that have been shown useful in predicting stock returns (Keim and Stambaugh, 1986; Fama and French, 1989). By controlling for this source of potential bias inherent to unconditional measures, conditional models allow for a better assessment of performance. In fact, when empirically applied (e.g.: Ferson and Schadt, 1996, and Christopherson et al., 1998, in the context of conventional funds), conditional models seem to generate more reliable estimates in terms of statistical significance. In the context of screened portfolios, the results also seem to suggest that the conditional risk-adjusted excess returns (alphas) are slightly better than their unconditional counterparts (Bauer et al., 2007, and Bauer et al., 2006). Nonetheless, the differences between the conditional alphas of screened and unscreened portfolios remain statistically insignificant.

It should be noted that although this approach is currently standard in research on conventional fund performance, evidence to date on socially responsible fund performance is limited to the partial version of the conditional model (developed by Ferson and Schadt, 1996), which considers time-varying betas. However, Christopherson et al. (1998) extend the model to its full conditional version by allowing for time varying alphas as well. The underlying idea is that not only risk is time-varying and dependent upon market conditions. Fund performance, as measured by alpha, might also behave in a similar manner.

Methodology

The well known Jensen's (1968) alpha is used as an unconditional measure of performance. This measure is the intercept (α_p) of the CAPM-based following regression:

$$r_{p,t} = \alpha_p + \beta_p r_{m,t} + \varepsilon_{p,t} \quad [1]$$

where $r_{p,t}$ represents the excess return of portfolio p over period t , $r_{m,t}$ represents the market's excess return during the same period, β_p is the systematic risk of the portfolio and $\varepsilon_{p,t}$ is the error term. A statistically significant positive (negative) alpha indicates a superior (inferior) performance of the fund in relation to the market. In this model, both alphas and betas are constrained to be constant.

The conditional approach of Ferson and Schadt (1996), that we term the partial conditional model, allows beta to be time-varying. The alpha, however, remains constant. The conditional beta is a linear function of a vector of predetermined information variables, Z_{t-1} , that represents the public information available at time $t-1$ for predicting returns at time t .

As a consequence, the incorporation of the information variables into equation [1] leads to the following regression:

$$r_{p,t} = \alpha_p + \beta_{0p} r_{m,t} + \beta'_p (z_{t-1} r_{m,t}) + \varepsilon_{p,t} \quad [2]$$

where α_p represents the conditional performance measure. If a fund manager uses only publicly available information, contained in Z_{t-1} , the conditional alpha will be equal to zero, indicating neutral performance. This regression may also be interpreted as a multi-factor model, in which the market excess return is the first factor and the products of the market excess return with each of the lagged information variables are the additional factors.

Christopherson et al. (1998) extend the model of Ferson and Schadt (1996) by allowing alpha to be time-varying. This reflects the possibility that fund's performance can change with

economic conditions. In this full conditional model, as alpha is also a linear function of the vector Z_{t-1} , equation [2] can be extended to:

$$r_{p,t} = \alpha_{0p} + A'_p z_{t-1} + \beta_{0p} r_{m,t} + \beta'_p (z_{t-1} r_{m,t}) + \varepsilon_{p,t} \quad [3]$$

where α_{0p} is an average alpha and the vector A'_p measures the response of the conditional alpha to the information variables.

Data

Our sample includes a total of 88 socially responsible funds for seven European countries: Austria, Belgium, France, Germany, Italy, the Netherlands and UK.⁷ European funds classified as socially responsible are obtained from the SRI Funds Service, a European database featuring all existing socially responsible retail funds in Europe, managed by Avanzi SRI Research. Considering that a large number of these funds invest globally or in the European market, six different classifications of socially responsible funds are selected: (1) Global Equity Large Cap Blend, (2) Global Equity Small/Mid Cap, (3) Europe Equity Large Cap Blend, (4) Eurozone Equity Large Cap, (5) Euro Cautious Balanced and (6) Euro Moderate Balanced.⁸ We merge these classifications into three broader categories: Global Equity, Europe/Eurozone and Euro Balanced, which encompass classifications (1)+(2), (3)+(4), and (5)+(6), respectively. The information on the returns of these funds is obtained from Datastream. We collect monthly data in local currencies (UK Pounds and Euros, for the EMU countries) for the period from August 1996 through February 2007. To be included in the sample, funds are required to have at least 24 monthly observations.⁹ Monthly

continuously compounded returns include income distributions and are net of management expenses but gross of load fees. Excess returns are relative to the risk-free rate, proxied by the corresponding one-month Euro-Deposit rates. Summary statistics on the funds that compose our sample are presented in Table I.

[Insert Table I here]

Both positive and negative mean excess returns are observed for our categories of funds. Global Equity funds in Austria and Belgium exhibit the lowest mean excess returns, while Global Equity funds in the Netherlands present the highest positive mean excess returns. As with most fund return data sets, returns are not normally distributed, according to the Jarque-Bera test.

Both conventional and SRI indices are used as benchmarks. MSCI AC World and MSCI AC Europe indices are used as benchmarks for the Global Equity funds' categories and for the Europe/Eurozone funds' categories, respectively. The MSCI European Capital Markets Index¹⁰ is used as the benchmark for balanced funds. Alternatively, two socially responsible indices are also used: FTSE4Good Global is considered as the benchmark for global funds while FTSE4Good Europe is the benchmark for the European/Eurozone and Euro balanced funds. Data on these benchmarks are also obtained from Datastream. Monthly continuous compounded returns, in excess of the risk-free rate, are computed as described above. Table II presents summary statistics relative to the benchmarks used.

[Insert Table II here]

All benchmarks present positive mean excess returns. These returns are higher in the case of the socially responsible indices. Similarly to the fund excess returns, the hypothesis of normality is rejected. This is observed for all benchmarks.

For the conditional models, we consider a set of lagged information variables that previous studies have shown to be useful in predicting stock and bond returns (Keim and Stambaugh, 1986; Fama and French, 1989). In this particular study, we use global information variables instead of the most common local ones. This choice is motivated not only by the increasing degree of integration of financial markets but also by the fact that we are analysing funds that invest globally rather than locally. Accordingly, the US market is considered as the reference market. We consider five variables: a term spread, a short-term rate, a default spread, the dividend yield and a dummy for the month of January. These are the standard information variables used in much of the empirical studies to date. While the first four variables are considered as measures of the state of the economy, the January dummy intends to capture seasonality in returns and risk.¹¹ The yield on a constant-maturity 3-month US Treasury bill is used as the short-term rate. The term spread is calculated as the difference between a constant-maturity 10-year US Treasury bond yield and a constant-maturity 3-month US Treasury bill yield. The default spread is measured by the difference between the Moody's US BAA-rated corporate bond yield and the Moody's AAA-rated US corporate bond yield. This data is also collected from Datastream. The dividend yield is based on the FTSE AW Index. As these variables tend to be highly persistent, a potential problem that might arise is the bias resulting from spurious regressions. To avoid this problem, we detrended these series by subtracting a 12-month moving average, a procedure suggested by Ferson, Sarkissian and

Simin (2003). These variables are used in their corresponding mean zero values (Bernhardt and Jung, 1979) in order to minimize possible scale effects on the results.

Empirical Results

The performance of our sample of socially responsible funds was analysed both at the individual fund level and at the aggregate level, using an equally weighted portfolio of funds for each country and fund category.

Table III shows, for each country, estimates of unconditional performance measures for the portfolios of funds computed relatively to conventional and socially responsible indices and Table IV summarises the performance results with respect to individual funds.

[Insert Table III here]

[Insert Table IV here]

As can be observed in Table III (panel A), the results for the portfolios of funds show that, in general, socially responsible funds are not able to outperform either unscreened or screened indices, presenting neutral performance in most cases. Evidence of statistically negative performance is observed only for Equity Global funds in the case of Belgium (for both indices) and Austria (relative to the conventional index) and for French Europe/Eurozone Equity funds (relative to both indices). At the individual fund level, only one fund outperforms the benchmarks, while 32% and 9% of the funds have statistically negative alphas with respect

to the conventional and socially responsible indices, respectively. Table III also shows that there seems to be a tendency for alphas to be slightly higher when comparing these funds to the screened benchmarks. This shift towards the region of superior performance is supported by the analysis of Table IV. Indeed, when socially responsible indices are used, the number of funds that present statistically negative alphas decreases in all countries and fund categories.¹²

It is interesting to note that the socially responsible funds in our sample are more sensitive to conventional indices than to socially responsible indices, as betas are lower when computed against the latter. Moreover, for almost all cases, the explanatory power of the model is higher in the context of conventional benchmarks, suggesting that these are more useful than socially responsible benchmarks in explaining the performance of socially responsible funds. These findings are consistent with those of Bauer et al. (2005) and Bauer et al. (2006) and seem rather puzzling. Theoretically, one would expect that indices that are restricted according to social criteria would have a higher ability to explain the returns of funds that are also constructed on the basis of a restricted universe of stocks.

Panel B of Table III shows the results of regressing socially responsible indices against conventional indices. The positive alpha from this regression indicates that socially responsible indices tend to perform better than conventional broad market indices. The high adjusted R^2 obtained reflects a very strong correlation between the excess returns of both indices. Additionally, the fact that beta is statistically different from 1 allows us to conclude that these two indices are distinctive benchmarks.

Estimates of partial conditional performance measures (considering only time variation of betas) for the portfolios of funds, in each country, are presented in Table V. The results of the regressions at the individual fund level are summarised in Table VI.

[Insert Table V here]

[Insert Table VI here]

In general, Table V shows that the estimates of alpha within the context of the conditional models remain neutral or negative. However, there is a slight tendency for higher alphas compared to the unconditional models, particularly when performance is measured against the socially responsible benchmark. In this case, the evidence of statistically negative performance found previously in relation to two fund categories disappears. In terms of individual funds (Table VI), estimates of higher alphas are also observable for both benchmarks, although this effect is stronger when SRI benchmarks are used. The explanatory power of the conditional models also increases in relation to the unconditional models. These type of results are consistent with those of most empirical studies using conditional performance measures, not only in assessing conventional funds (e.g.: Ferson and Schadt, 1996) but also socially responsible funds (Bauer et al., 2005; Bauer et al., 2006). Although not reported, for around 45% of the funds (for both types of benchmarks), the Wald test results (at 5% level) rejected the hypothesis of the conditional betas being equal to zero, which indicates that betas are time-varying.

Similar to what was previously found in the context of unconditional models, the estimates of alphas are higher when the socially responsible indices are used as benchmarks. Also, we verify once more that socially responsible funds have a lower exposure to socially responsible indices.

The results of the full conditional version (considering both time-varying alphas and betas) are shown in Tables VII and VIII.

[Insert Table VII here]

[Insert Table VIII here]

In general, when time-varying alphas are allowed, the pattern of results is similar. Again, there is a slight tendency for higher alphas, which is more evident at the individual fund level. When a full conditional model is used, the number of funds with positive alphas increases and the number of negative alphas decreases, compared to the partial conditional model estimates.¹³ However, if we only take into account the statistically significant alphas and the SRI benchmark, the number of funds with positive alphas decreases and the number of funds with negative alphas increases. In general the results also show that the full conditional model has a higher explanatory power than the unconditional model. As before, alphas continue to be higher when socially responsible indices are used as benchmarks. However, both the explanatory power of the model, and the results of the Wald tests performed are not supportive of time-varying alphas. There is only evidence of time varying performance for 9 and 4 funds, considering conventional and SRI benchmarks respectively.

Conclusions

The question of whether the performance of funds is affected by the consideration of social screens is a pertinent issue in the recent performance evaluation literature. In general, empirical studies have not found statistically significant differences in the performance of socially screened mutual funds as compared to their conventional counterparts. However, most of these studies have addressed the US market, which is, by far, the most developed market for socially responsible investments. With the exception of the UK, the European socially responsible mutual fund market is less explored. This paper investigates the performance of a sample of 88 European socially responsible funds, from 7 countries, investing globally or in European markets. Traditional and conditional performance measures are employed to assess the performance of these funds in comparison to conventional and socially responsible benchmark portfolios. As far as we are aware of, this is the first study to analyse the time variation in the performance estimates of socially responsible mutual funds. This is particularly relevant as this methodology is statistically sounder than the traditional and partial conditional methods.

The results show that European socially responsible funds present, in general, a performance which is comparable to the performance of conventional or socially responsible benchmarks. In addition, performance estimates seem to be slightly higher when funds are evaluated against socially responsible indices.

Furthermore, socially responsible funds are more exposed to conventional indices than to socially responsible indices. Besides, the former are better capable to explain fund returns than the latter. These results are consistent with previous studies (Bauer et al., 2005 and Bauer et al., 2006), and might question whether socially responsible funds are in fact different from conventional funds in terms of the securities selected.

Our findings are robust to both unconditional and conditional models of performance. Conditional models led to a slight improvement of performance estimates and of the explanatory power of the models, both when conventional and socially responsible benchmarks are considered. This is consistent with most of previous empirical findings on conditional performance evaluation. However, the full specification of the conditional model is not supportive of time varying alphas. Considering that the restrictions imposed upon funds that invest according to social criteria somewhat limit their potential for pursuing timing strategies, this finding is not surprising.

In conclusion, this study on the performance of European socially responsible funds supports the view that the performance of these funds is comparable to the performance of conventional portfolios. These findings are consistent with previous studies (addressing other markets and other types of socially responsible funds) and have important implications for investors. Indeed, investors can choose European mutual funds that screen on social criteria without sacrificing financial performance. Our results also show that investors could benefit from buying an Exchange Traded socially responsible index fund, since the socially responsible index that we used shows a neutral performance (with a positive but not statistically significant alpha) in relation to the conventional benchmark.

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Notes

¹ However, the results from this type of studies should be interpreted with caution as they suffer from several methodological limitations. In particular, the proxies used to measure corporate social responsibility have been subject to various criticisms (McGuire et al., 1988; Griffin and Mahon, 1997; Waddock and Graves, 1997).

² It is interesting to note that studies on the second and third area of research have been mainly covered in the financial literature, whereas studies on the first group, focusing on the link of social and financial firm performance, are essentially addressed in the broader management literature.

³ The performance of conventional mutual funds has been extensively studied since the sixties. In general, empirical findings (e.g.: Jensen, 1968; Elton et al., 1996) suggest that managers engaged in active fund management strategies are not able to outperform general market indices.

⁴ In the UK, Australia and Canada, socially responsible funds are designated as “ethical funds”, whereas in the US and the rest of Europe those funds are usually known as “socially responsible funds”. The discussion on which is the most appropriate name for these funds is beyond the scope of this paper. We use the term ethical funds when referring to studies on those three countries. Otherwise we use the more general designation: socially responsible funds.

⁵ Empirical studies have shown that small firms exhibit higher risk-adjusted returns than large firms. The question whether these findings are evidence of superior performance or of misspecification of the model used is still a debatable issue.

⁶ The debate on the appropriate benchmark is also a pertinent issue in the broad literature on mutual fund performance. The problems raised by inefficient benchmarks (Roll, 1977, 1978) as well as the growing body of literature that recognises that other factors, besides the market, affect portfolio returns (Fama and French, 1993; Elton et al., 1996; Carhart, 1997) has motivated researchers to use multi-factor models in performance evaluation studies. Recent evidence indicates there is a general agreement that multifactor models are a more useful characterization of portfolio returns than single-index models.

⁷ These markets represent around 81% of the total European socially responsible mutual fund industry.

⁸ The classification system used by Avanzi is based on Morningstar Europe classification scheme, which reflects different investment styles typically used by fund managers. In terms of size these styles range from large capitalization to small capitalization stocks, and in terms of book-to-market (BM) ratio from high BM (value) to low BM (growth) stocks.

⁹ Our data set is not free of survivorship bias, as we have not identified funds that have disappeared throughout the sample period. The magnitude and impact of survivorship bias in socially responsible fund depends, to some extent, on the disposition of socially responsible investors to move away from poor performing funds, an issue that has not been much explored in previous studies.

¹⁰ This MSCI European Capital Markets index is a broad index which combines the components of an equity index (with a weight of 57.5%) and a bond index (with a weight of 42.5%), and is, therefore, a suitable benchmark for the category of balanced funds.

¹¹ The January or turn-of-the-year effect is defined in the financial literature, as positive risk adjusted premium for holding a security in the month of January. Previous evidence seems to suggest that this January seasonality can be explained by the corresponding seasonality in the risk factors.

¹² The values of the adjusted R^2 are high for all fund categories, with the exception of the Euro Balanced category. These results are similar for all models considered throughout this paper and can be explained by the type of benchmark used, which probably does not appropriately match the type of assets held by these funds. Unfortunately we could not find other benchmarks for European balanced funds. In fact, there are no such indices for this type of socially responsible investments. An alternative approach would be to consider a multifactor model with different benchmarks.

¹³ This is observable for both benchmarks, and even when we compare the full conditional model with the unconditional model.

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Table I – Summary statistics on SRI funds

Summary statistics based on equally weighted portfolios of SRI funds are presented for each category in each country. Mean excess returns in percentage (considering monthly continuously compounded returns), standard deviation, skewness, kurtosis and the probability of the Jarque-Bera test are reported for the period August 1996 to February 2007.

Country	Mean Excess Return (%)	Standard Deviation	Jarque-Bera (p-value)	Skewness	Kurtosis	Number of funds
UK						7
Global Equity	-0.057	0.045	20.296 (0.000)	-0.860	3.935	7
Austria						7
Global Equity	-0.534	0.049	6.103 (0.024)	-0.696	3.116	4
Europe/Eurozone Equity	-0.179	0.039	13.845 (0.000)	-1.045	3.723	1
Euro Balanced	0.202	0.017	15.780 (0.000)	0.296	4.622	2
Belgium						8
Global Equity	-0.569	0.042	8.466 (0.007)	-0.801	3.376	3
Europe/Eurozone Equity	-0.269	0.046	14.999 (0.000)	-0.905	4.030	3
Euro Balanced	0.163	0.016	27.945 (0.000)	-0.930	4.350	2
France						38
Global Equity	-0.122	0.038	6.069 (0.024)	-0.701	3.177	1
Europe/Eurozone Equity	0.373	0.051	19.230 (0.000)	-0.787	4.076	29
Euro Balanced	0.154	0.019	10.600 (0.002)	-0.688	3.334	8
Germany						7
Global Equity	0.258	0.054	66.935 (0.000)	0.189	6.536	3
Euro Balanced	-0.124	0.016	6.360 (0.021)	-0.650	3.412	4
Italy						13
Global Equity	0.030	0.046	2.058 (0.179)	-0.280	3.336	4
Euro Balanced	0.144	0.081	28.796 (0.000)	0.872	4.550	9
Netherlands						8
Global Equity	0.450	0.050	10.803 (0.002)	-0.702	3.263	6
Euro Balanced	0.121	0.020	3.572 (0.084)	0.072	3.809	2
All sample						88

Table II – Summary Statistics on the benchmarks

Summary statistics on the conventional and socially responsible market indices for the period August 1996 to February 2007 are reported. The reported statistics are mean excess returns in percentage (considering monthly continuously compounded returns), standard deviation, skewness, kurtosis and the probability of the Jarque-Bera test.

Country/Region	Mean Excess Return (%)	Standard Deviation	Jarque-Bera (p-value)	Skewness	Kurtosis
UK					
MSCI AC World	0.081	0.047	28.423 (0.000)	-0.942	4.350
FTSE4Good Global	0.213	0.050	22.713 (0.000)	-0.836	4.223
Eurozone					
MSCI AC World	0.396	0.049	15.100 (0.000)	-0.804	3.519
MSCI AC Europe	0.632	0.048	21.765 (0.000)	-0.886	3.986
MSCI EUR Capital Markets	0.401	0.023	11.379 (0.002)	-0.484	4.101
FTSE4Good Global	0.528	0.053	10.475 (0.003)	-0.676	3.389
FTSE4Good Europe	0.668	0.051	20.584 (0.000)	-0.833	4.054

Table III – Estimates of unconditional socially responsible fund performance

Panel A of this table presents regression estimates for equally weighted portfolios of funds computed for each category in each country using unconditional models. Alphas (α) expressed in percentage, systematic risk (β) and the adjusted coefficient of determination (R^2) are reported. Regression residuals are tested using the Jarque-Bera test for normality, the White (1980) test for heteroscedasticity if the residuals are not normal, the Breusch and Pagan (1979) for heteroscedasticity if the residuals are normal and the Durbin-Watson test for autocorrelation. Standard errors are corrected, whenever appropriate, for the presence of heteroscedasticity using the correction of Cribari-Neto (2004) which performs better in smaller samples than White (1980), or for the presence of autocorrelation and heteroscedasticity using the procedure suggested by Newey and West (1994). Panel B reports the same type of estimates obtained by regressing SRI indices on conventional indices.

PANEL A							
Country	Number of funds	Conventional Indices			SRI Indices		
		α	β	R^2	α	β	R^2
UK	7						
Global Equity	7	-0.125	0.830 ***	74.5%	-0.219	0.761 ***	71.5%
Austria	7						
Global Equity	4	-0.239 **	1.040 ***	90.5%	-0.132	0.971 ***	87.6%
Europe/Eurozone Equity	1	-0.288	0.732 ***	72.6%	-0.185	0.687 ***	69.7%
Euro Balanced	2	-0.025	0.566 ***	58.5%	0.038	0.247 ***	52.7%
Belgium	8						
Global Equity	3	-0.307 **	0.925 ***	94.3%	-0.206 **	0.877 ***	94.3%
Europe/Eurozone Equity	3	-0.140	0.947 ***	87.0%	-0.048	0.900 ***	85.0%
Euro Balanced	2	-0.078	0.602 ***	73.3%	-0.024	0.280 ***	75.3%
France	38						
Global Equity	1	0.055	0.717 ***	69.0%	0.127	0.660 ***	64.8%
Europe/Eurozone Equity	29	-0.273 **	1.021 ***	92.5%	-0.262 **	0.951 ***	88.5%
Euro Balanced	8	-0.118	0.679 ***	67.1%	-0.065	0.328 ***	74.8%
Germany	7						
Global Equity	3	-0.034	0.737 ***	44.3%	-0.093	0.665 ***	42.1%
Euro Balanced	4	-0.113	0.794 ***	76.3%	-0.048	0.296 ***	71.5%
Italy	13						
Global Equity	4	-0.103	0.871 ***	88.2%	-0.137	0.811 ***	87.9%
Euro Balanced	9	0.036	0.268 ***	58.6%	0.067	0.115 ***	51.4%
Netherlands	8						
Global Equity	6	0.075	0.944 ***	87.1%	-0.010	0.871 ***	86.4%
Euro Balanced	2	-0.131	0.629 ***	53.1%	-0.076	0.295 ***	55.7%
PANEL B							
	α	β		R^2			
FTSE4Good Europe	0.013	1.036 ***		97.4%			
FTSE4Good Global	0.106	1.065 ***		97.2%			

*** Statistically significant at the 1% level

** Statistically significant at the 5% level

* Statistically significant at the 10% level

Table IV – Summary of individual fund performance using unconditional models

The number of individual funds presenting positive and negative alphas is reported. Those which are statistically significant (at the 5% percent level) are reported in brackets.

Country/Region	Conventional Indices alphas	SRI Indices alphas
UK		
Global Equity		
N+	2 [0]	3 [0]
N-	5 [0]	4 [0]
Eurozone		
Global Equity		
N+	4 [0]	6 [0]
N-	17 [6]	15[3]
Europe/Eurozone Equity		
N+	1 [0]	5 [0]
N-	32 [14]	28[5]
Euro Balanced		
N+	4 [1]	8 [1]
N-	23 [8]	19 [0]
All sample		
N+	11 [1]	22 [1]
N-	77 [28]	66 [8]

Table V- Estimates of conditional socially responsible fund performance (time varying betas)

This table presents regression estimates for equally weighted portfolios of funds computed for each category in each country using conditional models (equation 2). Alphas (α) expressed in percentage, conditional beta coefficients and the adjusted coefficient of determination (R^2) are reported. Conditional beta estimates β_0 , β_1 , β_2 , β_3 , β_4 and β_5 are the coefficients of the market index and the cross products of the market index and the respective predetermined information variables: the term spread, a short term rate, a default spread, a dividend yield and a January dummy. These variables are stochastically detrended (by subtracting a 12-month moving average) and mean zero variables. Regression residuals are tested using the Jarque-Bera test for normality, the White (1980) test for heteroscedasticity if the residuals are not normal, the Breusch and Pagan (1979) for heteroscedasticity if the residuals are normal and the Durbin-Watson test for autocorrelation. Standard errors are corrected, whenever appropriate, for the presence of heteroscedasticity using the correction of Cribari-Neto (2004) which performs better in smaller samples than White (1980), or for the presence of autocorrelation and heteroscedasticity using the procedure suggested by Newey and West (1994).

Country	Number of funds	Conditional_Conventional Indices							
		α	β_0	β_1	β_2	β_3	β_4	β_5	R^2
UK	7								
Global Equity	7	-0.136	0.812 ***	0.097	0.083	0.399 *	0.657 **	-0.020	75.7%
Austria	7								
Global Equity	4	-0.225 *	1.069 ***	-0.051	-0.075	0.240 **	-0.373	-0.091	90.3%
Europe/Eurozone Equity	1	-0.364	0.893 ***	0.325	0.353	0.650 ***	-0.517	0.056	82.1%
Euro Balanced	2	-0.051	0.597 ***	0.208	0.227	0.282	0.047	-0.016	59.3%
Belgium	8								
Global Equity	3	-0.261 **	0.884 ***	0.066	0.050	-0.003	0.387	-0.137	94.3%
Europe/Eurozone Equity	3	-0.009	0.903 ***	0.338 ***	0.142	-0.280	0.349	0.273 ***	88.8%
Euro Balanced	2	-0.031	0.579 ***	-0.016	-0.115	-0.097	0.695 ***	0.148	77.9%
France	38								
Global Equity	1	-0.039	0.793 ***	0.507 **	0.757 ***	-0.388	1.014 *	0.228	74.8%
Europe/Eurozone Equity	29	-0.194	1.017 ***	0.179 **	0.140 *	0.064	0.657 ***	-0.098	93.4%
Euro Balanced	8	-0.124	0.687 ***	0.009	-0.118	0.164	1.233 ***	0.285 *	72.2%
Germany	7								
Global Equity	3	0.124	0.703 ***	0.167	-0.004	0.099	1.201 ***	-0.114	47.0%
Euro Balanced	4	-0.139	0.927 ***	0.087	0.153	-0.159	-0.462	-0.081	76.8%
Italy	13								
Global Equity	4	-0.080	0.865 ***	-0.090	-0.103	0.066	-0.045	-0.212	88.0%
Euro Balanced	9	0.011	0.270 ***	-0.039	0.010	0.127	-0.209 **	0.082	59.7%
Netherlands	8								
Global Equity	6	0.134	0.939 ***	0.182 **	0.137	-0.184	0.731 ***	0.042	87.8%
Euro Balanced	2	-0.095 *	0.610 ***	0.137	-0.043	0.447 **	0.647 ***	0.358 **	58.5%

*** Statistically significant at the 1% level

** Statistically significant at the 5% level

* Statistically significant at the 10% level

**Table V- Estimates of conditional socially responsible fund performance (time varying betas)
(continued)**

Conditional_SRI Indices							
α	β_0	β_1	β_2	β_3	β_4	β_5	R ²
-0.205	0.747 ***	0.084	0.046	0.303	0.461	-0.099	71.9%
-0.092	1.043 ***	0.100	0.072	0.139	-0.411	-0.039	87.8%
-0.207	0.874 ***	0.487 **	0.524 **	0.570 ***	-0.285	0.097	81.7%
-0.011	0.279 ***	0.104 *	0.089	0.137	-0.207	-0.023	56.1%
-0.161	0.879 ***	0.182 *	0.171 *	-0.080	0.302	-0.102	94.3%
0.116	0.887 ***	0.426 ***	0.212	-0.297	0.317	0.247 ***	87.5%
0.042	0.263 ***	0.053	-0.034	-0.105	0.066	0.062	76.9%
0.061	0.785 ***	0.563 ***	0.809 ***	-0.465 **	0.895 *	0.227	72.2%
-0.175	0.948 ***	0.186	0.129	0.021	0.587 *	-0.117	89.2%
-0.029	0.324 ***	0.097 *	0.065	0.045	0.222	0.062	75.3%
0.089	0.630 ***	0.176	-0.017	0.055	1.037 **	-0.139	44.7%
-0.055	0.352 ***	0.018	0.009	-0.031	-0.312	-0.038	72.2%
-0.105	0.812 ***	-0.068	-0.103	-0.010	-0.183	-0.268	87.9%
0.021	0.131 ***	-0.007	0.010	0.022	-0.224 ***	0.011	57.3%
0.075	0.868 ***	0.156 *	0.074	-0.227 *	0.477 **	-0.069	87.1%
-0.030	0.295 ***	0.160 ***	0.062	0.079	0.080	0.108	57.7%

*** Statistically significant at the 1% level

** Statistically significant at the 5% level

* Statistically significant at the 10% level

Table VI - Summary of individual fund performance using conditional models (time varying betas)

The number of individual funds presenting positive and negative alphas is reported. Those which are statistically significant (at the 5% percent level) are reported in brackets.

Country/Region	Conventional Indices alphas	SRI Indices alphas
UK		
Global Equity		
N+	3 [0]	3 [1]
N-	4 [0]	4 [0]
Eurozone		
Global Equity		
N+	5 [0]	5 [0]
N-	16 [3]	16[2]
Europe/Eurozone Equity		
N+	2 [0]	7 [1]
N-	31 [14]	26[2]
Euro Balanced		
N+	4 [1]	8 [2]
N-	23 [8]	19 [0]
All sample		
N+	14 [1]	23 [4]
N-	74 [25]	65 [4]

Table VII - Estimates of conditional socially responsible fund performance (time varying alphas and betas)

This table presents regression estimates for equally weighted portfolios of funds computed for each category in each country using conditional models (equation 3). Alphas (α) expressed in percentage, conditional alpha coefficients and the adjusted coefficient of determination (R^2) are reported. Conditional alphas estimates $\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4$ and α_5 are the average alpha and coefficients of the respective predetermined information variables: the term spread, a short term rate, a default spread, a dividend yield and a January dummy. These variables are stochastically detrended (by subtracting a 12-month moving average) and mean zero variables. Regression residuals are tested using the Jarque-Bera test for normality, the White (1980) test for heteroscedasticity if the residuals are not normal, the Breusch and Pagan (1979) for heteroscedasticity if the residuals are normal and the Durbin-Watson test for autocorrelation. Standard errors are corrected, whenever appropriate, for the presence of heteroscedasticity using the correction of Cribari-Neto (2004) which performs better in smaller samples than White (1980), or for the presence of autocorrelation and heteroscedasticity using the procedure suggested by Newey and West (1994).

Country	Number of funds	Conditional Conventional Indices						
		α_0	α_1	α_2	α_3	α_4	α_5	R^2
UK	7							
Global Equity	7	-0.219	0.001	0.003	-0.006	-0.032 **	0.009	76.7%
Austria	7							
Global Equity	4	-0.162	-0.001	0.001	0.006	0.005	-0.010 *	90.0%
Europe/Eurozone Equity	1	-0.287	-0.006	-0.002	0.001	-0.010	0.001	81.3%
Euro Balanced	2	-0.097	-0.001	-0.001	0.002	-0.010	0.006 *	59.3%
Belgium	8							
Global Equity	3	-0.186	0.004	0.003	0.003	0.011	-0.017	95.3%
Europe/Eurozone Equity	3	-0.009	0.000	0.001	0.013 *	0.003	-0.001	88.4%
Euro Balanced	2	-0.011	-0.001	0.000	0.005	-0.008	-0.002	78.1%
France	38							
Global Equity	1	0.325	-0.011	-0.013	0.020 *	-0.055 **	-0.005	76.8%
Europe/Eurozone Equity	29	-0.238 *	0.001	0.002	0.006	-0.001	0.006	93.3%
Euro Balanced	8	-0.130	0.000	0.000	0.004	-0.008	0.001	71.7%
Germany	7							
Global Equity	3	0.022	0.002	0.013 **	-0.015	-0.027	0.018	49.7%
Euro Balanced	4	-0.125	0.000	0.000	0.000	0.003	-0.004	75.8%
Italy	13							
Global Equity	4	-0.028	-0.002	-0.004	0.001	-0.031 **	-0.005	88.3%
Euro Balanced	9	0.014	-0.001	-0.001	-0.001	-0.007 *	0.000	59.4%
Netherlands	8							
Global Equity	6	0.207	-0.004	-0.003	0.009	-0.034 ***	-0.009	88.5%
Euro Balanced	2	-0.097	0.002	0.001	0.003	0.003	0.000	56.9%

*** Statistically significant at the 1% level

** Statistically significant at the 5% level

* Statistically significant at the 10% level

**Table VII - Estimates of conditional socially responsible fund performance (time varying alphas and betas)
(continued)**

Conditional_SRI Indices						
α_0	α_1	α_2	α_3	α_4	α_5	R ²
-0.286	0.001	0.003	-0.006	-0.032 *	0.009	72.7%
0.022	-0.003	-0.001	0.005	-0.004	-0.009 *	87.3%
-0.117	-0.006	-0.003	0.001	-0.014	0.001	80.6%
-0.081	0.002	0.002	0.000	0.002	0.008 **	56.4%
-0.032	0.003	0.002	0.001	0.002	-0.016	95.2%
0.078	0.002	0.001	0.012 *	0.004	0.004	87.2%
0.015	-0.001	0.001	0.003	0.005	0.003	76.9%
0.437	-0.012	-0.014	0.018 *	-0.061 ***	-0.004	74.4%
-0.281 *	0.003	0.004	0.003	0.005	0.013 *	89.3%
-0.097	0.000	0.001	0.002	0.006	0.008 **	75.9%
-0.024	0.002	0.013	-0.016	-0.029	0.018	47.7%
-0.169	0.005	0.005	-0.004	0.023 **	0.002	72.8%
-0.061	0.000	-0.002	0.001	-0.026 **	-0.004	88.1%
0.003	-0.001	-0.001	-0.002	-0.002	0.002	56.8%
0.135	-0.004	-0.003	0.009	-0.034 ***	-0.007	87.7%
-0.093	0.000	0.000	0.001	0.012	0.007 **	57.7%

*** Statistically significant at the 1% level

** Statistically significant at the 5% level

* Statistically significant at the 10% level

Table VIII - Summary of individual fund performance using conditional models
(time varying alphas and betas)

The number of individual funds presenting positive and negative alphas is reported. Those which are statistically significant (at the 5% percent level) are reported in brackets.

Country/Region	Conditional_Conventional Indices alphas	Conditional_SRI Indices alphas
UK		
Global Equity		
N+	3 [0]	2[0]
N-	4 [0]	5[0]
Eurozone		
Global Equity		
N+	6 [1]	10 [1]
N-	15 [2]	11 [1]
Europe/Eurozone Equity		
N+	5 [0]	11 [0]
N-	28[12]	22 [3]
Euro Balanced		
N+	3 [1]	8 [1]
N-	24 [6]	19 [2]
All sample		
N+	17 [2]	31 [2]
N-	71 [20]	57 [6]